

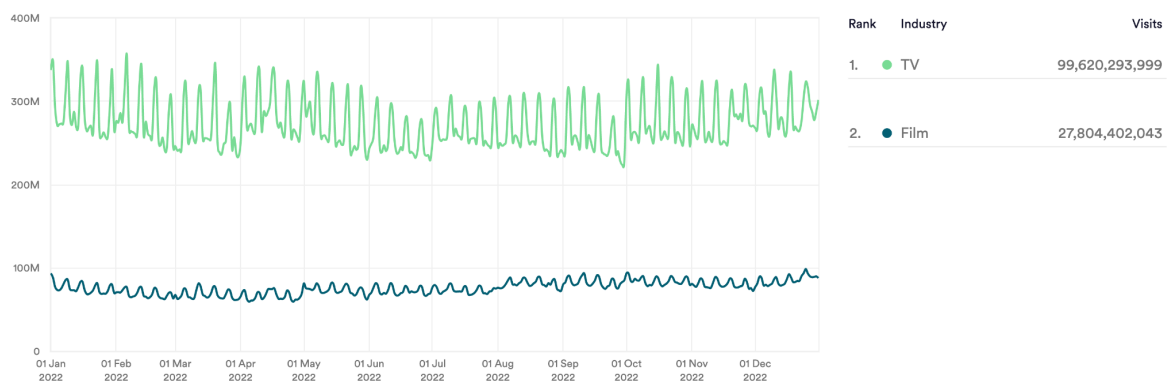
MUSO's unrivalled dataset enables a comprehensive view of the global piracy ecosystem, covering software, publishing, music, films and TV media sectors. Digital piracy continues to be a major issue affecting industries around the world and in this report, we will review piracy trends measured across 2022 for the film and TV industries piracy across 2022.

Section 1:

Piracy by Industry - Film and TV

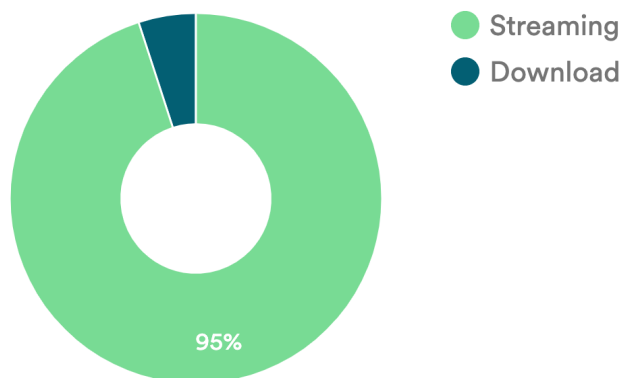
The data highlighted in this section is taken from MUSO Discover's Piracy by Industry dataset which measures industry-wide demand across a wide range of piracy sites that consist of streaming, torrent, web download and stream-ripping sites.

MUSO measured 215 billion visits to piracy websites in 2022, which is an 18% increase year-on-year when compared to 2021 across all media industries. Drilling down into the data, visits to piracy websites for film content have grown by 36.4% in 2022 vs 2021 and visits to piracy websites for TV content have grown by 8.8%. Film piracy accounted for 13% or 27.8 billion visits and TV piracy accounted for 46% or 99.6 billion visits.

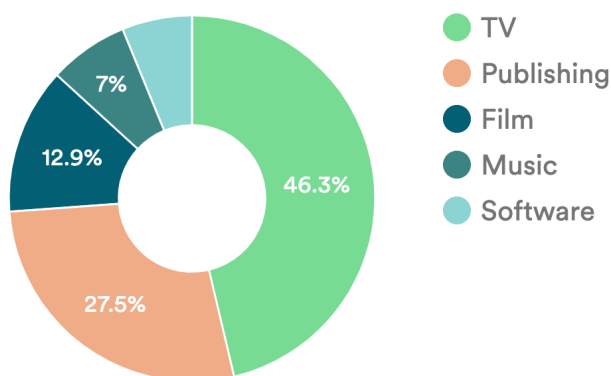


*Visits to piracy websites for TV and film across 2022.

The delivery method for TV and film content has steadily changed over the past decade, moving away from torrents and web downloads towards streaming. Globally, 95% of TV content and 57.1% of film content were accessed via unlicensed streaming websites.



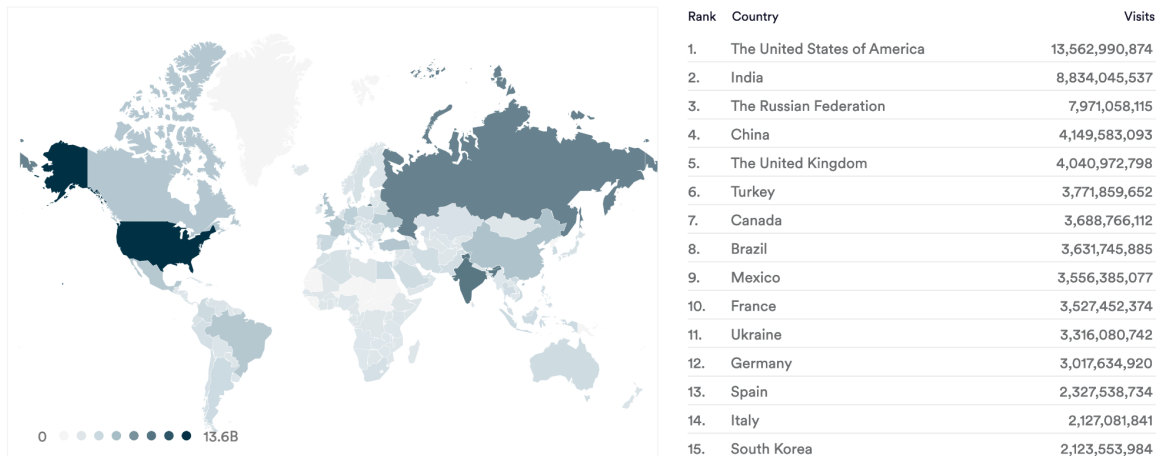
*Percentage split by delivery method for TV content 2022



*Percentage split by media sector (software is 6.2%)

Geographically, when looking at a combined view of both film and TV content, The United States provides the most audience demand for TV and film content, which may indicate that piracy is driven as much by marketing as it is by access, cost or

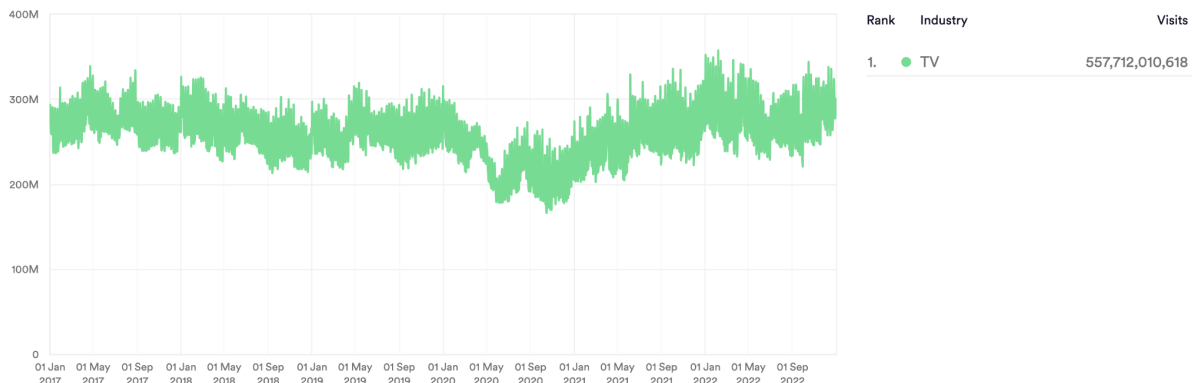
local legislation for IP protection.



*Demand split by country for TV and film content

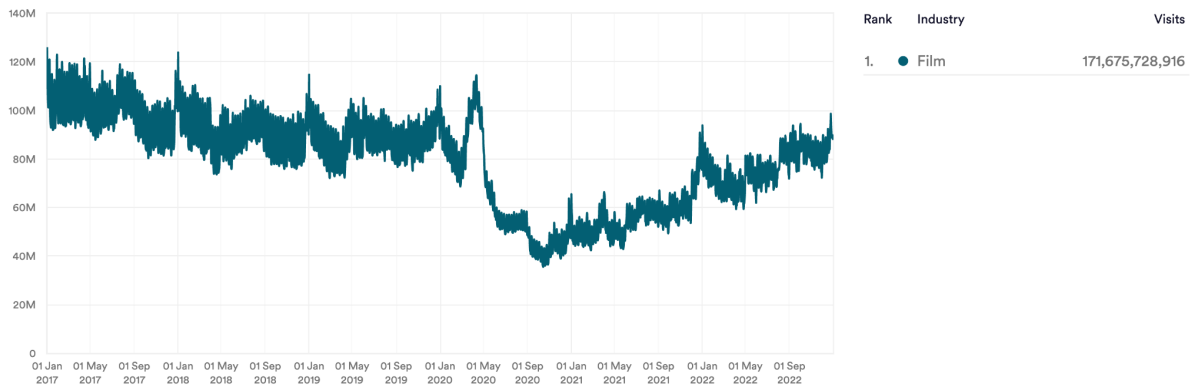
MUSO's Piracy By Industry dataset allows a view back to Jan 2017.

In the chart below we can see that TV piracy was at a consistent level until a marked dip during the first lockdown, from which point MUSO has measured a steady increase year on year. This steady rise since 2020 has, in part, resulted from the proliferation of subscription platforms and the rise of exclusive content.



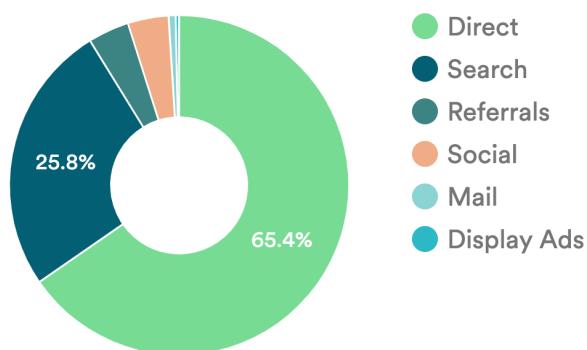
*Demand for TV content from Jan 2017

Piracy demand for film content is largely driven by the releases of new blockbuster movies, which dropped off significantly during the lockdown as new releases were moved to counter the closure of cinemas. Since Sept 2020 film piracy has increased steadily as new titles have been released. With a 36.4% increase in 2022 vs 2021, MUSO expects to see this exponentially increase across 2023 and surpass the piracy level observed in 2017.



*Demand for Film content from Jan 2019

Only 25.8% of traffic for film and TV piracy is directed from search engines with 66.4% of direct traffic, suggesting that a third of users already have preferred piracy destinations of choice to watch or download content



* Traffic source for Film and TV content piracy in 2022

Direct - 65.4% / Search - 25.8% / Referrals - 4.6% / Social - 3.8% / Mail - 0.6% / Display Ads - 1.2%

In Summary:

Piracy has seen a marked increase across 2022 with film piracy increasing by 36.4% and TV content piracy by 8.8%.

MUSO predicts that piracy demand will continue to increase across 2023, as inflationary and economic pressures result in subscriber losses for the various legal streaming services. This will drive users to illegally stream or download the content they want to watch via piracy sites.

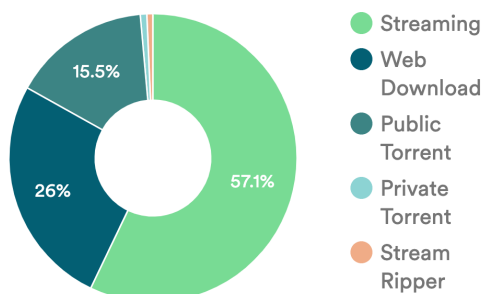
Section 2: **Piracy by Title - Film and TV**

The data highlighted in this section of the report is taken from MUSO Discover's Piracy by Title dataset which analyses piracy audience demand on over 450,000 films, TV seasons and episodes by directly measuring piracy activity across the illegal streaming website ecosystem and the BitTorrent P2P network.

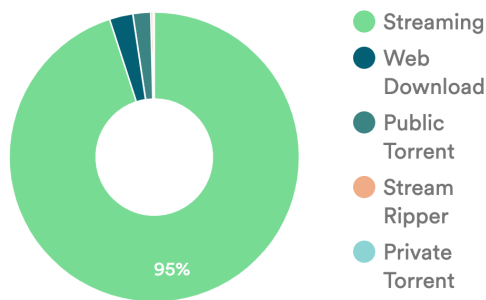
Illegal streaming websites use the same kinds of technology as legal streaming services but are operated without licence or permission.

The torrent network is a decentralised network of computers that enables the sharing of files over the internet by breaking up large files into smaller "pieces" which are then distributed among the computers in the network. This allows for fast download speeds and makes it possible to download large files without putting strain on a single server.

The torrent network, once the primary form of piracy, has seen a steady decline in its usage as methods offering better user experience have emerged over the past two decades and account for less than 16% of film piracy and only 2% of TV Piracy.



*Percentage split by delivery method for film content 2022.

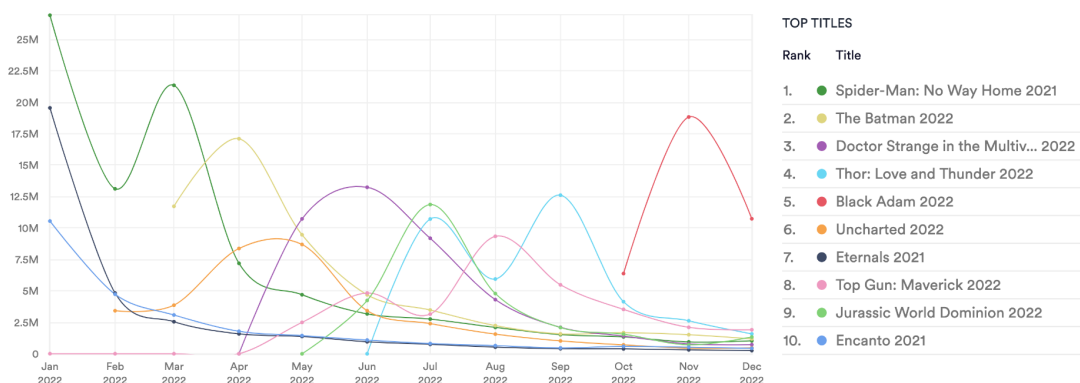


*Percentage split by delivery method for TV content 2022.

Film Piracy 2022 Analysis

Globally, the most in-demand films of 2022 were *Spider-man: No Way Home*, *The Batman* and *Doctor Strange in the Multiverse of Madness*.

Although *Spider-man: No Way Home* was released at the end of 2021, the majority of unlicensed viewing occurred in March 2022 - when the title was released on VOD. Around 85% of the piracy for these three titles was via unlicensed streaming sites and the remaining 15% was through P2P/torrents.



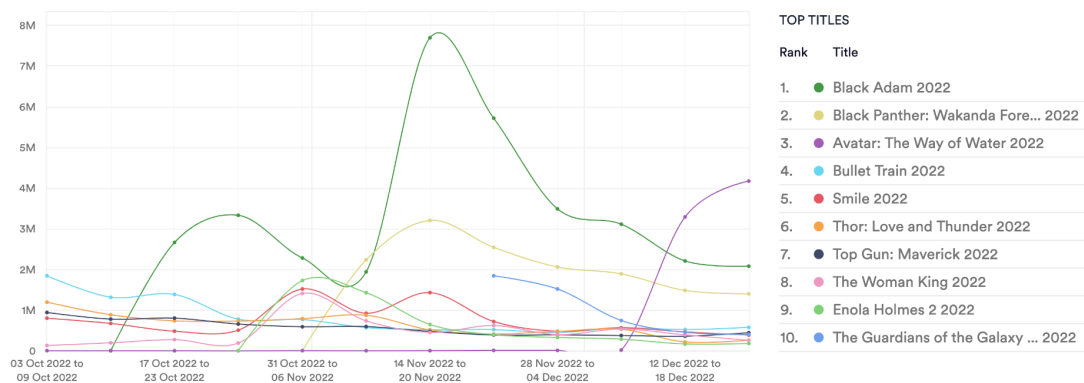
* Most popular film piracy titles across 2022, global view

Spider-Man: No Way Home accounted for 21% of piracy demand **within the top ten titles**. *The Batman* accounted for 13% and *Doctor Strange* 10% of the top ten titles listed below:

Spider-Man: No Way Home 2021	21%
The Batman 2022	13%
Doctor Strange in the Multiverse of Madness 2022	10%
Thor: Love and Thunder 2022	9%
Black Adam 2022	9%
Uncharted 2022	8%
Eternals 2021	8%
Top Gun: Maverick 2022	8%
Jurassic World Dominion 2022	7%
Encanto 2021	6%

Black Adam accounted for 9% of piracy (within these top ten titles) across the whole year despite only being released in Oct 2022.

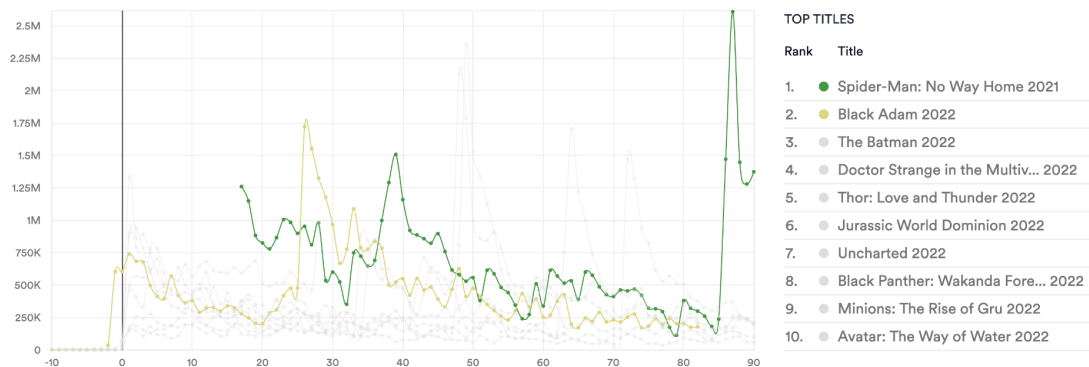
When looking at piracy demand in Q4 of 2022 *Black Adam* was the most popular title globally with piracy audiences and had more than double the number of illegal downloads and streams than *Black Panther: Wakanda Forever* and accounted for 31% of piracy demand with the top ten titles.



* Most popular film piracy title Oct, Nov and December 2022

MUSO's Discover dashboard enables us to compare piracy across a selected time range from the first theatrical release date of film titles to gain insight into the effect of windowing strategies on piracy and vice versa.

The chart below shows the piracy profile across 90 days of a title's first theatrical/digital release and provides a detailed day-by-day measurement of piracy in relation to a release strategy.



* The first 90 days after theatrical release, piracy demand profile

Black Adam and *Spider-Man: No Way Home*, which are highlighted above in yellow and green, both were produced for a budget of \$200 million. The large green spike above for *Spider-Man* shows the piracy demand on 12th March 2022, 3 days before its home digital release and after an 80+ day theatrical window.

Although piracy was high prior to its digital release on March 12th, only low-quality cam-rip versions appear to have been available. Cam-rips often provide an unsatisfactory viewing experience and can drive frustrated consumers into theatres for a better experience.

In the case of *Spider-Man* which achieved almost 2 billion at the box office, the piracy spike on 12th March indicates that the demand for *Spider-Man* was still extremely strong even after a long window and after record-breaking box-office taking.

Conversely, *Black Adam*, which only reportedly grossed \$393 million at the box office, had a much shorter window. It premiered on October 3rd before an HBO Max release on November 22nd, MUSO measured the largest piracy spike on November 16th, almost a week ahead of its home digital release.

Piracy demand for this title remains strong (at the time of writing) and is only just behind the piracy demand for *Spider-Man* over the same period.

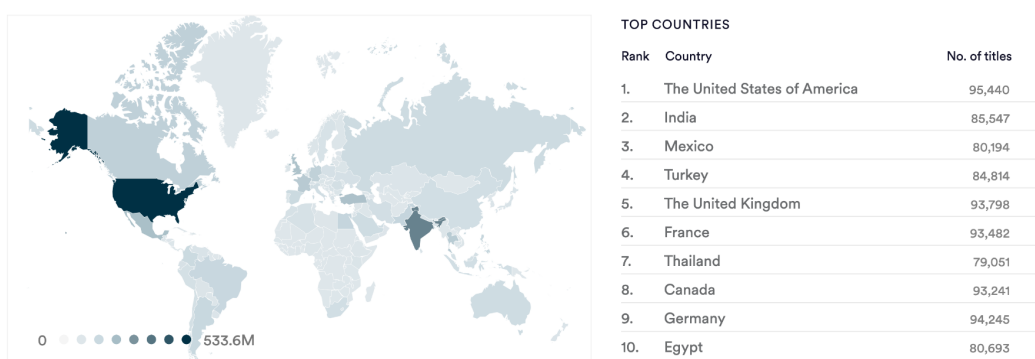
This suggests that had the film had a much longer theatrical window then piracy audiences could have been converted to cinema-goers and box-office revenue due to the nature of cam-rip quality vs digital quality piracy.

However, because *Black Adam* leaked in high quality ahead of its home digital release, the piracy audience was able to watch the film in high quality and for free at home, a month after its initial theatrical release and therefore this release strategy may have taken the revenue away from a larger potential box-office return.

A combined box office and piracy data view provides a powerful and predictive data-driven view on strategising release schedules to maximise revenues and minimise the effect of piracy.

Geographical Distribution

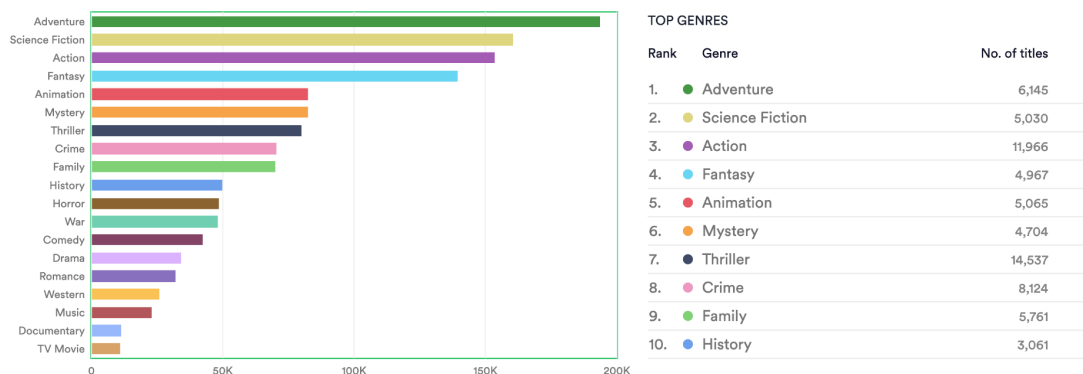
Within MUSO's Piracy By Title dataset of all film titles, the United States was by far the biggest country for piracy audience demand; with over 70% more piracy than India in second place. There are many factors that can drive piracy, including marketing, access, price, culture, release strategies and legislation, but the US is consistently high across all media sectors.



* Geographical distribution for film piracy across 2022

Genres

The Adventure Genre was the most popular genre across 2022 when looking at an average of total piracy demand for the number of titles in this genre.



* Genre popularity for film piracy across 2022

Drama, which is not in the top ten genres listed above, has the most film titles out of all the genres in MUSO's piracy data with 40,936 titles but with comparatively less piracy demand than other genres.

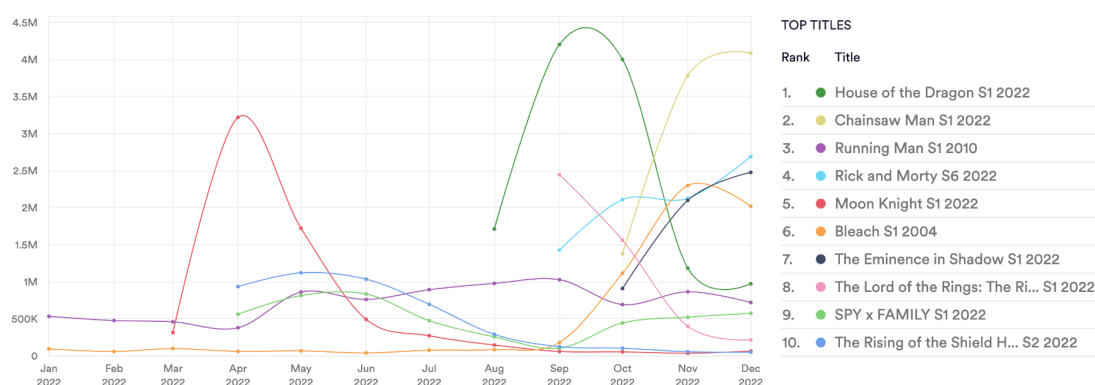
14. ● Drama 40,936

* Number of titles in the Drama genre

TV Piracy 2022 Title Analysis

TV piracy is far more nuanced on a regional, country-by-country basis. This section will focus on TV piracy in the United States which accounted for 13% of all global TV piracy.

Across 2022, House of The Dragons was the most popular TV show with US-based Piracy Audiences and accounted for 17% of the top ten titles with 74% of piracy for House Of The Dragons coming from unlicensed streaming websites.

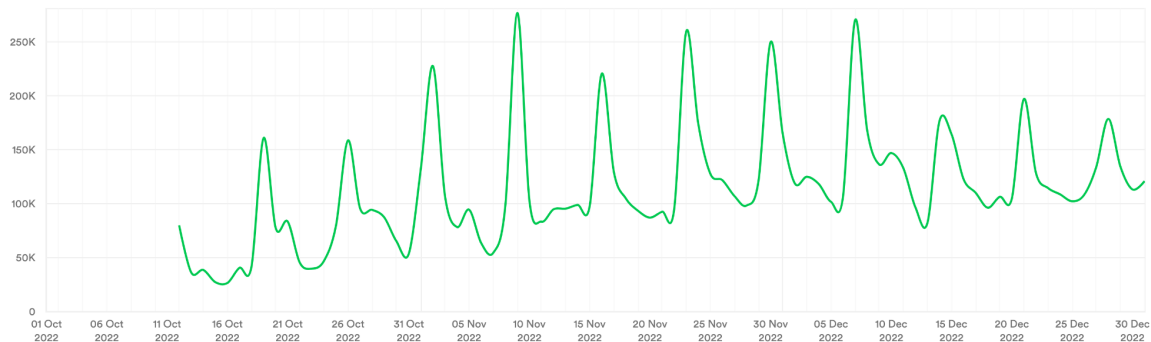


House of the Dragon S1 2022	17%
Chainsaw Man S1 2022	13%
Running Man S1 2010	12%
Rick and Morty S6 2022	12%
Moon Knight S1 2022	9%
Bleach S1 2004	9%
The Eminence in Shadow S1 2022	8%
The Lord of the Rings: The Rings of Power S1 2022	7%
SPY x FAMILY S1 2022	7%
The Rising of the Shield Hero S2 2022	6%

The second most popular TV title in the United States across the whole of 2022 was *Chainsaw Man S1* an Anime television series based on the Manga series of the same name. Both Anime and Manga piracy has seen unprecedented global increases in piracy demand and interest in the genre continues to go mainstream.











Demand for this title accounts for 13% of TV piracy within the top ten titles across 2022.

When looking at Q4 in isolation, *Chainsaw Man* is the most popular title in the US and the second most popular title globally.



* Episodical demand for *Chainsaw Man* Oct-Dec 2022

Long-running Anime titles with hundreds of episodes combined with continued increased cultural demand for Anime is resulting in 6 out of the top 10 titles with US piracy audience in 2022 being Japanese or South Korean productions.

Rank	Title	Genres	Networks	Creators
1.	 House of the Dragon S1 2022	Action, Adventure, Drama, Fantasy, Science Fiction	HBO	George R. R. Martin, Ryan Condal
2.	 Chainsaw Man S1 2022	Action, Adventure, Animation, Comedy, Fantasy, Science Fiction	TV Tokyo, TV Aichi, TVQ, TV Osaka, TVh,	N/A
3.	 Running Man S1 2010	Comedy, Reality	SBS	Jo Hyo-jin, Kim Joo-hyung, Lim Hyung-taek
4.	 Rick and Morty S6 2022	Action, Adventure, Animation, Comedy, Fantasy, Science Fiction	Adult Swim	Dan Harmon, Justin Roiland
5.	 Moon Knight S1 2022	Action, Adventure, Fantasy, Mystery, Science Fiction	Disney+	Jeremy Slater
6.	 Bleach S1 2004	Action, Adventure, Animation, Fantasy, Science Fiction	TV Tokyo, BS TV Tokyo	N/A
7.	 The Eminence in Shadow S1 2022	Animation, Comedy, Fantasy, Science Fiction	AT-X, YouTube	N/A
8.	 The Lord of the Rings: The Rings of Power S1 2022	Action, Adventure, Drama, Fantasy, Science Fiction	Amazon	John D. Payne, Patrick McKay
9.	 SPY x FAMILY S1 2022	Action, Adventure, Animation, Comedy	TV Tokyo, TV Aichi, TVQ, TV Osaka, TVh,	N/A
10.	 The Rising of the Shield Hero S2 2022	Action, Adventure, Animation, Drama, Fantasy, Science Fiction	AT-X	N/A

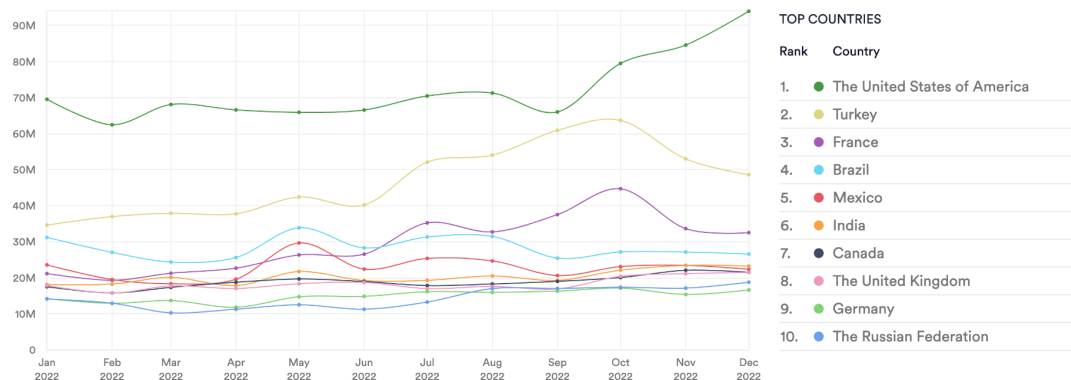
* Production information for the top ten TV shows by piracy demand 2022

Running Man S1 is a South Korean variety show that first aired on July 11th 2010 and has been running since with 637 Episodes to date. Demand for this title in the USA continues to grow with audiences seeking out the back catalogue and making this title the 3rd most popular in 2022 with US piracy audiences.

MUSO audience demand data is a powerful bell weather for trend analysis of cultural demand and popularity because it enables a view of audience demand that is not seen through other data sources.

Global Geographical Distribution

Within MUSO's Piracy By Title dataset of all TV titles, the United States accounted for 13% of all TV piracy demand and had 54% more demand than Turkey in second place.



*Geographical demand for TV piracy Jan-Dec 2022 Globally

Genre Demand

Within the United States, Fantasy and Science Fiction genres are the most popular and dominate the genre for TV content

