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GAME & METAVERSE PATENT REPORT

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INTRODUCTION

In the rapidly changing world of digital innovation, two areas stand out as leaders in shaping the future of entertainment and virtual experiences: Game and Metaverse. This report delves into the world of patents and innovations that drive these dynamic sectors. As we embark on this journey, our goal is to give you a comprehensive overview of the latest technological advancements, intellectual property considerations, and market trends fuelling the evolution of Game & Metaverse.

Entertech Istanbul Technopolis, an innovation hub operating under Istanbul University and Istanbul University-Cerrahpasa in Türkiye since 2009, has been a driving force in fostering groundbreaking research and development. With a focus on gaming, financial technologies, digital art, and other R&D projects, Entertech has sparked innovation in these fields. Initiatives like the Gamenter International Accelerator, Gamenter Pre-Incubation, Gamenter Incubation Center, and the Türkiye (National) Gaming Cluster demonstrate our commitment to supporting innovation in the gaming sector. These programs empower gaming entrepreneurs and startups, offering resources, networking opportunities, and industry insights.

This report offers a glimpse into the patent landscape, giving you insights into the latest developments in Game & Metaverse through patent documents. It's the result of an extensive patent search focused on the connection between Gaming and the Metaverse. Through this investigation, we've gathered data on which countries are filing the most patents in this field and which companies are leading the way in patenting innovations related to Game & Metaverse.

As we move forward, let's remember that Gaming and the Metaverse aren't just about technology and the law; they're about human imagination and the endless possibilities when creativity meets innovation. Welcome to our journey through the patent landscapes of Game & Metaverse.

GAME & METAVERSE PATENT REPORT

REPORT SEARCH METHOD

For this Game & Metaverse patent search report, we utilized two primary patent search tools: Espacenet and Patentscope. These platforms are well-regarded sources for patent information. Espacenet is the patent search tool provided by the European Patent Organization (EPO). Patentscope is the patent search tool offered by the World Intellectual Property Organization (WIPO). Our patent search was conducted using two main criteria: the International Patent Classification (IPC) and specific keywords related to the subject matter

IPC (International Patent Classification): The IPC system is a precise, effective, and easy-to-use tool for classifying and searching patents, utility models, and similar technical documents. It divides technology fields into eight sections (A-H) with approximately 75,000 subdivisions, each represented by a language independent symbol consisting of Latin alphabet characters and Arabic numerals. The IPC consists of several hierarchical levels.

We focused on the following IPC classes:
G06 (Computing; Calculating or Counting)
A63 (Sports; Games; Amusements)
These two classes were combined using an "AND" operator in our search.

Note: The IPC includes specific patent classes that are particularly relevant to the fields of Games and Video Games. Notably, within the IPC, A63: Sports; Games; Amusements is a significant class encompassing a wide array of inventions related to sports, games, and recreational activities. Moreover, a more specialized category exists within this class: A63F 13/00 Video games, i.e., games using an electronically generated display having two or more dimensions. This subclass specifically addresses patents related to video games, where electronically generated displays with multiple dimensions play role. **It is remarkable that these classes are situated under the broader IPC category of "Human Necessities," (Class A) emphasizing the fundamental role of entertainment and amusement in human life and culture.**

Keywords: We used a variety of keywords to refine our search and capture relevant patents. These keywords included terms such as "game," "gaming", "arcade," "gamification," "interactive entertainment," "e-sport," "metaverse," "virtual reality," "VR," "augmented reality," "AR," "mixed reality," "virtual world," "virtual communities," "virtual environment," "digital landscape," and "virtual economy." Our search involved different combinations of these keywords (and more) to ensure comprehensive coverage of the subject matter.

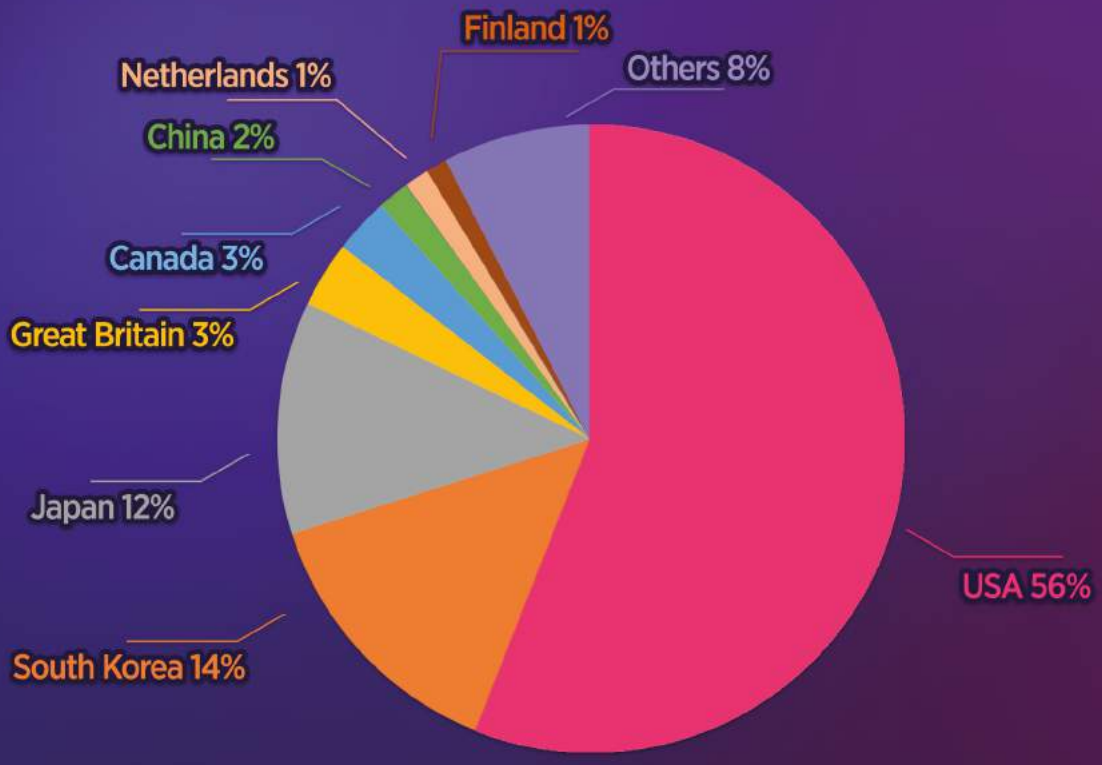
Search Results: Our search efforts yielded a total of 1.444 results. We conducted a thorough analysis of these results to extract insights for this report.

GAME & METAVERSE PATENT REPORT

RESULTS

In our exploration of the patent landscape of Game & Metaverse, we've uncovered a wealth of insights. The following table presents a breakdown of the number of patent documents filed by applicant countries, offering a clear perspective on the geographic origins of innovation in these dynamic fields.

Applicants - country	Number of documents
USA	1139
South Korea	288
Japan	244
Great Britain	69
Canada	58
China	33
Netherlands	26
Finland	23
Others (29 Country)	155



The majority of patent documents (56%) in the Game & Metaverse sectors originate from the United States (USA), emphasizing its central role in innovation. South Korea and Japan follow closely, collectively contributing 26% of the documents, highlighting the strong presence of Asian innovation in these fields. Other countries, including Great Britain, Canada, and China, contribute the remaining 18%. This distribution highlights the global nature of innovation in these fields (Game & Metaverse), with diverse contributions from around the world.

GAME & METAVERSE PATENT REPORT

The table showcasing the top 20 applicants for patents related to Game & Metaverse provides a revealing glimpse into the key players in these innovative fields. Notably, the list includes a mix of global tech giants and industry-specific leaders, each making significant contributions to the landscape.

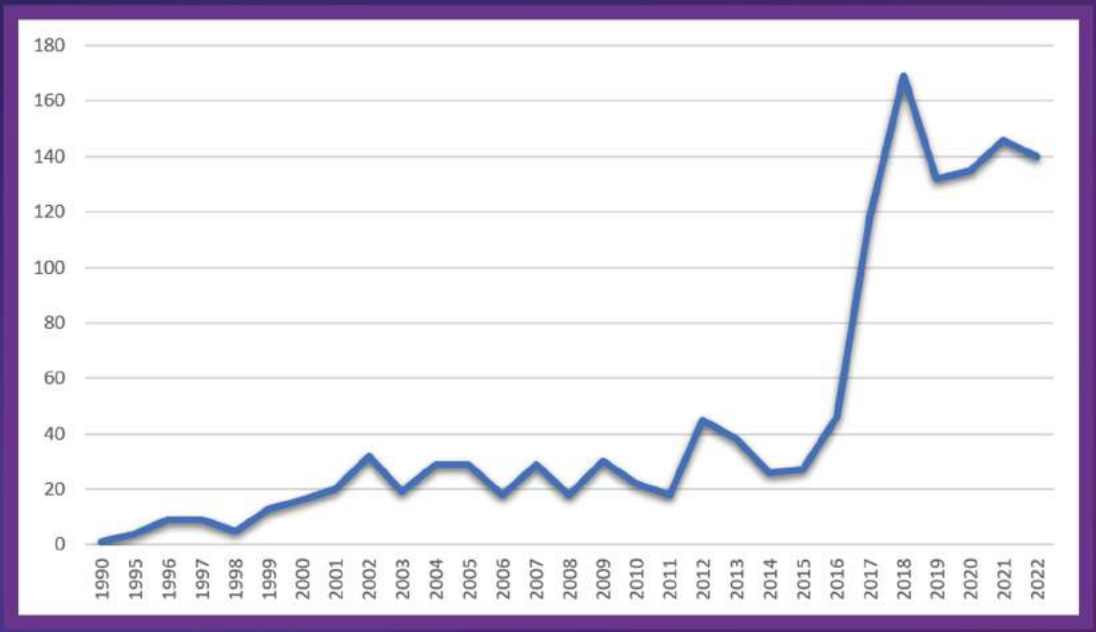
Top 20 Applicants	Number of documents
SONY	135
BANDAI NAMCO	44
MICROSOFT	37
NINTENDO	33
NETEASE HANGZHOU NETWORK	27
DISNEY	23
SEGA	23
PHILIPS	22
KONAMI	21
LEVIATHAN ENTERTAINMENT	15
COLOPL INC	14
ELECTRONIC ARTS INC	14
TENCENT	13
COPCOM	12
GREE INC	11
IBM	10
IGT RENO NEV	9
NOKIA	9
TECTECH	9
NIANTIC INC	8

Among these top applicants, several are multinational corporations, transcending borders in their pursuit of innovation. Prominent among them are Sony, Microsoft, and Nintendo, each representing a global tech heavyweight. However, it's remarkable to observe the presence of companies like Bandai Namco from Japan and Netease Hangzhou Network and Tencent from China, demonstrating the rapid rise of Asian companies in this space. These applicants vary in size, with industry veterans like Sony and Microsoft boasting extensive resources and established market positions. Companies such as SEGA and Electronic Arts (EA) are influential veterans in the gaming industry, bringing their expertise to the evolving world of the Metaverse. Meanwhile, innovative tech giants like IBM and Philips are also making their mark, showcasing the convergence of technology and entertainment in these fields.

The inclusion of entertainment industry giants like Disney and Niantic Inc. underlines the Metaverse's growing significance, as these companies explore immersive digital experiences. Moreover, companies such as Bandai Namco and Konami, known for their gaming legacy, are venturing into the Metaverse, bridging the gap between traditional gaming and virtual worlds. This top 20 list offers a rich landscape of innovation, reflecting the global and dynamic nature of Game & Metaverse.

GAME & METAVERSE PATENT REPORT

As we explore the patent landscape of Game & Metaverse, it's essential to journey through time and witness the evolving tapestry of innovation. The following data presents a year-by-year distribution of patent publications, offering insights into the dynamic growth and transformation of these fields.



The evolution of patent publications related to Game & Metaverse over the years paints a vivid picture of the dynamic growth and innovation within these fields. The data reveals a gradual rise in patent activity, with notable milestones along the way. In the early 1990s, the landscape was in its infancy, with only a handful of patents published. However, as the new millennium dawned, a surge in innovation became evident. The years from 2000 to 2010 witnessed a steady increase in patent publications.

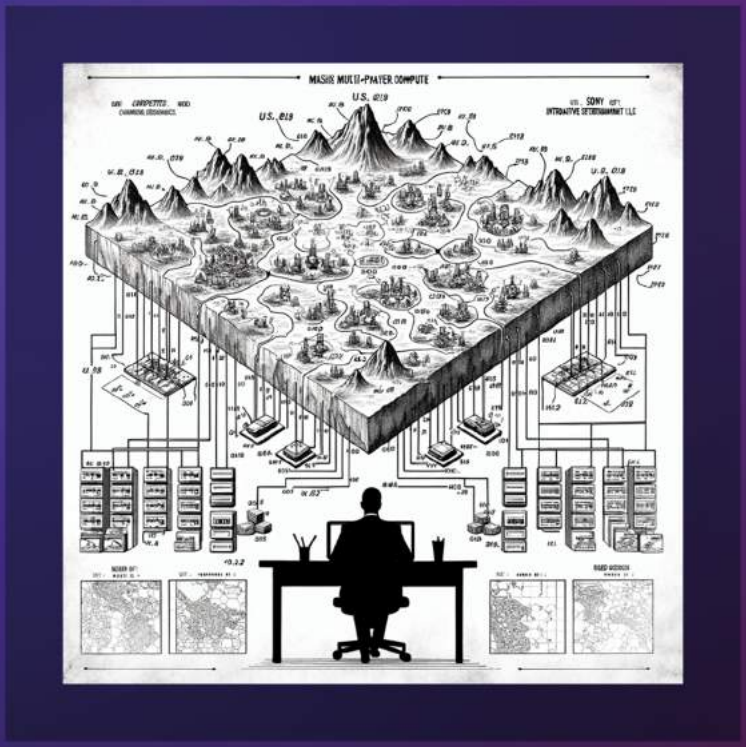
The most remarkable shift occurred from 2011 onwards, as patent activity surged dramatically, with 2018 being a pivotal year with 169 publications. This meteoric rise reflects the transformative impact of these technologies on interactive entertainment and virtual existence. The subsequent years, from 2018 to 2022, have maintained a high level of patent activity, indicating sustained interest and innovation in Game & Metaverse technologies.

GAME & METAVERSE PATENT REPORT

PATENT ANALYSIS

In this section, we delve into the innovation within the realms of Game & Metaverse by closely examining a curated selection of patents chosen for their significance.

Patent: US11628356B2 - Massive Multi-Player Compute
Applicant: SONY INTERACTIVE ENTERTAINMENT LLC
Abstract: This patent focuses on methods and systems for efficiently managing processing resources in an online game, particularly in the context of massive multiplayer online games (MMOs). It involves assigning computational resources (computes) to different virtual locations within the game world based on user activity. When a region within a virtual location becomes crowded, the patent proposes dividing it into sub-regions and allocating additional compute resources to maintain optimal gaming interactivity.



Key Points:

- The patent addresses the challenge of resource management in online games with numerous players.
- It dynamically adjusts the number of computes allocated to virtual locations based on the processing load, ensuring a smooth gaming experience.
- By dividing regions and adding computes as needed, it optimizes the processing of gaming interactivity for users, enhancing gameplay in crowded areas.

Significance: This patent highlights Sony's efforts to enhance the gaming experience in massive multiplayer online environments. Efficient resource allocation ensures a seamless and immersive experience for players, which is crucial in the context of modern online Gaming & Metaverse.

GAME & METAVERSE PATENT REPORT

Patent: JP2023098275A - Computer System and Reflection Control Method
Applicant: BANDAI NAMCO ENTERTAINMENT INC
Abstract: This patent introduces an innovative technique aimed at harmonizing differences that arise in individual virtual spaces within the context of a shared world view. The proposed game system is a computer system designed to allow individual user characters to navigate within virtual spaces while facilitating reflection control among multiple virtual spaces that share a common world view. The system manages object information specific to each virtual space and defines a common target range shared among these virtual spaces. Through reflection control, objects displayed in the source space are seamlessly reflected and displayed within the target range of the destination space, enhancing the user's virtual experience.

Key Points:

- The patent addresses the challenge of creating a cohesive experience in virtual spaces with shared world views.
- It focuses on efficient object management and reflection control among multiple virtual spaces.
- By seamlessly reflecting objects between spaces, it enhances the overall virtual experience for users.

Significance: This patent represents a significant advancement in the realm of virtual world construction, aparticularly in the context of the Metaverse and multiplayer online games. It streamlines the display and interaction of objects across virtual spaces, offering a more immersive and interconnected user experience

GAME & METAVERSE PATENT REPORT

Patent: US11097194B2 - Shared Augmented Reality Game within a Shared Coordinate Space
Applicant: MICROSOFT TECHNOLOGY LICENSING LLC
Abstract: This patent presents a system and method for enabling the sharing of an augmented reality (AR) game within a shared coordinate space, even when devices initially have disjointed relative coordinate spaces. The shared coordinate space allows for two distinct modes of gameplay. In the first mode, users engage in game actions that have lasting consequences based on predefined game rules. The second mode, known as "sandbox mode," permits users to engage in non-destructive actions with temporary consequences that do not persist after exiting this mode. Additionally, the patent introduces a system and method for utilizing geolocation information within an AR session, enabling virtual actions to trigger corresponding virtual actions displayed on a map of a virtual environment, mirroring aspects of the physical environment on other users' gaming devices.

Key Points:

- The patent addresses the sharing of AR games within a shared coordinate space across multiple devices.
- It introduces two gameplay modes: one with lasting consequences based on game rules and another with non-destructive actions.
- The patent leverages geolocation information to connect virtual actions with a map of the virtual environment, synchronized with users' physical surroundings.

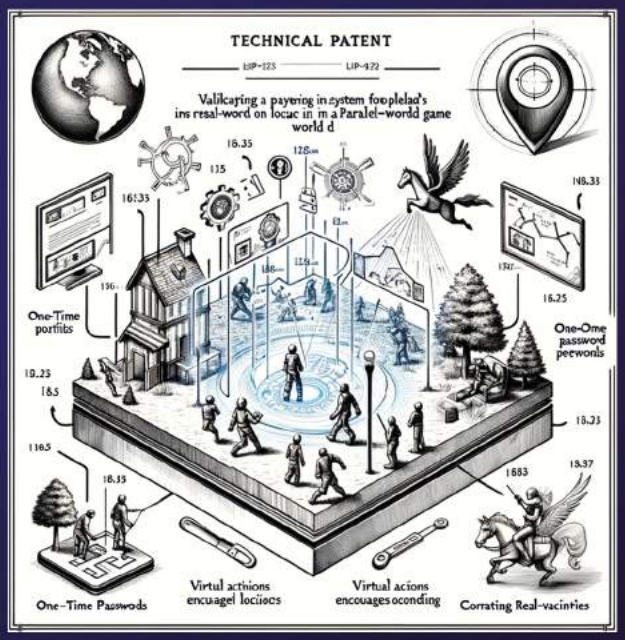
Significance: This patent signifies a significant advancement in AR gaming, particularly in enabling shared AR experiences with varying levels of consequence. It also showcases the integration of geolocation data, enhancing the connection between virtual and physical environments within AR games. The ability to seamlessly share AR games within a common coordinate space aligns with the vision of interconnected virtual worlds that define the Metaverse.

GAME & METAVERSE PATENT REPORT

Patent: US11541315B2 - Validating a Player's Real-Worlds Location Using Activity within a Parallel-Reality Game

Applicant: NIANTIC INC

Abstract: This patent introduces systems and methods that bridge real-world activities, such as commercial or data collection activities, with location-based parallel-reality games. Specifically, a game server hosting a parallel-reality game can modify, update, or enhance game data within the game database to include specific game features linked to real-world activities. These game features are intertwined with real-world activities, meaning that player actions in the virtual world can encourage or lead to corresponding real-world activities, such as commercial transactions or data collection. The patent also incorporates the use of one-time passwords to validate a player's real-world location and grant controlled access to game features in the virtual world.



Key Points:

- The patent focuses on merging real-world activities and a parallel-reality game, encouraging player engagement in both domains.
- It utilizes one-time passwords to verify a player's physical location and provides access to specific game features linked to real-world locations and activities.

Significance: This patent represents a significant step in the integration of virtual and real-world experiences, particularly in the context of parallel-reality gaming. By linking virtual gameplay with real-world actions, it creates a dynamic and interactive gaming environment that has implications for the broader Metaverse concept.

GAME & METAVERSE PATENT REPORT

Patent: US10974132B2 - Systems and Methods to Provide a Shared Interactive Experience Across Multiple Presentation Devices Based on Detection of One or More Extraterrestrial Bodies
Applicant: DISNEY ENTPR INC
Abstract: This patent introduces systems and methods for creating a shared augmented reality experience across multiple presentation devices, focusing on the detection of extraterrestrial bodies. A presentation device equipped with a transparent display actively integrates virtual content into the user's real-world environment. When an extraterrestrial body is detected, resource information related to that body, including its location, is obtained. The virtual content, represented as virtual objects, is then superimposed onto the extraterrestrial body's location in the real-world environment, augmenting its appearance. This shared augmented reality experience supports gameplay within the virtual environment, enhancing user interactions.

Key Points:

- The patent combines real-world environments and virtual content, offering an augmented reality experience.
- Extraterrestrial bodies act as reference points for superimposing virtual objects, creating a shared experience across multiple devices.
- The system enables interactive gameplay within the augmented reality environment.

Significance: This patent showcases an innovative approach to augmented reality, particularly in connection with extraterrestrial bodies. By linking virtual objects to these celestial entities, it facilitates a shared interactive experience that blurs the boundaries between the physical and virtual worlds. This patent aligns with the Metaverse concept by emphasizing the integration of augmented reality and the real world. It illustrates how shared augmented reality experiences can be enhanced by linking virtual content to celestial bodies, contributing to the broader vision of the Metaverse.

CONCLUSION

In this comprehensive Game & Metaverse patent report, we have embarked on a journey through the cutting-edge innovations, intellectual property landscapes, and market trends that define these dynamic sectors. We've explored the intersection of technology, creativity, and human imagination, highlighting the limitless possibilities when innovation meets entertainment.

Key Findings: Geographic Distribution: The patent landscape of Game & Metaverse is globally diverse, with the majority of patent documents originating from the United States (USA), followed by strong contributions from South Korea and Japan. This global distribution underscores the widespread impact and collaborative nature of innovation in these fields.

Top Applicants: A diverse range of companies is leading the way in patenting innovations related to Game & Metaverse. Industry giants like Sony, Microsoft, and Nintendo are joined by Asian powerhouses such as Bandai Namco, Netease Hangzhou Network, and Tencent. The presence of both technology giants and industry-specific leaders highlights the convergence of technology and entertainment in these sectors.

Evolution of Innovation: The patent landscape has witnessed a remarkable evolution over the years, with a steady increase in patent activity since the early 2000s. The years from 2011 onwards have seen a dramatic surge in patent publications, reflecting the transformative impact of Game & Metaverse technologies on interactive entertainment and virtual existence.

Significant Patents: We've explored a curated selection of patents that demonstrate the significance of innovation within Game & Metaverse. These patents address challenges in resource management for online games, cohesive experiences in shared virtual spaces, shared augmented reality gaming, and the integration of real-world activities into parallel-reality games. Each patent represents a milestone in pushing the boundaries of what is possible in these dynamic fields.

In conclusion, Game & Metaverse represent not just technological advancements and legal considerations but a fusion of human creativity, innovation, and the pursuit of immersive digital experiences. These sectors continue to redefine entertainment, offering users a gateway to interconnected virtual worlds. As innovation in Game & Metaverse evolves, it brings us closer to realizing the vision of a boundless and interconnected Metaverse, where the physical and virtual realms seamlessly coexist.

Welcome to the future of entertainment and exploration.