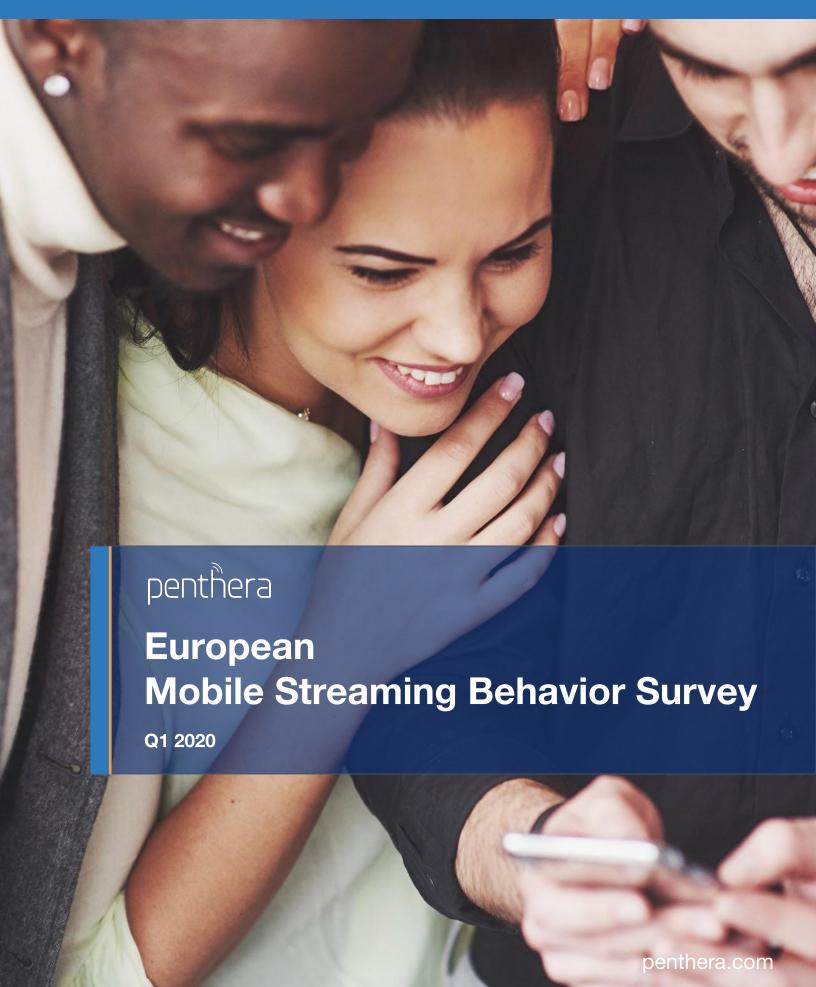
penthera | Mobile Insights



European Mobile Streaming Behavior Survey

Q1 2020

- I. INTRODUCTION
- II. HIGHLIGHTS
- III. EUROPEANS ARE STREAMING MORE THAN EVER
- V. STREAMING FRUSTRATIONS HAPPEN REGULARLY
- IV. DOWNLOADING COMBATS MOBILE STREAMING FRUSTRATIONS
- VI. AD-SUPPORTED VIDEO DOWNLOADS BENEFIT VIEWERS
- VII. CONCLUSION

penthera | Mobile Insights

About the European Mobile Streaming Behavior Survey

The annual Penthera European Streaming Behavior Survey highlights changing attitudes and behaviors towards streaming and download technology across Europe. We worked with an independent research company to query 1,800 people across the following countries: Spain, UK, the Netherlands, Germany, Italy, and France. Our sample included adults ages 18-50.



INTRODUCTION

Mobile has redefined entertainment across the world, and Europe is no exception. Penthera's European Mobile Streaming Behavior Survey queried people across five countries on the continent to better understand their experiences with mobile video streaming and download functionality.

According to eMarketer, the number of mobile phone video viewers is expected to grow from 173 million in 2019 to 191 million in 2023¹. As the number of mobile viewers has increased, it is not surprising that the number of OTT subscribers has also grown. In Western Europe, it is projected that the number of OTT subscribers will increase from 133 million in 2019 to 159 million in 2023. This number seems to be consistently growing across European countries. For example, close to 26 million people in Germany used subscription over-the-top (OTT) video services in 2019. This number is expected to increase to more than 30 million by 2022, resulting in more than one-third of the population using subscription OTT video services¹.

Yet with more mobile viewers, network connectivity has yet to catch up, and streaming frustrations still persist. 85% of those surveyed for this report say they've experienced mobile streaming frustrations. Similarly, Limelight found that rebuffering is the most frustrating aspect of viewing digital video, with 43.1% of global consumers citing it as their primary issue with watching online video².

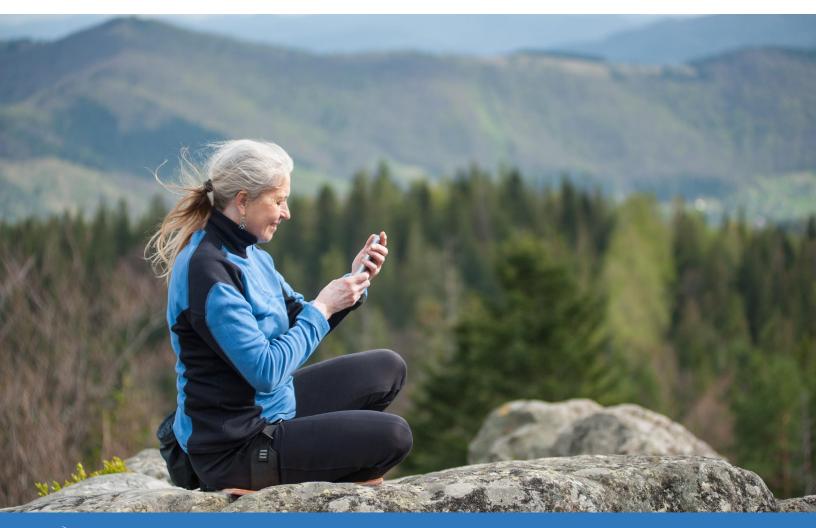
The truth is that as mobile viewers experience these frustrations, OTT providers risk viewers guitting watching, unsubscribing, or even canceling their service. Our survey revealed that more than half of people (55%) give up and try again later when faced with streaming issues. Limelight also found that most viewers will wait out a single rebuffer before they will stop watching, but after a second rebuffer 66.3% of people will stop watching². With so many competitors vying for viewers' attention, providers should avoid the risk of losing viewers and subscribers at all costs.

One such way to overcome streaming frustrations is for OTT providers to offer a video downloading feature. Download functionality allows viewers to watch content anywhere, without having to worry about poor or nonexistent connectivity. Our European respondents were enthusiastic about the feature: 67% said they expect a streaming service to include a mobile video download feature.

Beyond providing a solution for user experience issues, download functionality can also generate additional revenue for providers. According to Rapid TV News, the Western Europe OTT market will generate \$23 billion in revenue by 2023. Meanwhile, 52% of our European respondents said they would be more likely to subscribe to a streaming service with video downloading capability, and 64% said they would even pay a premium to download³.

Our survey revealed that OTT providers can generate further revenue by offering viewers the ability to download videos for free, monetized by ads. According to Limelight, advertisement-supported video on demand (AVOD) is a popular option among viewers and most people (87%) are fine with short advertisements before a video if the content that follows is free². European digital advertising reached a market value of €55 billion in 2019, driven by mobile and video, according to a report by the IAB released in July 2019. Mobile ad spend saw a huge jump of 31.4% to €22.8 billion, making up 41% of all digital ad spend. This growth can be seen in many countries across Europe. For example, digital video ad spending in the UK will reach £5.89 billion (\$7.85 billion) by 2023, from £3.13 billion (\$4.17 billion) this year⁵.

As streaming video viewership grows in European countries, it's apparent that viewers are most excited about engaging with mobile apps that provide a top-notch user experience. Read our report to better understand where, why, and how consumers on the continent view mobile video. Plus, you'll gain valuable insight into how OTT providers can innovate the user experience to gain an edge over the competition.



HIGHLIGHTS

Streaming

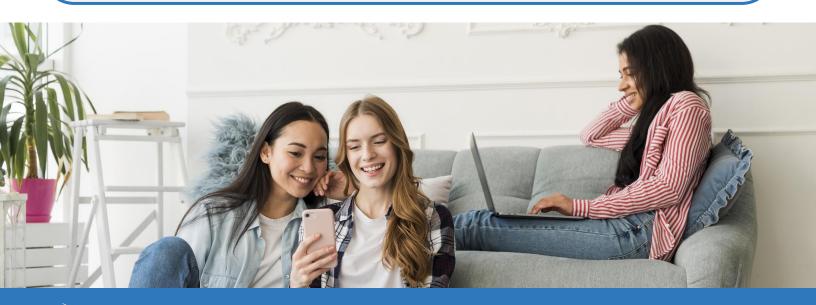
- European respondents are enthusiastic about mobile streaming: 46% stream daily and 27% stream weekly.
- 85% reported that they have experienced streaming frustrations including the video re-buffering (52%), followed by the video taking too long to start (49%) and being annoyed with advertisements (48%).
- Compared to 2018, more people give up watching video and try again later (55% versus 44%).

Download

- 37% of people in all six countries said they download video weekly or more often.
- European respondents said their primary reason for downloading video was to watch whenever/wherever they want (46%).
- 67% of European respondents said that they expect a streaming service to include a mobile video download feature.

Monetization

- Download is important to European respondents: the majority said they would pay a premium for a mobile video download feature (63%).
- Respondents across Europe were enthusiastic about the opportunity to download videos for free with ads on their mobile devices: 85% of panelists said they would use the feature.
- Many respondents replied that they would be more likely to watch video from a service that offered free video download with ads (46%).

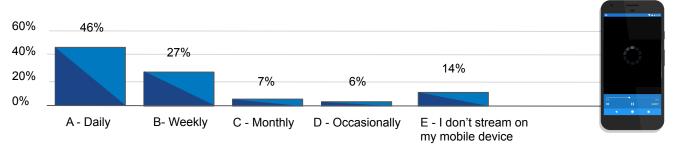


penthera | Mobile Insights



EUROPEANS ARE STREAMING MORE THAN EVER.

How often do you stream TV shows or movies on your mobile device?



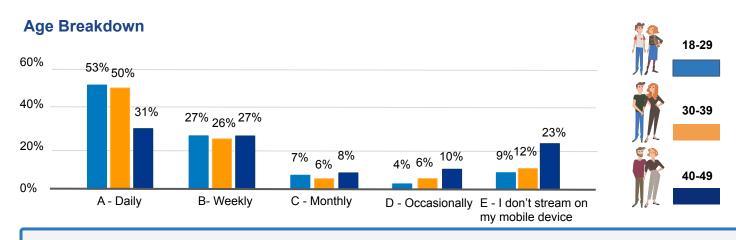
Mobile video streaming continues to grow among Europeans. In fact, more Europeans are streaming content compared to last year, with the biggest area of growth being daily mobile streamers (up to 46% from 39% last year). OTT providers should strategize around the experience of watching video within their mobile apps. Those that don't adopt a mobile-first strategy risk losing out on their many viewers who take to their phones and tablets for entertainment.

Overview:

- 86% of the overall population say they stream video on mobile.
- 73% watch video on mobile weekly or more often.
- 46% stream daily on mobile and 27% stream weekly.
- Daily video streaming is up from last year (46% up from 39%), indicating that mobile streaming video usage continues to rise.

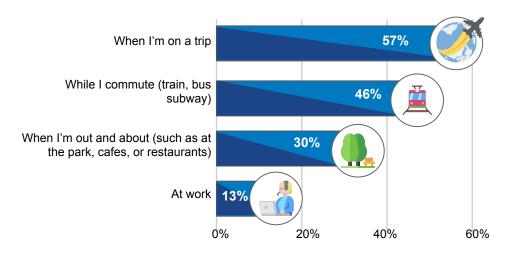
Country breakdown:

- Spain had the most daily streamers, with 57% streaming daily, followed by Italy (50%), Netherlands (48%), UK (46%), France (41%), and Germany (36%).
- All six countries had a majority of people who stream weekly or more often (Spain at 80%, Italy at 78%, UK at 76%, the Netherlands at 73%, Germany at 65% and France at 65%).



73% watch mobile video weekly or more often.

When not at home, where do you watch TV shows and movies using mobile apps? (click all that apply)



Mobile video apps have an advantage, as viewers are able to view content anywhere they go. Most Europeans in our survey said they enjoy watching TV shows and movies while on a trip. Mobile apps should consider how and where viewers are watching mobile video to optimize the experience of watching video on the go.

Overview:

More than half of European respondents reported that they watch video on their mobile apps when they're on a trip (57%). 46% do when they commute and 30% do when they're out and about.

Country breakdown:

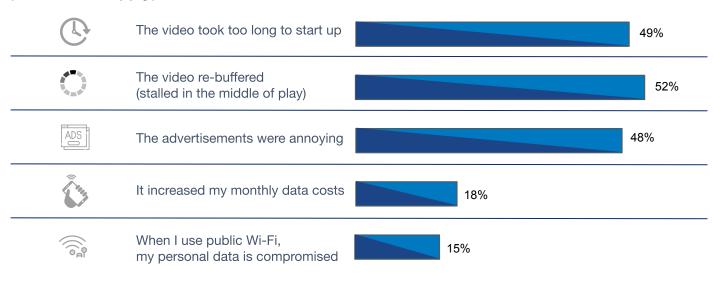
- Spain had the most respondents who watch while on a trip (67%), followed by the UK (60%), Netherlands (60%), Italy (52%), France (52%), and Germany (51%).
- Italy had the highest percentage of those who watch when commuting (54%) followed closely by the UK (51%), and France (49%).
- Spain had the highest percentage (38%) of those who stream when they're out and about (followed by Germany (31%), Italy (31%), UK (31%), Netherlands (28%), and France (19%).
- People in the UK had the highest percentage of people who stream at work (23%).

More than half of European respondents reported that they watch video on their mobile apps when they're on a trip (57%).



STREAMING FRUSTRATIONS ARE A CONSISTENT PROBLEM.

What frustrating experiences have you had when streaming mobile video (click all that apply)?



In 2019, more people reported experiencing streaming frustrations than in 2018. The greatest frustration reported was that the video re-buffered (stalled in the middle of play). As more people report being frustrated with their videos taking too long to start or buffering in the middle of play, OTT players should consider features that improve playing mobile video and reduce lag.

Overview:

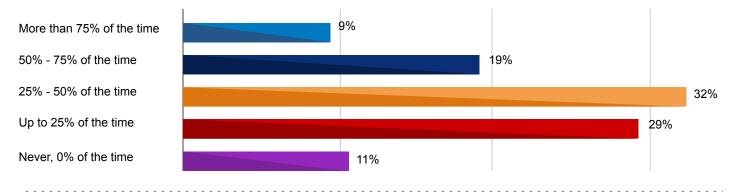
- Respondents said they were most annoyed with the video rebuffering (52%), followed by the video taking too long to start (49%), and the advertisements being annoying (48%).
- Compared to last year, people were more frustrated across all areas including the video rebuffering (50% to 52%), the video taking too long to start up (45% to 49%) and the advertisements being annoying (43% to 49%).
- More people reported frustrations overall: people who reported experiencing frustrations grew.

Country breakdown:

- Across the countries surveyed, responses varied on what they felt was most frustrating.
 - People in the UK (67%), Italy (53%), Germany (49%), and the Netherlands (47%) responded most frustration with the video rebuffering.
 - Respondents in France felt most frustrated with the video taking too long to start (48%.) 0
 - Respondents in Spain felt most frustrated with annoying advertisements (58%.) 0

The greatest frustration reported was that the video re-buffered at 52%.

How often do you experience streaming frustrations?



One third of those surveyed said they experience buffering more than 50% of the time when they watch. With this significant amount of people experiencing frequent frustrations, OTT providers can't afford to ignore streaming issues.

Overview:

- 89% of panelists reported that they have experienced streaming frustrations at some point.
- 31% said they experience buffering frustrations between 25% and 50% of the time, while one third said they experience frustrations more than 50% of the time.
- We saw a large shift in the percentage of people who experience frustration. In 2018 19% said they experience frustrations more than 50% of the time, while in 2019 28% of respondents did.
- Additionally, in 2018 85% of panelists said they experience frustrations at least some of the time versus 89% in 2019.

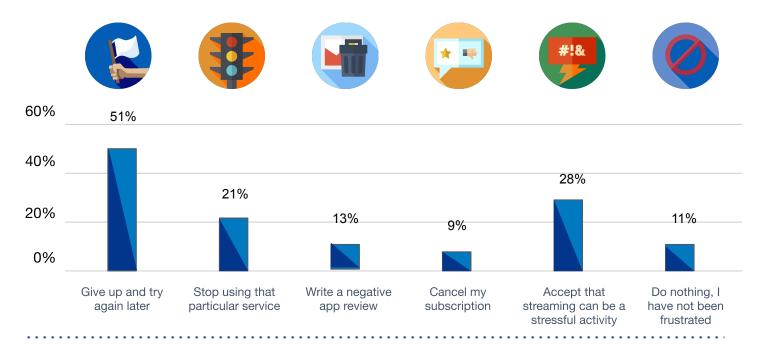
Country breakdown:

- People in the Netherlands reported feeling frustration most often with 1/10 saying they experience frustration more than 75% of the time.
- Almost a third of respondents across the UK (34%) and Italy (30%) Spain (29%) report that they experience frustration half the time or more.
- People in the UK were most likely to experience streaming frustrations at least some of the time (95%)

43% said they have experienced streaming frustrations more than $\frac{1}{2}$ of the time.



If you have had frustrating streaming experiences, you (click all that apply):



Compared to last year, fewer people are willing to just accept that streaming video is a frustrating experience. In response to streaming frustrations, most respondents say that they give up and try again later. This data reveals that if providers don't address streaming frustrations, they risk losing the attention of their viewers or potentially a subscriber.

Overview:

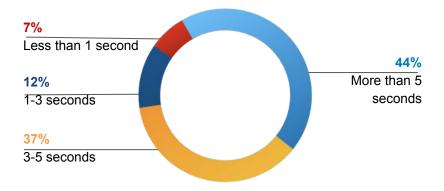
- 51% of all European respondents said they give up and try again later, 23% stop using that particular service, 13% write a negative review, and 9% cancel their subscription
- Since last year, a greater percentage said that they give up and try again later (44% in 2018 versus 51% in 2019)
- Compared to 2018, fewer people are willing to just accept that streaming can be a frustrating activity (30% in 2018 versus 28% in 2019).

Country breakdown:

- Across all six countries, giving up and trying again later was the most popular response to streaming frustrations.
- People in the UK responded most strongly with the highest rate of users giving up and trying again later (64%) and the lowest rate of users who do nothing (5%).
- 17% of those in Spain said they write a negative review.
- 10% of Italians would cancel their subscription.

Across all six countries, giving up and trying again later was the most popular response to streaming frustrations.

On average, how long do you have to wait for videos on your mobile device to load?



If an online video takes longer than 2 seconds to load viewers will start to leave, according to a study from the University of Massachusetts, Amherst and Akamai⁶. Meanwhile, Conviva found that the average wait time for a video to start playing in Western Europe is 3.65 seconds⁷. That average could increase on a mobile device. In this survey, most European respondents (89%) said they encounter mobile streaming frustrations, and many (51%) said they leave the app and try again if their video buffers. When asked about how long they wait for video to load, 44% said they wait 5 seconds or more.

Overview:

- Almost half (44%) of all European respondents said that their videos take more than 5 seconds to load, with 37% saying it takes between 3-5 seconds, and 12% saying it takes between 1 to 3 seconds.
- 81% of all respondents said that their videos take 3 or more seconds to load.
- A small percentage said it takes them less than one second (7%)

Country breakdown:

- People in France reported the highest percentage of video taking 5 seconds or more to load (49%) followed by Italy (48%), UK (48%), Netherlands (41%), Germany (40%), and Spain (40%)
- The UK had the highest percentage of those who experienced lag for 1 second or more (96%).

Almost half of European respondents said their videos take more than 5 seconds to load.



DOWNLOADING COMBATS MOBILE STREAMING FRUSTRATIONS.

Downloading is slowly becoming a regular part of the mobile experience in Europe. In

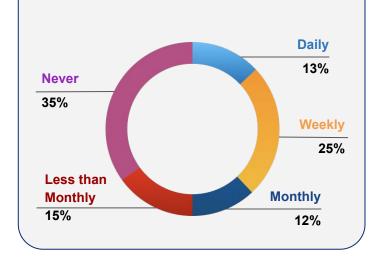
fact, 37% of survey respondents said they download videos on mobile weekly or more often. As more providers such as Netflix, Youtube, and Amazon Prime offer download capabilities, it's not surprising that more users are enjoying the feature. Alleviating all streaming frustrations, download functionality provides a seamless user experience.

Overview:

- 13% of all European respondents said that they download mobile video daily, 24% weekly, and 12% monthly.
- Overall, respondents reported downloading more frequently, with 37% downloading weekly or more in 2019, up from 33% in 2018.
- There was also a slight increase in the total percentage who download (63% in 2018 to 65% in 2019).

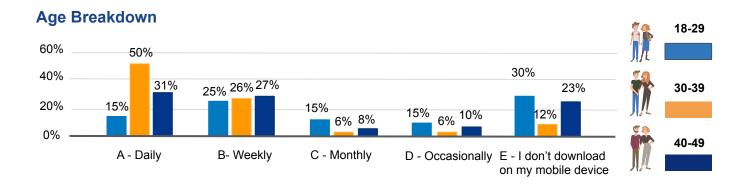
Some streaming services offer a feature which enables users to download TV shows and movies for viewing without an internet connection on a smartphone or tablet.





Country breakdown:

- People in the UK had the highest percentage of people downloading daily at 16%.
- All six countries reported downloading weekly as the most common downloading frequency: Spain at 28%, Italy at 26%, UK at 26%, the Netherlands at 24%, Germany at 22%, and France at 21%.
- All countries averaged around 50% downloading monthly or more often.



Respondents reported downloading more frequently, with 37% downloading weekly or more in 2019.

A high number of European respondents report that they stream video when they commute or on a trip, so it's not surprising that this survey revealed that most download video so that they can watch whenever/wherever.

Overview:

- Most European respondents said they download to watch whenever/wherever they want (46%). 33% download so they won't have to worry about being on WiFi and 30% download because they want to avoid buffering.
- More people responded that they download videos so they don't have to worry if I will be on Wi-Fi than in 2018 (29% in 2018 versus 33% in 2019).
- 9% of respondents said they download to entertain their kids.
- 22% of respondents said they download because they don't want to use their mobile plan.

Country breakdown:

- Spain had the highest percentage of people who said that download allows them to watch whenever/wherever they want (53%), followed by the UK (49%), Italy (47%), France (43%), Germany (43%), and the Netherlands (41%).
- The UK had the highest percentage of all the countries who download to avoid buffering (40%) and who didn't want to worry about being on Wi-Fi (39%).
- The Netherlands had the highest percentage of those who download content for their kids to watch (10%).

Why viewers download from a streaming service

It allows me to watch whenever and wherever I want





46%

I want to avoid buffering





I don't have to worry if I will be on WiFi





33%

I don't want to use public WiFi





16%

I don't want to use up my mobile data plan





22%

I don't want to pay for internet access when I'm not home





12%

I download content for my children to watch





Most European respondents said they download to watch whenever/wherever they want (46%).



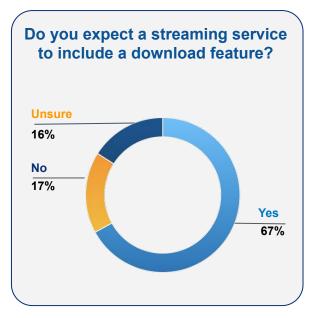
2/3 of those surveyed said they expect a streaming service to include a video download feature. However, download functionality is still a fairly new feature in Europe, slowly expanding from the big OTT providers to more niche providers. Those who want to compete should consider offering download functionality to stand out amongst the competition.

Overview:

- 67% of Europeans said they expect a streaming service to include the ability to download.
- Only 16% said they did not expect a streaming service to provide download, while 17% were unsure.

Country breakdown:

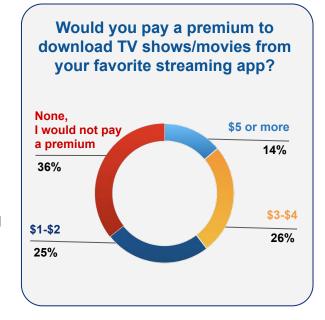
78% of Spain panelists said they expect a download feature, followed by 75% in Italy, 73% in UK, 62% in Germany, 61% in the Netherlands, and 56% in France.



Almost 2/3 of our European respondents said they would pay \$1 or more for a download feature. This data indicates that not only is download functionality expected, it is something that viewers will pay for. Some providers approach this challenge with a tiered pricing option, providing download capabilities only to the upper tier of customers who want the absolute best user experience. Others consider the value of downloading when setting their basic pricing to ensure that their viewers have an ideal viewing experience all the time.

Overview:

- The majority of respondents in Europe said they would pay a premium for download (64%).
- Most said they would be willing to pay \$3-4 a month (26%), followed by \$1-2 per month (25%), and then \$5 or more (14%).
- Interest in paying a premium has remained fairly constant since 2018, slightly more people were willing to pay a premium (63% in 2018 versus 64% in 2019).

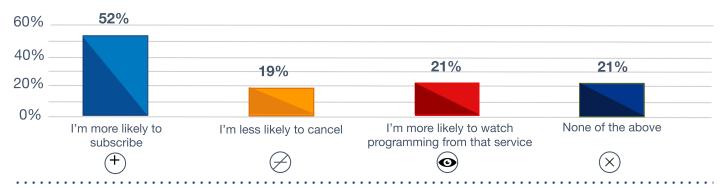


Country breakdown:

- Of all the countries, people in Germany and the UK were willing to pay the most: 18% of both countries said they would pay \$5 or more.
- The UK had the largest proportion of those who said they would pay a premium (74%) followed closely by Spain (72%), Italy (65%) Germany (64%), and France (54%).

Most European respondents said they download to watch whenever/wherever they want (46%).

How people react if a subscription streaming service offers a download option:



Download features help OTT providers by providing an incentive for users to subscribe to an app while also reducing churn. This survey revealed that 52% of our panelists said they would be more likely to subscribe to a video streaming service with a download feature. Additionally 1/5 said they would be less likely to cancel and almost a quarter said they would be more likely to watch programming from that service.

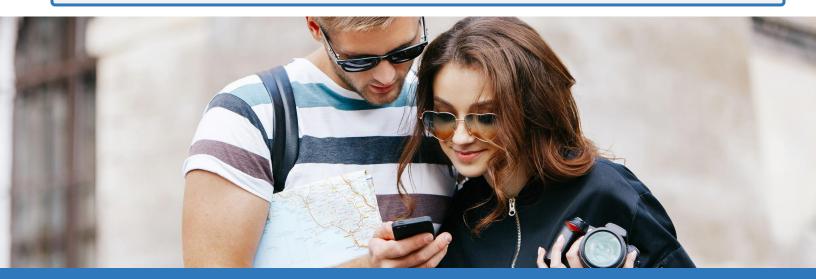
Overall:

- 52% of our European respondents said they would be more likely to subscribe to a streaming service with video download capability.
- 23% said they would be more likely to watch programming from that service.

Country breakdown:

- The majority in all six countries reported that they would be more likely to subscribe to a service that offers download: Spain (63%), UK (63%), Italy (53%) Germany (48%), France (43%), and the Netherlands (42%).
- People in the UK had the most positive reaction to download, with 63% saying they would be more likely to subscribe to a service that offers it. 23% said they would be less likely to cancel, and 22% said they would be more likely to watch programming from that service.
- 63% of people from Spain said they would be more likely to subscribe to a service with download.
- Italy had the highest percentage of panelists who were more likely to watch programming from a service if it offers download (24%).

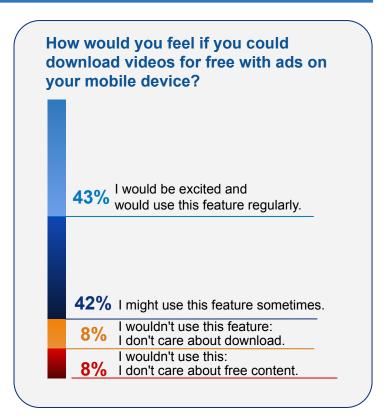
52% of our European respondents said they would be more likely to subscribe to a streaming service with video download capability.



AD-SUPPORTED VIDEO **DOWNLOADS BENEFIT VIEWERS.**

According to Convivas data on Europe In Q4 2019⁷, ad start times nearly doubled from 1.14 seconds Q3 2019 to 2.27 seconds in Q4. Conviva data shows that a 5 second delay in pre-roll ads causes 13.6% of the audience to abandon the ad and subsequent content. One huge workaround for OTT providers is to provide downloaded content and ads.

It turns out that downloadable content with ads provides a huge benefit to viewers as well. Offering viewers downloadable content in return for ads is a great way to ensure a seamless viewing experience underwritten by ads. Our survey revealed that 85% would use a service that gives them free video downloads with ads.



Overall:

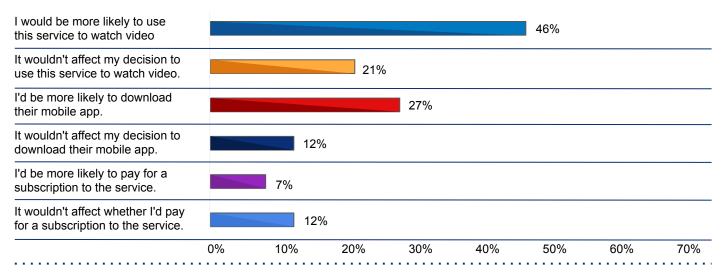
- 85% of panelists said they would use the feature.
- Respondents across Europe were enthusiastic about the opportunity to download videos for free with ads on their mobile devices. 43% said they would be excited about the opportunity.
- Only a small percentage of respondents said they wouldn't use free video download with ads because they don't care about fee content (5%) and that they don't care about download functionality (8%).

Country breakdown:

- Spanish panelists responded most positively to the question, with 48% saying they would be excited and use the feature regularly.
- UK panelists were the most likely to use the feature, with 93% saying they would use the feature at least sometimes. The other countries, followed close behind with Italy at 88%, Spain at 88%, Germany at 82%, the Netherlands at 81%, and France at 78%.
- French panelists were least excited about the feature, with 22% saying they wouldn't use it.

85% of panelists said they would use a feature that offered downloadable videos with ads.

If a streaming service offered free video download with ads that could be viewed on your mobile device: [click all that apply]



Mobile ad spend has grown by 31% to almost \$25 billion and now accounts for 41% of all digital ad spend across Europe, according to an IAB report released in July 20194. Not only did our panelists say they would use a feature that provided them free download functionality monetized by ads, they also said they'd be more likely to use that service to watch video. This data indicates that AVODs could potentially reduce churn and increase subscribers by offering a download feature.

Overview:

- Across Europe, many respondents replied that they would be more likely to watch video from a service that offered free video download with ads (46%).
- 27% of all panelists said they would be more likely to download a mobile app if offered this feature.

Country breakdown:

- Across the board, panelists responded positively to download functionality with ads. 54% in Italy, 53% in Spain, 46% in the UK, 42% in Germany, 42% in the Netherlands, and 40% in France said they would be more likely to use this service to watch video.
- Italian respondents were the most positive about this feature with 54% saying they would be more likely to watch content and 32% saying they'd be more likely to download their mobile app.
- The top countries that said they'd be more likely to download their mobile app were Italy (32%), UK (32%) and Spain (27%).

Across Europe, many respondents replied that they would be more likely to watch video from a service that offered free video download with ads (46%).



CONCLUSION.

It's more critical than ever to understand the importance of mobile, as more OTT apps join the marketplace and compete for viewers' attention. OTT providers that adopt a mobile-first attitude across Europe will reap the benefits as mobile video viewing continues to grow across the region. Penthera's European Streaming Behavior Survey reveals several key insights that will help inform providers on how modern day mobile video consumers behave.

- 1. Mobile streaming is becoming a regular part of life across Europe. As 4G and 5G infrastructure continues to grow across the region, more and more people are taking to their phones for entertainment. This year's report has revealed that 88% of our panelists stream video on their phones weekly or more often. Over half (57%) said they stream video when they travel.
- 2. Yet mobile video frustrations still plague viewers. More people reported being frustrated with mobile viewing in 2020 than in 2019. Respondents said they were most annoyed with the video rebuffering (52%), the video taking too long to start (49%), and the advertisements being annoying (48%).
- 3. More people are downloading. As people experience streaming frustrations more often, viewers need a solution. Download functionality alleviates streaming frustrations and provides a great user experience. Our survey revealed that if offered download capabilities, 52% would be more likely to subscribe to a streaming service and 23% would be more likely to watch programming from that service.
- 4. Download functionality can lead to new opportunities for monetization. Enthusiasm for downloading indicates that providers can not only solve users' frustrations, but also make additional revenue—either by adding a downloading feature and charging users more for it or by monetizing downloaded content with ads. Our survey revealed that the majority of respondents in Europe said they would pay a premium to download (64%). Meanwhile, AVODs that take advantage of download connectivity could take advantage of new advertising inventory.

Perhaps the biggest takeaway from this survey is the importance of guaranteeing a great user experience. Providers who include features that enhance viewing in a mobile app will see increased engagement, loyalty, subscribers, and potentially revenue and will be best positioned to surpass their competitors in the streaming wars.



Citations

- 1. Verna, P. (2020). Global Digital Video 2019. link
- 2. The State of Online Video 2019. (2020). link
- 3. O'Halloran, J. (2020). Western Europe OTT market to generate \$23BN revenues by 2023 | OTT | News | Rapid TV News. link
- 4. IAB Europe Report: AdEx Benchmark 2018 – IAB Europe. (2020). link
- 5. Fisher, B. (2020). UK Digital Video 2019. link
- Roberts, J., & Collins, J. (2020). Online viewers start leaving if video doesn't play in 2 seconds, says 6. study - Gigaom. link
- 7. Conviva's State of Streaming Q4 2019: Europe - Conviva. (2020). link

About Penthera

Penthera is a global software company that develops and deploys products allowing consumers to watch mobile video content seamlessly, even when they don't have a strong internet connection. Penthera's white label software helps OTT apps facilitate a frictionless experience with mobile video downloading, as well as products that reduce buffering and tools for discovery and marketing that increase viewer engagement. Led by Michael Willner, Chairman and CEO, and Dan Taitz, President and COO, Penthera lets viewers watch seamlessly the instant they hit play, regardless of connectivity.

Connect with Penthera

Website: penthera.com LinkedIn: / Penthera/ Twitter: @WeArePenthera

Penthera Contact

Dan Hurwitz, Chief Revenue Officer dan.hurwitz@penthera.com

Media Contact

Jodi Susman, Chief Marketing Officer jodi.susman@penthera.com