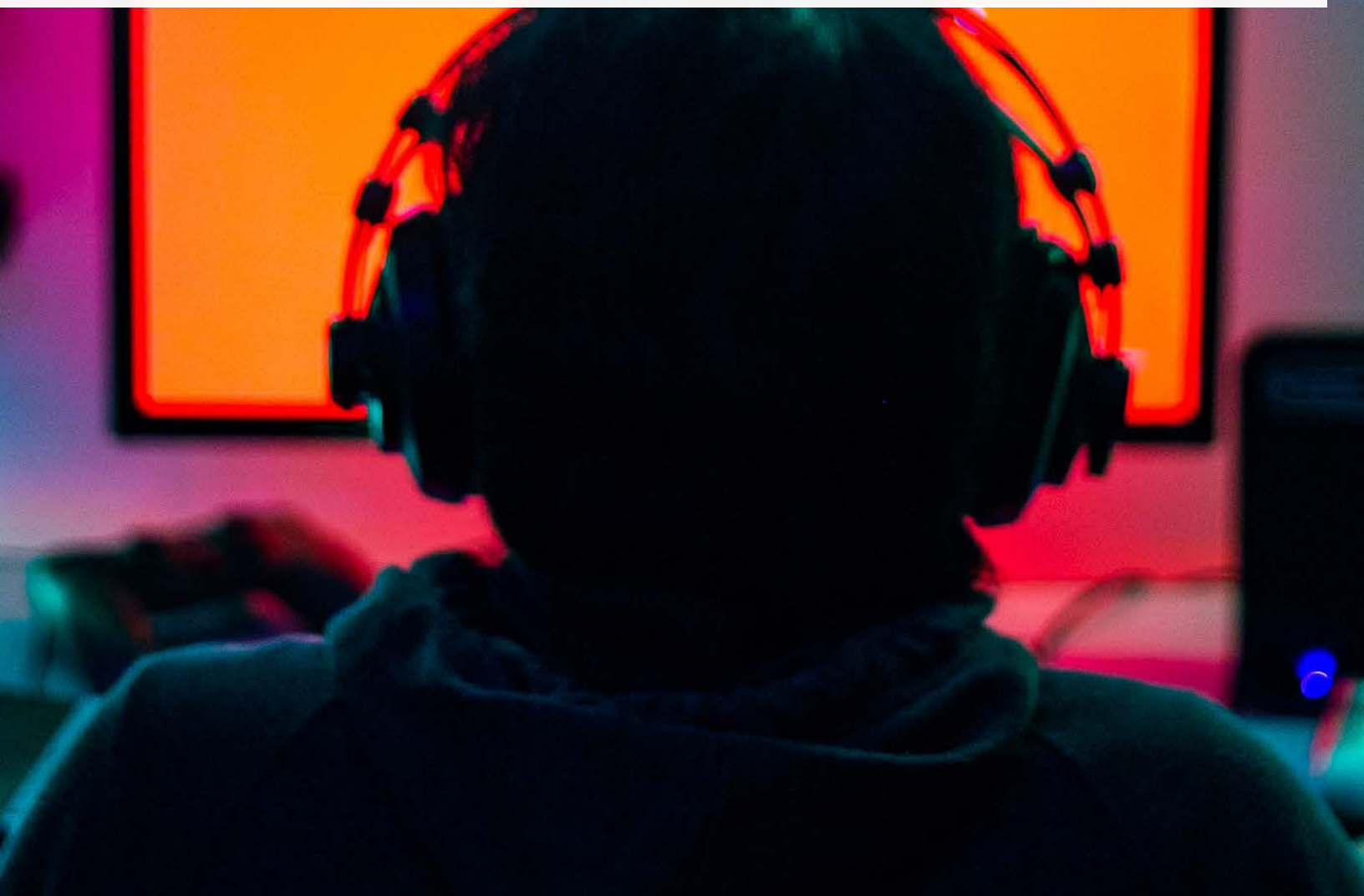




The Endgame of Innovation

The gaming industry's downward trend in innovation



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Our recent report “**Game Over the West?**” argued that Japanese companies dominate innovation in the gaming industry. We used LexisNexis Cipher Classification’s patent analysis, and looked at which companies owned the most inventions overall, and which had invented the most in the past decade. Overall, the domination of the Japanese pachinko industry was remarkable, with few video game or Western gambling firms breaking the top 25.

Needless to say, this level of domination from an industry little known outside Japan was surprising, and we wanted to return to the subject and understand these portfolios better. With the acquisition of Cipher by LexisNexis Intellectual Property, we wanted to look more closely at the space using PatentSight’s detailed graphs and unique patent portfolio strength scoring system, the Patent Asset Index.

Key Messages:

- The majority of gaming companies have shown a clear decline in their portfolio strength by using the Patent Asset Index, with the exception of Sony and a few pachinko companies. Overall, quality innovation appears to be on the decline.
- Western companies have strong Patent Asset Index scores and are better represented than in the previous report. A strong reason for this is they have better market coverage, investing in far more geographies than pachinko firms. Overall, they contribute to more global innovation, while Japan is more insular.
- However, the Western companies are on a clear decline, with cross-licensing and monetisation taking priority and portfolios shrinking.
- While pachinko firms’ continued insularity hurts their overall PAI, they remain a strong force in the market, with all the companies listed growing their portfolio. This investment in new tech has positively impacted the industry.
- Gambling companies lead innovation.

For our report, we will use the same gaming landscape from Cipher’s Universal Technology Taxonomy (UTT) as before. Cipher’s UTT organizes inventions into predefined technology categories, providing a landscape that reveals trends in global innovation. In this article, we use the platform to gain a high-level view of the gaming industry, uncovering the largest invention owners, the key innovators and the pace of innovation.

Using Cipher’s generic classifications from our Universal Technology Taxonomy, we look at several key areas of gaming invention. For clarification, Cipher’s platform defines gaming as “Games played on computers and laptops, handheld devices, game consoles, phones and tablets. Also includes gaming controllers, card, board, gambling games and all toys”.

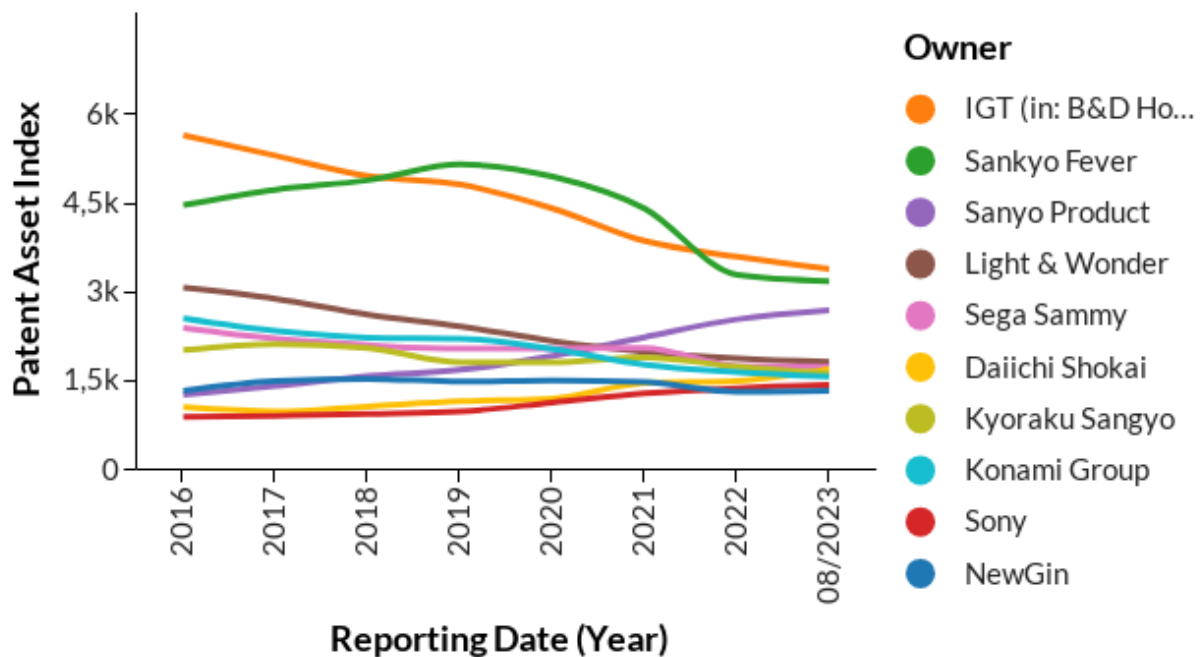
We study this landscape with PatentSight’s Patent Asset Index trend graph, looking at the top 10 highest ranking companies to understand recent trends in innovation. To explain, the Patent Asset Index of a portfolio is the sum of the Competitive Impacts of all patent families in that portfolio. It can be calculated for the overall portfolio of a company, for a group of patent families that belong to a certain technology, or for any other population of patent families.

The Competitive Impact is calculated on patent family level and represents the relative business value of each patent family. It is obtained by multiplying the Technology Relevance (the technical value based on

the number of citations a patent family has received) and the Market Coverage (the market value calculated based on the GNI of all authorities in which the patent family is active) of each patent family.

Looking at the top 10 ranking companies' scores have changed over the years to understand wide scale trends in the gaming industry.

TOP 10 GAMING OWNERS BY PATENT ASSET INDEX



Source: Cipher UTT Classifier in PatentSight

Overall, we find the trend of innovation is currently on the decline, but there are positive factors to account for, particularly from Japan. This reflects our previous findings that Japan is more innovative, but PatentSight's scoring system provides a more nuanced view and presents various strategies that companies choose to take for strengthening their portfolio.

Is it truly game over for the West?

PatentSight's Patent Asset Index rankings demonstrate that the Western gambling market is not lagging as far behind in innovation as we previously suspected.

While on initial inspection, PatentSight's results correlate with Cipher's previous analysis. Japanese companies dominate gaming innovation, with only two Western firms reaching the top 10. Furthermore, the list mostly consists of pachinko and gambling companies, with Sony the only exceptions. Overall, PatentSight supports our previous findings on the importance of the pachinko industry towards inventions.

However, with closer examination, vital differences between our findings appear. In Cipher's Top Innovators list, not a single non-Japanese business broke the top 10. The top ranking Western company,

Aristocrat, does not appear in PatentSight's list, and IGT, the company with the current highest Patent Asset Index score appears at number 20. Light & Wonder, an American gambling company, did not rank in Cipher's top 25 innovators, yet consistently ranks in the top 5 scoring companies over the past 10 years according to PatentSight.

TOP 10 INVENTORS IN GAMING BY INNOVATION RATE AND PATENT ASSET INDEX

Ranking	Invention rate	Patent Asset Index
1	Sankyo Fever	IGT
2	Sanyo Product	Sankyo Fever
3	Daiichi Shokai	Sanyo Product
4	Sansei R&D	Light & Wonder
5	Universal Entertainment	Sega Sammy
6	Sega Sammy	Daiichi Shokai
7	NewGin	Kyoraku Sangyo
8	Kyoraku Sangyo	Konami
9	Taoko Kougyu	Sony
10	Sophia	NewGin

Source: Cipher UTT and PatentSight Patent Asset Index

The main reason for these differences is the Cipher report was based solely on the size of patent portfolios, and excluded patent value scoring. Using this system, pachinko companies dominate because they have comparatively massive patent portfolios. For example, in 2023, the top three pachinko companies have gaming portfolios as follows:

Sankyo Fever - 16,788 families
 Sanyo Product - 15,007 families
 Sega Sammy - 15,937 families

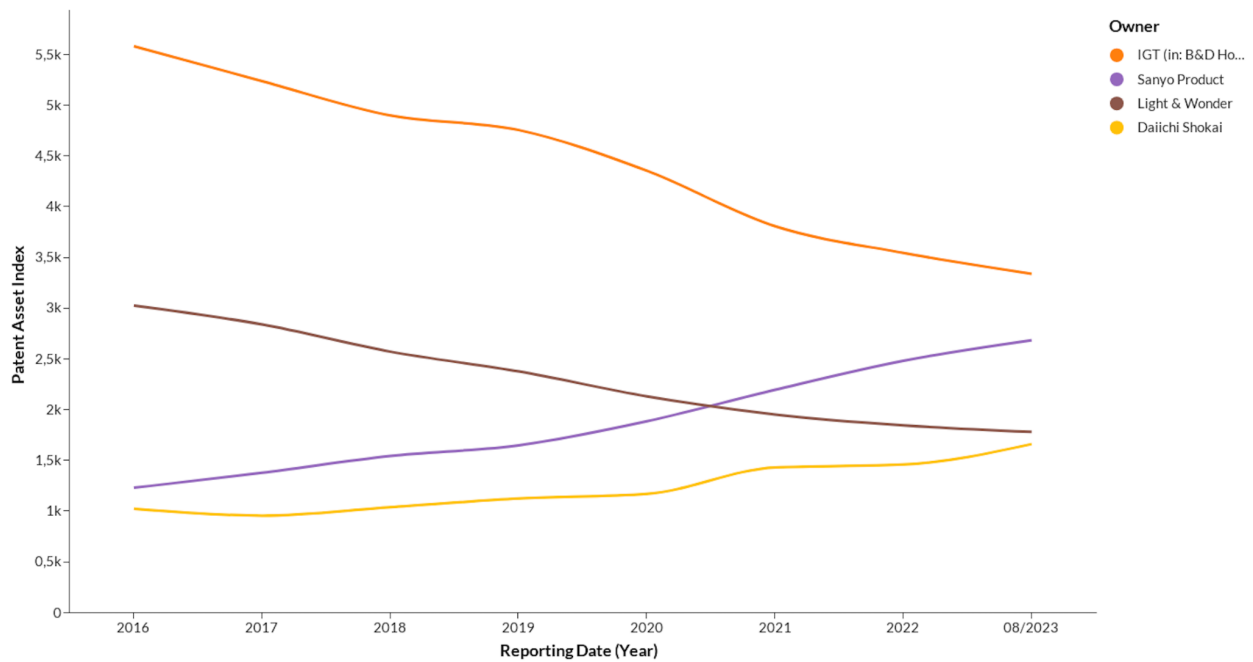
Compare this to IGT and Light & Wonder, who currently have portfolios of 1,677 and 1,170. This demonstrates a clearly different strategy between Japanese pachinko and Western gambling.

In Japan, portfolio size is the name of the game

Pachinko companies' Patent Asset Index score is highly reliant on their portfolio size. This is partly due to their low Market Coverage scores, with most companies focusing on the Japanese market only. This

means their geographical distribution is limited to one area, diminishing their Competitive scoring. Nevertheless, this tactic can be successful, as various pachinko companies have a rising Patent Asset Index in recent years, while both IGT and Light & Wonder are sharply declining.

PATENT ASSET INDEX FOR IGT, SANYO PRODUCT, LIGHT & WONDER AND DAIICHI SANKYO



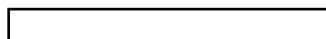
Source: CIPHER UTT Classifier in PatentSight

Sanyo Product (in purple in 'Top 10 Gaming owners by PAI chart above) is the clear success story, increasing their score from 1.223 to 2.639. This improvement is in spite of a falling Market Coverage score, and mostly thanks to a massive increase in portfolio size. Their portfolio has grown from 5620 patent families in 2014 to 15,306 currently.

Daiichi Sankyo presents a similar trend, improving their score from 919 to 3.536 by growing their portfolio from 3,536 to 8,050, despite their Competitive Impact score lowering. Overall, pachinko companies have all grown their portfolios since 2014, demonstrating that is their preferred method for strengthening their portfolio.

Furthermore, their continued investment in new technology appears to have been a wise move, with a 500% surge in pachinko stocks in 2023. Demand for the game has increased, with Bloomberg highlighting new technology as a driving force behind the industry's recent success.

How IGT and Light & Wonder fight for the high score



However, one notable negative point to pachinko is evident from our graph. The majority of pachinko companies' Patent Asset Indexes are declining, despite their increase in portfolio size. This is due to their continually diminishing Market Coverage scores, with most having no presence outside of Asia. This suggests that while pachinko firms do contribute significantly to gaming innovation, there is doubt how much global innovation they produce.

In comparison, IGT's market coverage has increased over the years, from 0.97 to 1.0. They cover several key authorities, with patents in the USA, Australia, Canada, New Zealand, Great Britain, Germany and China. They also maintain a strong 1.9 technology relevance score, with several long-lasting frequently cited patents. For example, their top cited family "USB software architecture in a gaming machine" is from 1999, and continues to receive citations. In their top 5 patent families, the newest is from 2006, showing that they have important and innovative families.

The cross-licensing gamble or IGT

However, for IGT, the drop in their Index, from 6.713 to 3.330, suggests that their innovative spirit may be flailing. This change can be largely credited to their decreased portfolio size, lowering from 1,966 patent families in 2014 to 1,677. While it is unclear why they have reduced their portfolio size, one possible reason is their new focus on cross-licensing and monetisation, including selling some of their portfolio. In 2022, they announced a broad cross-licensing agreement with Aristocrat, and are reportedly searching for similar deals. This may be their key tactic for protection rather than investing in new technology.

IGT has seen one of the sharpest drops in their Patent Asset Index score, from 3.499 to 1.770 and a reduction in patent families from 1,791 to 1,168. Light & Wonder have made similar comments to IGT about searching for cross-licensing and monetisation opportunities, and have already sold their lottery and sport betting departments. Much like IGT, they are consistently decreasing their portfolio, and their Competitive Impact alongside it.

Their score is kept high by an even better market coverage than IGT, with significant coverage in areas IGT has neglected such as France, Spain and Austria. However, this has not been enough to prevent their drastic decline.

Overall, our analysis proposes that Western gaming companies are neglecting new technology in favor of cross-licensing, monetization and other strategies. This is diminishing their overall score, but they are more innovative on a global scale, with their inventions protected across a greater reach of the world.

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A telescope on a tripod is positioned on a rocky surface, pointing towards a starry night sky. The background is a dark, star-filled sky with a subtle nebula-like glow. The foreground shows the texture of the rock and the legs of the tripod.

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