



REPORT  
**H1 2021**

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**NPAW Business  
Intelligence  
Industry Report**

Insights and trends  
in the post-pandemic  
video streaming landscape

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**Legal  
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# Keep Calm. NPAW has the Tools.

“On behalf of the whole NPAW team, thank you for being part of the massive evolution taking place with our Suite of Apps. We are excited about what the future holds.

It's safe to say that the streaming business landed on top in 2020. That said, competition remains fierce. Industry mergers and acquisitions are a reality and will continue, with new players making waves. Access to the right data will keep subscriber growth flowing as we head into the second half of 2021. And as the streaming market reboots, dedication to **Quality of Experience** and **Quality of Service** will separate those equipped for the challenge from those not willing to go the extra mile. That's why, here at NPAW, we are honing our pandemic experience into a clearer, sleeker product offering. The goal? **A better user journey through relevant analytics products.**

Our BI reports are an industry standard and one of the many NPAW resources available to businesses ready for digital transformation. Join us and examine how major industry drivers continue to shift market penetration strategies.

More than ever data and analytics represent a vital business practice that no company can ignore. **Business Intelligence products from NPAW** are here to strategically bridge the gap with a holistic, end-to-end analytics solution, delivering reliable insights in real-time.”



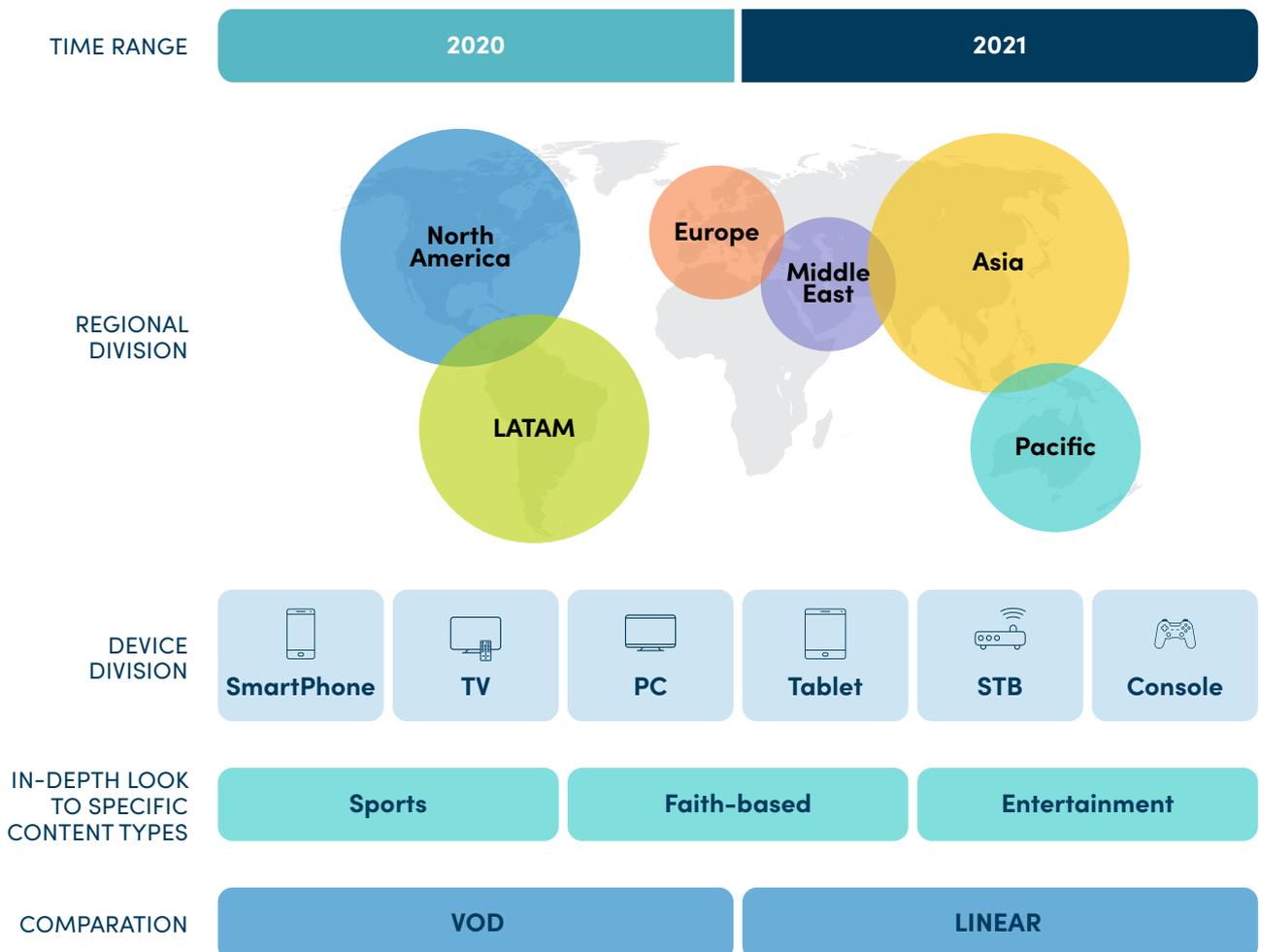
**Ferran G. Villaró**  
CEO & Co-founder at NPAW

## 1.2 About this report

This NPAW report examines the state of the video streaming industry on a global scale and dives deep to compare **Q1-Q2 data** from 2021 with last year’s findings, among others. The data featured was gathered via the NPAW Suite from January 1, 2021, to June 25, 2021, with comparison to previous year’s data. Key metrics aim to show general trends in content type consumption and how regions and devices have fared around the world. We round out core data by correlating them with industry voices, quality patterns, and device performance to understand what lessons from 2020 can be applied in 2021.

Additionally, during August 2021 NPAW surveyed 230 industry members and asked them what they think the future of the streaming business is like, the data collected from that survey is also displayed across this report.

### Our data sample



## 2. Global insights

Our **NPAW Suite** data reveals factors other than cost that influenced a consumer's experience with streaming services in **Q1 and Q2 of 2021** and other relevant quarters in 2020 and 2019. These factors have the power to drive customers away or to recruit and retain them. What is clear is that data analytics technology now exists so that businesses can treat each consumer as a category of one. Entities can use data to create unique experiences that solidify customer loyalty and customize content bundles to increase product stickiness.

Putting the customer journey first has never been more critical for streaming providers to be competitive. And, that is where real-time, correlated insights come into play.

### 2.1 The “New Normal”

As we cross the midway point of 2021, we are witnessing an impressive reboot of the industry. One notable phenomenon is how end-users are applying lessons learned from the past year. Indeed, how they are readjusting their viewing behaviors to a new normal.

#### VOD disrupts theater numbers

2020 brought on a shift from theater going to VOD streaming consumption due to lockdown conditions. Though the global pandemic caused a logical, yet massive

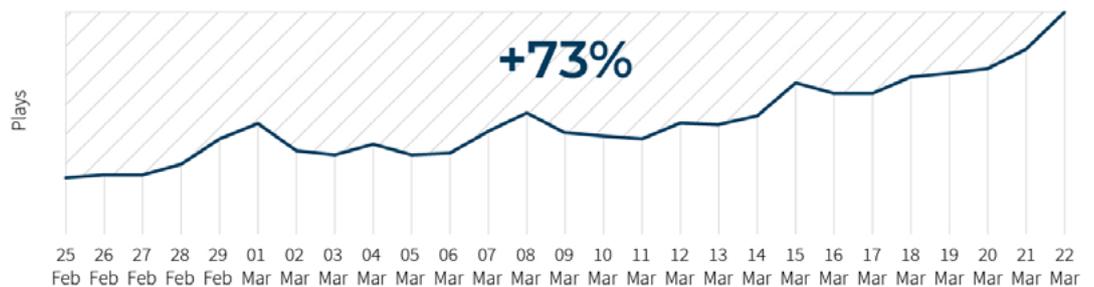
drop in theater events, time will tell if theater attendance will bounce back to 2019 numbers. Likewise, the question remains whether users will continue using streaming services bought during the pandemic period or churn as more recreational options open up.

*It's entirely possible that the entertainment choices made during a pandemic will become normalized and some semblance of normalcy occurs, or at least that the new behaviors will normalize just enough to create a real change to the entertainment ecosystem.*

— Forbes, 2021

Here at NPAW, we saw a clear Covid-driven streaming change on a global scale in 2020. Looking at US 2020 aggregated streaming data at a macro level, we saw a steady increase in **Plays** streamed from late February as people heeded official advice to stay indoors.

**US STREAMING (ALL CONTENT) - 25 FEB TO 22 MAR 2020**



Aggregated US streaming data for all content types. (Plays)  
Based on aggregated data collected from YOUTUBORA.

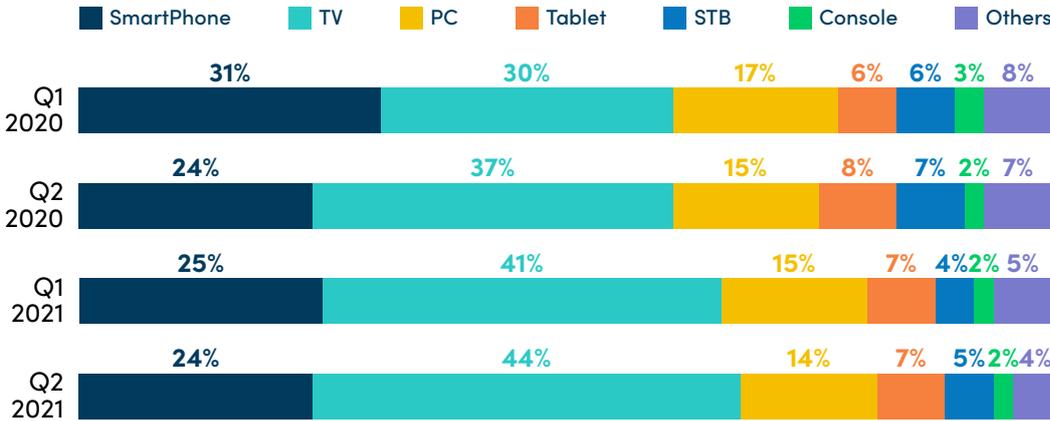
In fact, March 16-22, 2020, displayed a 29% increase in streaming **Plays** across all content in the US compared to other years that week. With that in mind, let's dive into more factors and data unfolding in the 'New Normal' of 2021.

## DEVICE TV engagement renaissance

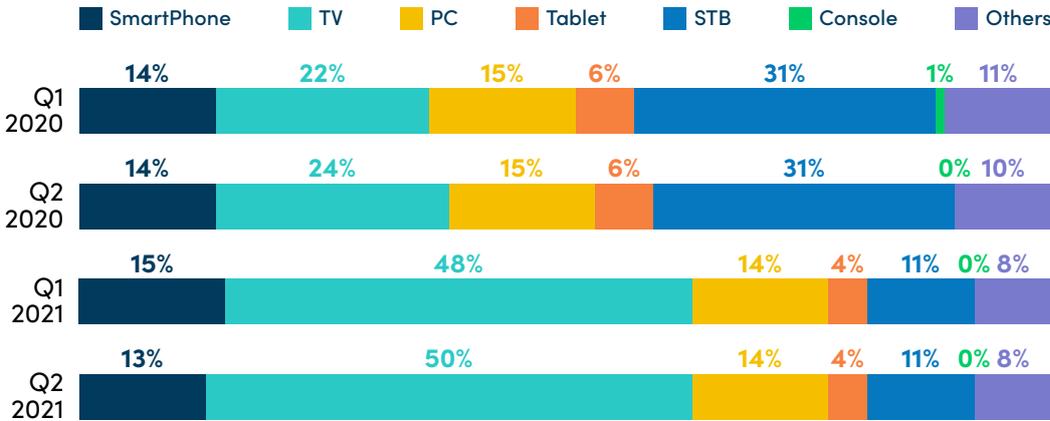
Key data in Q1 and Q2’21 reveals TV remains consumers’ viewing device of choice across the board. Why is TV a clear favorite, even post-lockdown? Have viewers started to settle into a TV-dominated post-pandemic year? Plus, what has that meant for streaming providers in terms of service quality and more?

With TV as the top device, 2021 saw the industry grow in tandem with the Q2 linear TV content demand boom. End consumers brought new “pandemic viewing” habits into the post-lockdown landscape. This trend becomes clearer when examining TV vs. small device viewing habits in this first half-year.

### VOD – DEVICE SHARE (HOURS)



### LINEAR – DEVICE SHARE (HOURS)



Consumption patterns shifted as consumers moved to big screen content in 2020, a pattern that continues today. **Playtime (in hours)** increased for TV devices

in both Q1 and Q2 for 2021 compared with last year’s same period. Specifically, 71.9% more Playtime hours in VOD when comparing Q1’21 and Q1’20. Meanwhile, playtime in TV devices rocketed by 167% in Q2’21 vs. Q2’20.

Demand for **linear content on TV** rose a mind-boggling 253.3% in Q1’21 vs. Q1’20 showing high consumer anticipation for the return of live events. Combined with new comfort found in TV content, Q2’21 built on this upward trend producing a 167% increase from the previous year.

**PLAYTIME (HOURS)**



Changing consumer habits had and continue to impact engagement delivery strategies, which in previous years focused on handheld devices. Overall, our data shows lower consumption levels on handheld devices in terms of the **Avg. Daily Playtime per User** with implications for engaging consumers.

A clear peak emerges in Q2’21 for nearly all devices. However, big-screen formats, such as TV, lead the pack. But why TV, when small device streaming has been such a hot topic in the industry for so long?

The “Corona effect”, in the US in particular, saw consumers purchasing record numbers of new TV devices as part of their “home improvement” during the lockdown. In turn, this isolation led to consumers spending more time on their new big screen devices, even post-lockdown. A TV renaissance where people want the biggest, best experience they can get from their living room. Users “have decided to upgrade their TV ahead of schedule” (USA Today, 2021) and continue to choose their new TV above other devices. Industry customer surveys concur, showing that “TV

viewing will likely remain elevated, with most consumers watching more or the same amounts,” with linear TV leading the pack in content views plan to watch more. (Tremor video).

## Small devices roam

Last year consumers used small devices at home to stream and surf content while connected to their home router’s wifi. On the flip side, consumers are enjoying linear content away from home this year: the result, an increase in non-serious quality issues for small devices. Specifically, **Buffer Ratio** reveals an increase in incidents for **linear streaming** via smartphone devices in Q1 and Q2’21 compared with the same Qs in 2020.

### BUFFER RATIO



LINEAR – Q1 2021 vs. Q1 2020

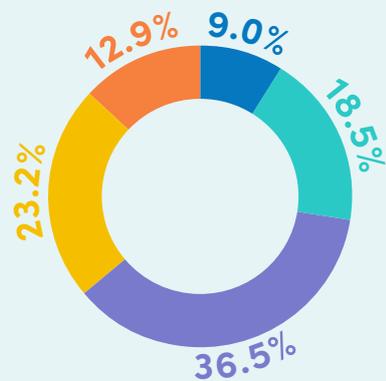
**+34.7%**

LINEAR – Q2 2021 vs. Q2 2020

**+21.0%**

In an industry survey carried out by NPAW in August 2021 with streaming industry members, respondents were hesitant to say if this trend is here to stay or not. Most of them (36.5%) said it might stay, while the 23.2% said the trend is likely to stay and 18.5% said it is not very likely to stay.

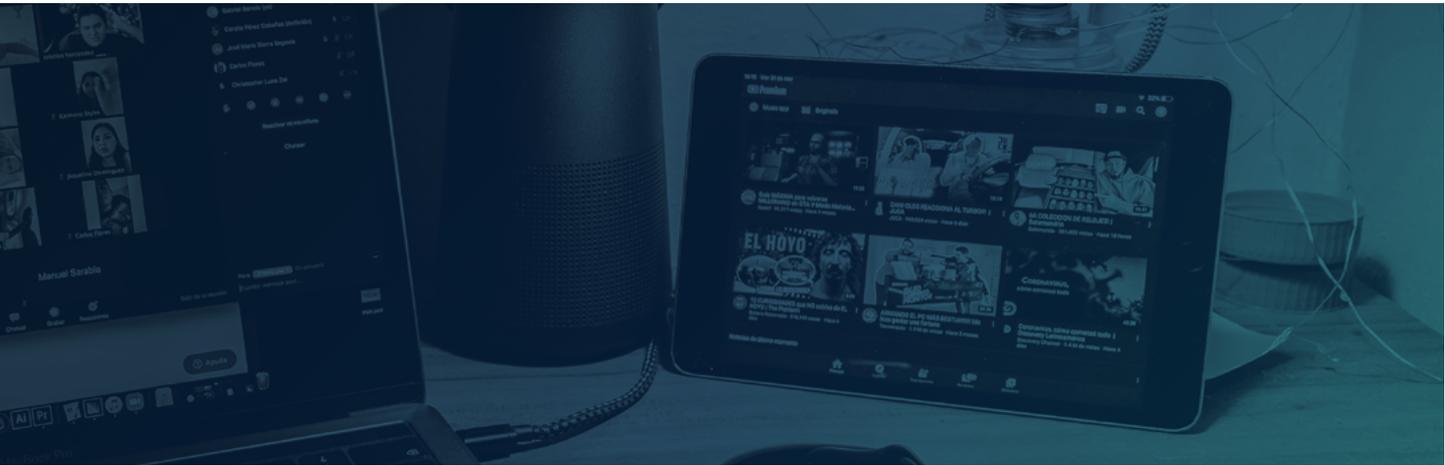
**Seeing the impact the pandemic had on streaming consumption trends in 2020, do you think the trend will remain where users will prefer to stream video on big screen devices (TV/Smart TV) rather than on handheld devices (Smartphones and phablets)?**



- Not likely to stay at all
- Not very likely to stay
- It might stay
- Likely to stay
- Very likely to stay

# QUALITY OF EXPERIENCE ANALYSIS

## How providers coped - the impact on UX

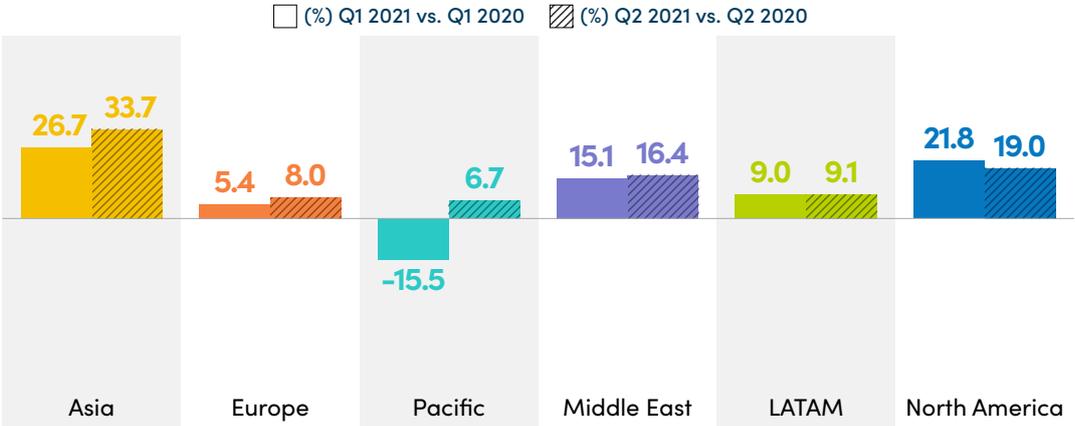


### VOD figures

Leading streaming services positioned themselves in Q1 and Q2'21 to deliver the best and most transparent value to the consumer, but they shouldn't let their guard down. Providers tried to cope with post-pandemic behavioral change by optimizing big screen QoE. Namely, a strategic increase in bitrate and join time to decrease **buffer ratio** during playback. However, results didn't pan out as expected in terms of overall QoE, resulting in more error crashes and a higher **Exit Before Video Starts (EBVS)**.

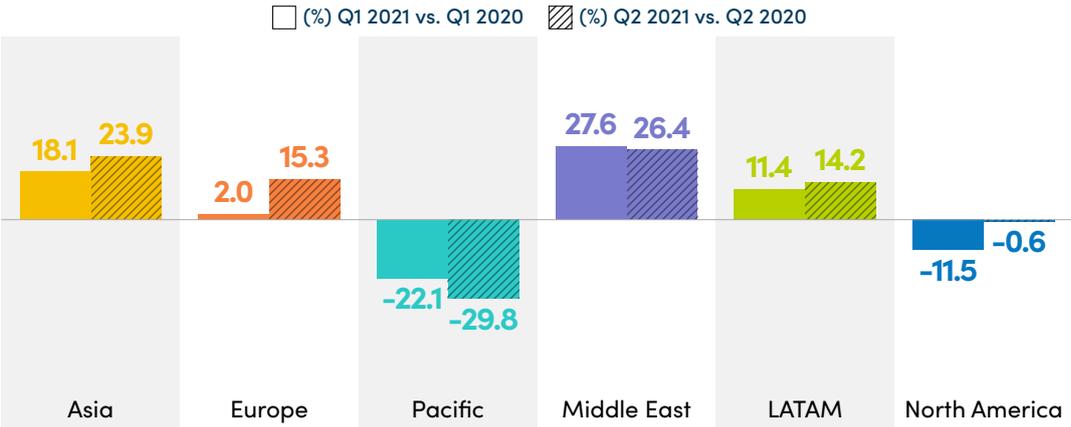
### Avg. Bitrate VOD

Data also shows an increase in **Avg. Bitrate**, meaning better-quality videos were streamed in North America, the Middle East, LATAM, and Asia in Q1 and Q2'21 compared to the same quarters in 2020. Only the Pacific region reported a decreased bitrate in Q1'21 compared to Q1'20.



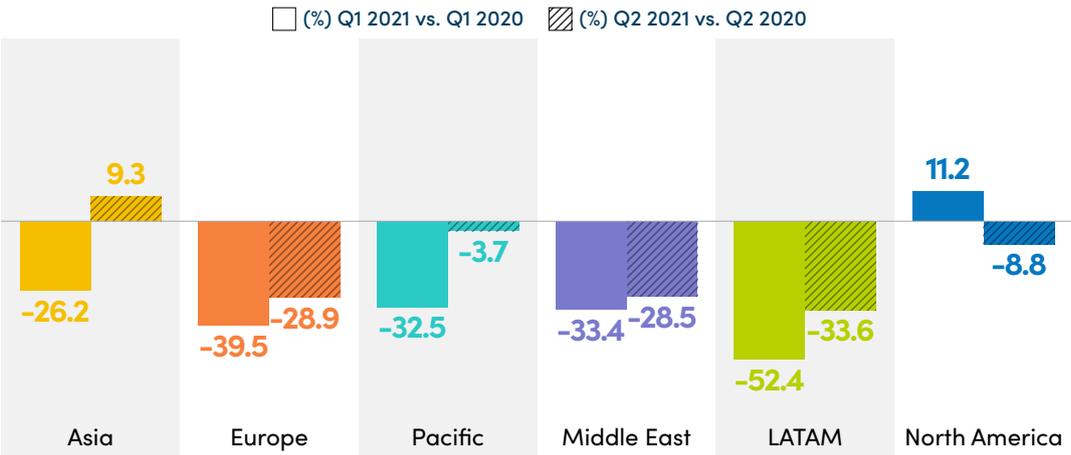
**Join Time VOD**

**Join Time** metrics increased in the Middle East, LATAM, Europe, and Asia during Q1 and Q2'21. Meanwhile, North America experienced an 11.5% decrease during Q1'21. Findings suggest **a lower wait time for content to start** but more interruptions during streaming in Q1'21 vs. Q1'20. Finally, the Pacific region produced the biggest decrease in Join time during Q1 and Q2'21, with a 22.1% and 29.8 % drop respectively.



**Buffer Ratio VOD**

**Buffer Ratio** decreased in Q1'21 vs. Q1'20 for all regions, except North America, which experienced an 11.2% increase. Lower values were also seen in Q2'21 compared to Q2'20 for most regions. And while North America experienced an 8.8% decrease, Asia was the only region that showed an increase in buffer ratio at +9.3%.



**General streaming error crashes VOD**

Findings show the **number of plays with error crashes** increased for almost all regions in Q1'21 compared to the same quarter the previous year. Indeed, errors occurred at both the start and during the reproduction of the streamed content. Specifically, 0.32% more **Plays** were affected globally and 0.52% more plays were affected in North America in terms of **Startup Error Crashes**, when comparing Q1'21 vs. Q1'20. Meanwhile, 0.35% more plays were affected worldwide by In-stream Errors, and 0.48% more plays in the case of North America.

**VOD Global**  
Plays with Startup Error Crashes

Q1 2021 vs. Q1 2020

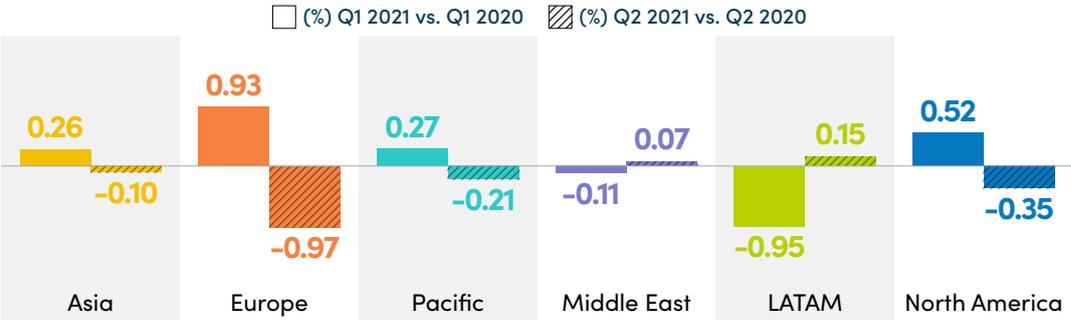
**+0.32%**

Q2 2021 vs. Q2 2020

**-0.31%**

When comparing Q2'20 vs. Q2'21, North America's data shows 0.35% fewer **Plays** affected by startup error crashes vs. the same quarter in the previous year, while Asia and the Pacific region experienced 0.1% and 0.21% less respectively for the same metric. **In-stream error crashes affected more plays in Q2'21 than in Q2'20.** Globally, 0.26% more **Plays** were affected, with more **Plays** also affected in Asia (+0.81%), the Pacific (+0.79%), and North America (+0.64%).

**Plays with Startup Error Crashes**



**Plays with In-stream Error Crashes**



**EBVS VOD** **EBVS** increased for most regions in Q1'21 vs. Q1'20, with a 17.6% increase in North America. Higher EBVS values also emerged in Q2'21 vs. Q2'20 for all regions except the Pacific, which experienced a 24.2% decrease.



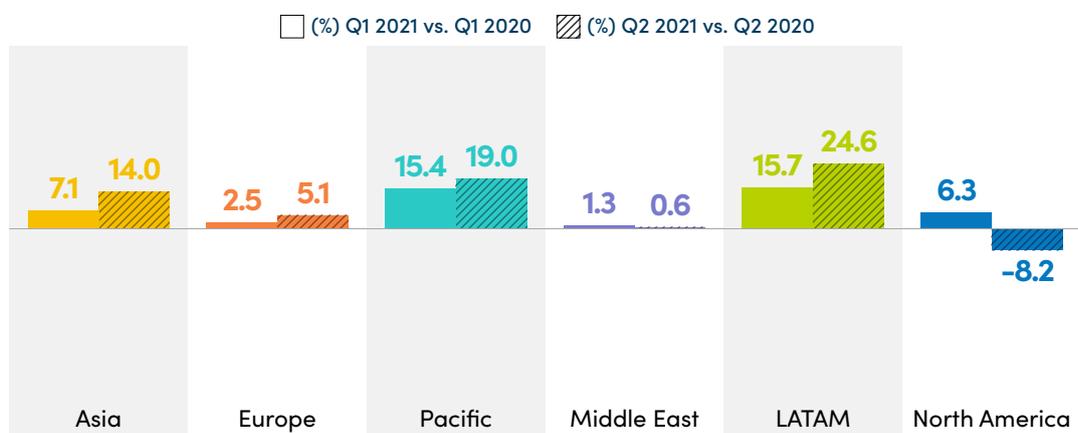


### Linear figures

Like VOD content, providers decided to increase the **Avg. Bitrate** to deliver higher quality to big screen content consumption. Some regions went for a higher **Join Time**, while others decided to shorten the same. The strategy seemed to function in some regions like the Pacific where, even though the join time was higher, users were willing to wait for good quality and, thus, **EBVS** decreased.

#### Avg. Bitrate Linear

**Avg. Bitrate** increased for all regions in Q1'21 vs. Q1'20, suggesting a better quality served. North America increased by 6.3%. The biggest increase was in LATAM (+15.7%), followed by the Pacific region (+15.4%). By delivering content in a higher bitrate, Pacific region users encountered longer wait times for content to load. The Pacific and LATAM regions continued the Q2'21 trend of higher delivered bitrate of +19% and +24.6% respectively, compared to the previous quarter in the previous year. North America saw a drop compared to the same quarter in Q2'20, but an increase compared to Q1'21.



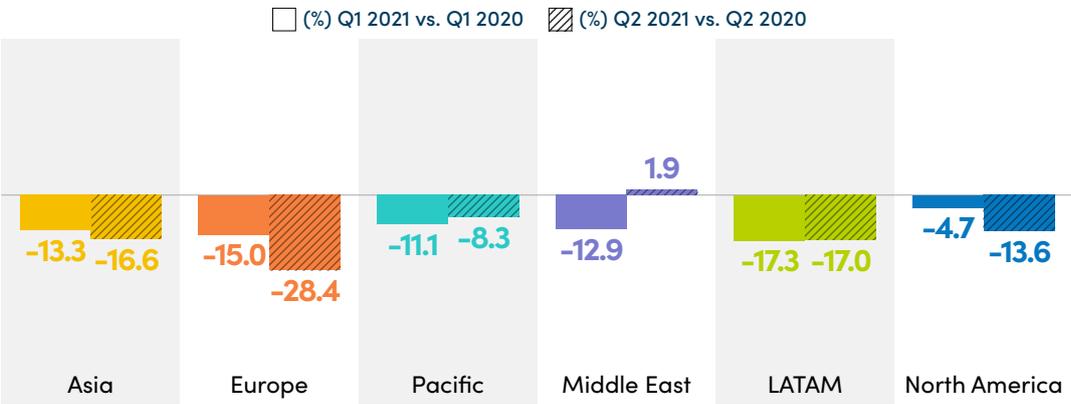
**Join Time  
Linear**

**Join Time** increased in Q1'21 vs. Q1'20 for the Pacific region by 26.9%, while North America experienced a 6.6% increase. For Q2'21, it was the Middle East and Asia that decided to increase Join time in comparison to the same period the previous year.



**Buffer Ratio  
Linear**

**Buffer Ratio** dropped in Q1'21 (compared to Q1'20) for all regions. North America experienced a 4.7% decrease in buffer ratio. Q2'21 generally shows decreases in Buffer Ratio compared to the same quarter previous year, except for the Middle East region which saw a 1.9% increase. North America saw a decrease of -13.6%.

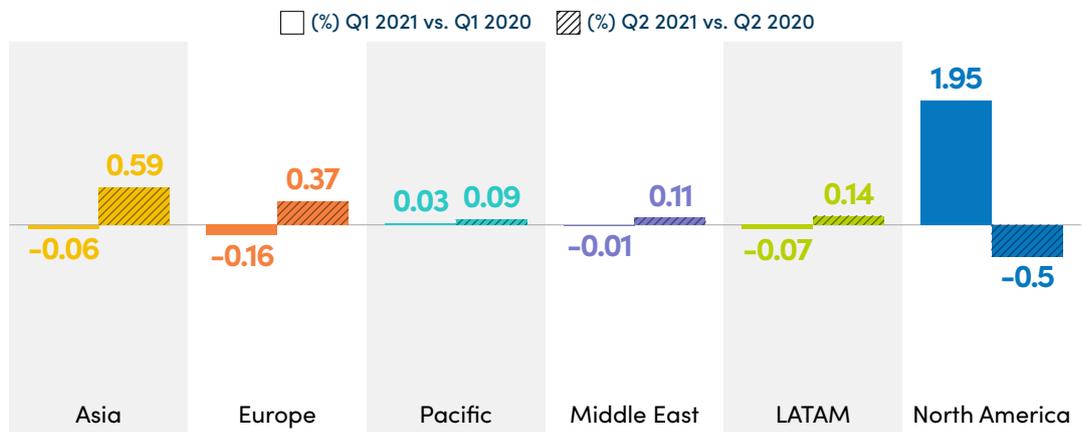


**Error crashes Linear**

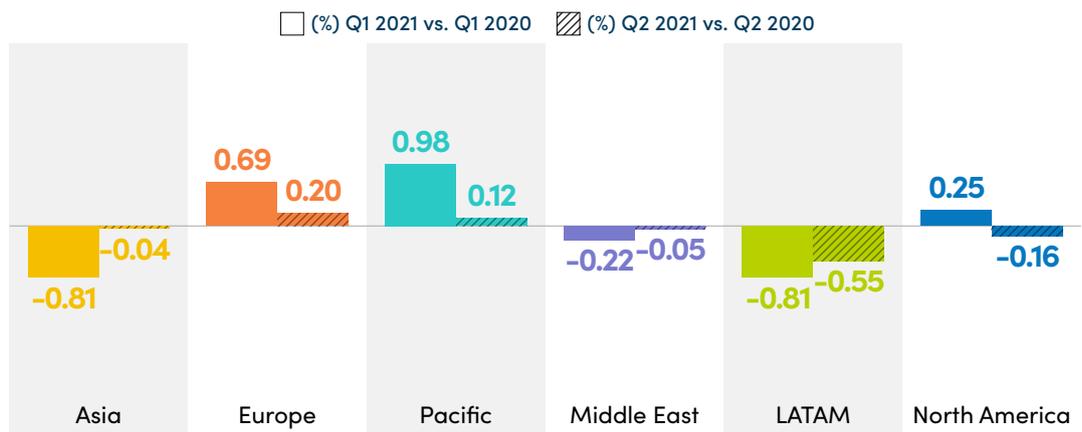
**Error crashes** increased for the majority of regions in Q1'21 compared with the same quarter the previous year (Q1'20): 1.95% more plays experienced Startup Error Crashes and 0.25% more plays experienced In-stream Error Crashes in North America. LATAM and Asia experienced fewer Startup and In-stream Error Crashes, -0.07% and -0.81% respectively for LATAM and -0.06% and -0.81% respectively for Asia.

Error decreased for North America in Q2'21 compared with Q2'20 for both Startup and In-stream Error Crashes, -0.5% and -0.16% less plays affected, respectively. All other regions saw more plays with Startup Error Crashes in Q2 compared to the same quarter previous year.

**Plays with Startup Error Crashes**

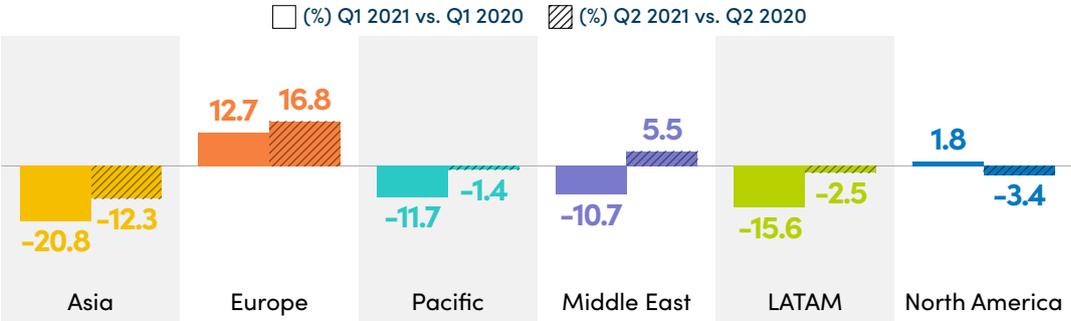


**Plays with In-Stream Error Crashes**



**EBVS Linear**

**EBVS** values dropped for most regions in Q1'21 vs. Q1'20. North America experienced a 1.8% increase. Asia continued to report lower values in Q2, continuing the trend at the start of the year: 12.3% less EBVS in Q2'21 vs. Q2'20.

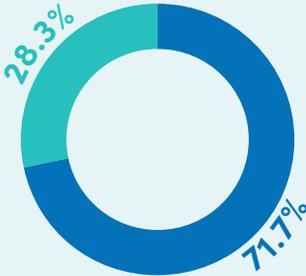


When asked regarding consumer preferences when consuming content, the majority of the surveyed sample (71.7%) thinks viewers would rather wait longer for the video to start in order to get better quality content, versus a 28.3% who thinks viewers would rather get their content fast even if it means less quality.

Given the built-in streaming constraints for mobile devices, services face a balancing act to provide viewers with a quality experience. Namely, mobile data and wifi connections are not nearly as strong or capable as Ethernet connections or in-home wifi.

So, challenges related to internet speed will continue and affect general streaming errors. Thus, the cornerstone to fighting errors and a purposeful quality strategy starts with access to the right data on the customer journey.

**What do you think viewers value more when it comes to the wait/quality of content balance?**



- Wait longer until the video start to get better quality content
- Sacrifice quality to get the video started faster

**ENGAGEMENT ANALYSIS**

**The discerning customer**

*To keep customer satisfaction levels high, we believe streaming providers should be infinitely focused on the customer experience. Fueled by data, companies can engage each customer contextually and remain competitive.*

— Ferran Gutierrez, CEO at NPAW

**VOD: impact and quality**

Streamed content of any kind from any device has a short **“impact window”** for the consumer. With more streaming platforms and formats to choose from, consumption data suggests that customers are becoming more selective than ever when partaking in VOD. That said, drops in **Avg. Effective Playtime** numbers so far in 2021 indicate that viewers did not find the right content or that quality fell short, even though overall consumption increased.

Linear content met expectations across the board. But, how did VOD fare? NPAW suite data in Q1 and Q2’21 data reveal that VOD’s **Avg. Effective Playtime** decreased slightly from the same Qs last year. In particular, North America saw a 6.7% drop on average. Some exceptions emerged in the Pacific, LATAM, and the Middle East regions, which experienced a slight increase in the **Avg. Effective Playtime** in Q1’21 vs. Q1’20.

**VOD - AVG. EFFECTIVE DAILY PLAYTIME PER USER**



**VOD engagement metrics** flowed in the opposite direction in the first half of 2021, with a drop noted in relevant data. However, organizations that want to support viewers at different stages of their video journey know that engagement

is king and have worked to re-engage customers through analytics strategies. Meanwhile, the Q2'20 peak in **Avg. Daily Playtime per User** continues to drop off since then. Specifically, NPAW Suite data saw a 3.3% decrease in Q1'21 vs. Q1'20 and a 17.9% decrease in Q2'21 vs. Q2'20. The only regions which experienced an upward evolution in their **Avg. Daily Playtime per User** in Q1'21 vs. Q1'20 were LATAM (+1.9%) and the Middle East (+0.5%).



### Linear content: firing on all cylinders

Demand for quality **linear streaming** seems to have hit a chord with viewers in 2021. That said, businesses must meet consumer expectations, such as for Championship event coverage, and not break the bank in the meantime. Thus, meeting this challenge means real-time **data visibility** plays a more crucial role than ever before.

On the ground, NPAW Suite data demonstrates providers positively met customer expectations in quality and content demand. **Avg. Effective Daily Playtime per User** for linear streaming increased in Q1'21 vs. Q1'20 for North America (+8.4%), the Pacific (+7.8%), and Asia (+17%). Likewise, Q2'21 data showed continued increases in linear streaming **Avg. Effective Daily Playtime per User** compared to the same quarter in 2020.

### LINEAR- AVG. EFFECTIVE DAILY PLAYTIME PER USER



Regionally, **Avg. Effective Playtime** data escalated in North America (+25.5%) and Asia (+13.4%). Europe saw a 3.2% drop in Q1'21 vs. Q1'20, followed by a 6.3% increase Q2'21 vs. Q2'20. Exceptions to these findings included the Middle East region, which experienced a 23.1% decrease. Meanwhile, engagement metrics like

**Avg. Daily Playtime per User for linear streaming** also increased 10.6% during Q1'21 vs. Q1'20, with a slight -0.5% slow down in Q2'21.



## Global takeaways

Although many factors influence perceived quality and engagement, no one-size-fits all strategy meets user expectations. Logically, customer reactions vary in similar streaming situations. With that in mind, here are some insights that emerged from NPAW data in this context.

- 1 TV devices are currently more crucial for video streaming vs. hand-held devices, especially with the drop in smartphone content viewing.
- 2 Providers boosted the average bitrate for VOD and linear almost across the board, to create a stable streaming environment for big-screen devices.
- 3 Global quality of experience remains solid due to a stable number of Error Crashes and a decrease in Buffer Ratio. Meanwhile, the rise in EBVS for VOD could be linked to a higher Join Time, although the same pattern does not transfer to Linear TV consumption.
- 4 The Pacific region had in its approach to VOD. Avg. Bitrate dropped in this region and, as a consequence, Join Time and EBVS were low. Meanwhile, it experienced a strong increase in In-stream Error Crashes.
- 5 Consumption increased in total hours of playtime. However, engagement decreased for VOD, probably due to a rise in the streaming subscribers across platforms. Linear consumption increased in both the number of hours and engagement.

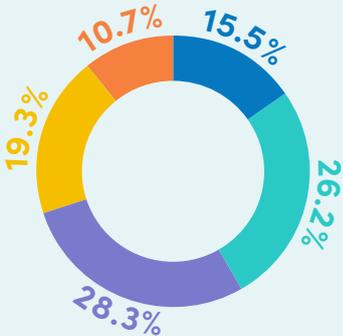
Key questions remain. Such as, will these trends continue in the post-Covid scenario? And, will the average playtime stay short while total hours stay high?

### Implications for providers

Consumers know how their daily streaming experience feels. For example, how easy it is to join or view content in their chosen streaming service or how convenient it is to leave and rejoin. Access to **reliable analytics** data means streaming companies can offer consumers more freedom and a better overall **linear** and **VOD** viewing experience.

Survey data shows that the majority of respondents (28.3%) are uncertain whether engagement levels will remain low while the amount of streaming consumers increases. In second place, 26.2% of respondents think this trend will not likely continue.

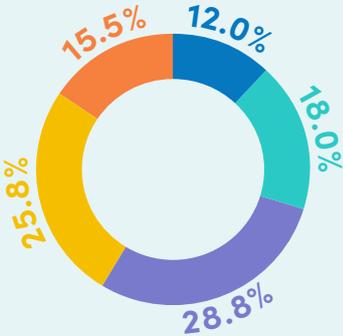
**Seeing the impact the pandemic had on streaming consumption trends in 2020, do you think the trend will remain where total streaming hours will increase, although avg. effective playtime will decrease (more users, less engagement)?**



- Not likely to stay at all
- Not very likely to stay
- It might stay
- Likely to stay
- Very likely to stay

Respondents also think that households may and will likely increase the number of streaming subscriptions to diversify their content options.

**Seeing the impact the pandemic had on streaming consumption trends in 2020, do you think households will increase the number of streaming subscriptions in order to diversify their content options?**



- Not likely
- Not very likely
- Maybe
- Likely will
- Very likely will

## 2.2 Big game night



Sports streaming professionals can turn pre-recorded, and Live-streamed video into usable, shareable data. Data that will help companies make better strategic decisions, delight fans, and even predict the future. Analytics technology that funnels this key data can pinpoint the most essential figures about VOD and linear sports content. The results, data-ready highlights which can help build a great defense with lasting value and quickly incorporated insights.

### Fanning the flames of VOD

**VOD sports consumption** is on the rise, and not only because of 2020's flat line in live events. Sports enthusiasts' religious dedication as viewers means they tolerate barriers other viewing segments wouldn't have in order to watch sports-based VOD content or sports news. In this context, streaming services understand that quality in delivery means a home run for sporting events. And, they want to deliver.

A three-tier comparative approach using 2019, 2020, and 2021 data analyzes the shifts and trends shaping this sector:

**The Bitrate** was higher in 2021 Qs compared with historical values. Q1'21 values dipped slightly lower than the previous quarter (Q4'20). Since 2019, Bitrate has steadily increased by 5.8% into 2020 and another 5.8% on average in H1 2021. These findings could mirror streaming providers' push to provide more Bitrate and, thus, more quality in streaming to TV viewers, among others.

**VOD – AVG. BITRATE**



Meanwhile, 2021 **Buffer Ratio** values dropped compared to the historical values for both quarters in other years. 2019 saw the lowest average figures to date; then, the data shifted upward in 2020. Finally, H1 2021's buffer ratio figures landed more in line with 2019's after an 18.3% drop. Findings could reflect the ebb and flow of users' experience with buffering during content streaming or stalls in the middle of playback due to a buffer underrun related to in-home wifi usage.

**VOD – AVG. BUFFER RATIO**



Partners using NPAW Suite data to battle in-stream error crashes in their services saw their work come to fruition. Specifically, fewer plays were affected by **In-stream Error Crashes** in both 2021 quarters, compared with historical values. Meanwhile, in-stream error crashes decreased by 15% from 2019 into 2020 and experienced another solid -17.5% reduction in 2021 compared to 2020, so far.

**VOD – IN-STREAM ERROR CRASHES**



More **Plays** were affected by **Startup Error Crashes** in Q1'21 than in the same quarter last year. Conversely, fewer plays were affected by Startup Error Crashes in Q2'21 compared to Q2'20 and Q1'21. Startup Error Crashes rose significantly in 2020 vs. 2019, with a 75% increase in plays affected. Although 2021 is still rebooting from this peak Q1 figure, Q2'21 experienced a drop not seen in the previous six quarters.

Even though figures displayed an increase in **Startup Error Crashes**, this data seems to support that sports viewers are more patient. They are willing to wait to get their content, compared to lower toleration levels for general content consumers. So, time will tell how startup errors will evolve or clear up as the year progresses.

**VOD – STARTUP ERROR CRASHES**



Trends in both **Join Time** and **EBVS** reflect lower values in 2021 compared with historical norms, with a slight upturn in Q2'21 vs. Q1'21. Meanwhile, The NPAW Suite data produced lower error crashes figures on average since 2019. Notably, EBVS's **number of plays impacted** decreased a robust 6% in 2020 and another solid 4.4% in 2021.

2020 streaming data only experienced a 6% drop in Sports VOD consumption compared to 2019's figures even in light of the worldwide cancellation of 2020 sporting events. A strong Q1 bolstered this trend prior to Covid's onset, after which figures dropped significantly.

VOD – JOIN TIME



VOD – EBVS



**Avg. Playtime** landed higher in 2020 than 2019, with Q4’20 delivering the highest average. A similar amount of **plays attempted** emerged in Q1’21 compared to the previous year’s Q1. Likewise, a heavy increase in Q2’21 vs. Q2’20 played out, even though fewer plays occurred than in Q1’21. And finally, **Avg. Effective Playtime** increased in both Q’21s from the previous years’ values, revealing data-driven decisions can bolster quality delivered.

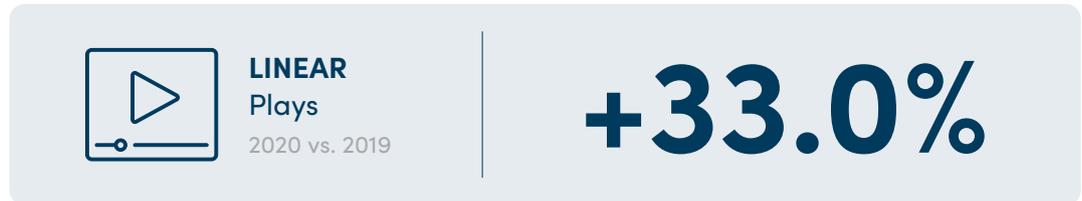
VOD – AVG. EFFECTIVE PLAYTIME



## Linear sports emerge from hibernation

**Linear sports consumption** is on the rise and more anticipated than ever by the current and future global streaming community. And, this trend shows no sign of letting up soon with the data speaking to this reality. Specifically, more **Plays** were attempted in Q1'21 and Q2'21 compared to the same quarters the previous year. Hours consumed follow the same shift, meaning **end-customers streamed five times more hours** of Sports events like the European Championship or Copa America in Q2'21 vs. Q2'20.

While sports VOD consumption was down from 2019 to 2020, **Play** figures were 33% higher in linear sports content, boosted by a strong Q3 and Q4 in 2020 when spectators watched events from the comfort of home on their TV. This movement continued into 2021. That said, **Playtime** was already tailing off in 2019, reaching a low in Q2'20. However, findings demonstrate a resurgence in Playtime from Q3'20 into 2021; specifically, 33% more Playtime in the year to date than the 2020 average.



### Quality and latency

Small to large-sized streaming services alike understand the important role quality and low latency play in delivering great linear content. **Successful strategies** deliver high quality through higher Bitrate and fewer Buffer incidents. In that context, our data display that Bitrate increased for both 2021 Qs compared to historical values for the same Qs in 2020.

#### LINEAR — BUFFER RATIO



**LINEAR — AVG. BITRATE**



Extending our data search range into 2019, NPAW Suite data reveals lower figures, steadily increasing over time with a 13.5% increase in 2020 and another 5.4% rise into 2021. Buffer Ratio values in 2021 have decreased compared to the historical values for both Qs. When looking back to 2019, we see a higher average for Buffer Ratio, which has continued to fall.

**Metrics: patience, facts, and figures**

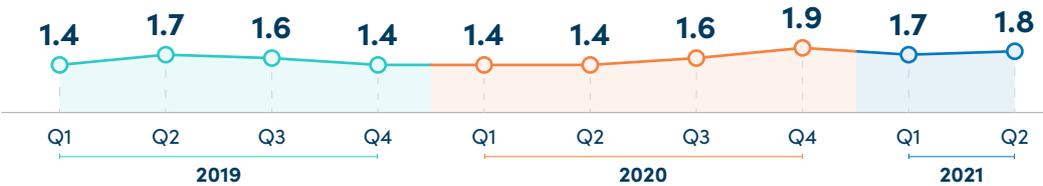
Data generally displays that consumers are more impatient at the start of linear sports consumption, especially when looking at EBVS numbers. Conversely, sports users seem more tolerant of in-stream error crashes than other content segments and are willing to hold on to continue watching their chosen content. For example, 2021’s **Join Time** for linear sports saw lower values than both Qs’ historical values. This metric peaked in Q4’19 but has steadily dropped since then, with numbers lower on average now than in previous quarters.

**LINEAR — JOIN TIME**



More **Plays** were affected by **In-stream Error Crashes** in Q1'21 compared to the previous year. Likewise, Q2'21 vs. Q2'20 produced slightly more plays affected by In-stream Errors. And, looking back to 2019, this number has steadily increased and peaked in Q4'20, with the low point reached in Q2'20. Overall, 2021 has so far averaged 14% higher in terms of Plays than all of 2020. This was primarily caused by two big football events: EURO 20 and Copa 21.

**LINEAR — IN-STREAM ERROR CRASHES**



Plays were affected by more **Startup Error Crashes** in Q1'21 compared to 2020. Meanwhile, Q2'21 experienced fewer plays affected by error crashes at the start of the stream compared to the previous year. This figure more than doubled from 2019 into 2020 (rising 158%). However, Q2'21's already low number of Startup Error Crashes sends a positive signal that the industry is rebooting.

**LINEAR — STARTUP ERROR CRASHES**



**EBVS** values increase quarter after quarter, with Q2'21 data slightly higher than the start of the year. Likewise, 2019 EBVS figures also ranged lower. This trend might be explained by examining the Startup Errors rate, which indicates consumers' low tolerance for errors at the beginning of the streamed content. On the other hand, sport content consumers demonstrate more tolerance to **In-stream Error**

**Crashes.** NPAW Suite data speaks to this, revealing more plays affected by In-stream Error Crashes but also a longer **Avg. Effective Playtime** compared to those values from previous years.

**LINEAR — EBVS**



**LINEAR — AVG. EFFECTIVE PLAYTIME**



The data for both **linear and VOD sports** highlight that there is no “one-size-fits-all” strategy for optimizing video. Different audiences will behave in different ways when exposed to content types and streaming models. And, it also pinpoints how the power of monitoring and analytics can open the door for providers to offer audiences what they look for when they look for it.

**2.3 Faith-friendly streaming**

**Where tradition meets consumer behavior**

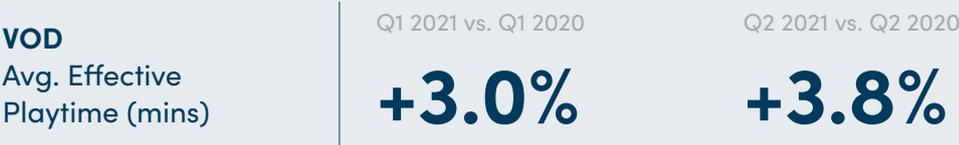
Faith-based programs<sup>1</sup> saw a quicker return to pre-pandemic viewing routines compared to viewer segments. In terms of metrics, **Total Playtime (hrs)** increased by an astounding 29.4% in Q1’21 vs. Q1’20, revealing religious viewer’s return to this specialty content after last year’s surfing of standard programming.



Findings in this viewer segment also support the trend towards TV as the top viewing device. “Older consumers tend to value the familiar, effortless viewing experience that comes with having scheduled content served up for them.” (Cincopa.com, 2021) In this context, consumers desire a shared, social experience of watching TV programming with family members as a substitute for public worship.

**Holidays at home**

Easter landed in Q2 of 2021, where the **Avg. Effective Playtime** for faith-based content jumped by 7% compared to Q1’21. Also noteworthy is how 2021’s second-quarter **Avg. Effective Play Time** rose 3.8% from Easter Q2’20. Figures show that consumers of this content segment celebrated Easter at home since restrictions were still in place, preventing large-scale events.



Christmas Q4’20 enjoyed the most viewership and hours consumed of faith-based content compared to other recent quarters. Data demonstrated a high user engagement to this specialty content over the 2020 Christmas season.

<sup>1</sup>Please note: findings in this section are based on the NPAW Suite North American data.

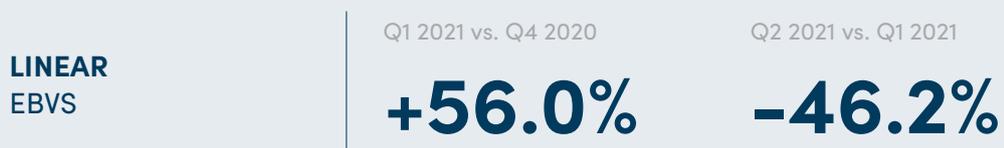
Then, Plays and Playtime increased in Q1'21 compared with the same quarter in 2020. However, these values were lower than those reported in Q4'20 due to the traditionally high demand for Christmas programming.

## Resurrection of Linear content

Bitrate in linear religious events continues on a positive trend. Data show quarter after quarter increases with a 9.9% rise in Avg. Bitrate (Mbps) from Q4'20 to Q1'21. Findings represent a clear demand for linear TV content and providers pushing bitrate output to meet the demand for quality streaming experiences.



Meanwhile, a 46% drop in Q2'21 to Q1'21 linear content EBVS (%) exhibits how consumers of linear faith events stayed to watch long anticipated, long-running TV programs. This return to pre-pandemic behavior signals a slow down in last year's surf and exit behavior for non-religious or pre-recorded religious content in 2020.



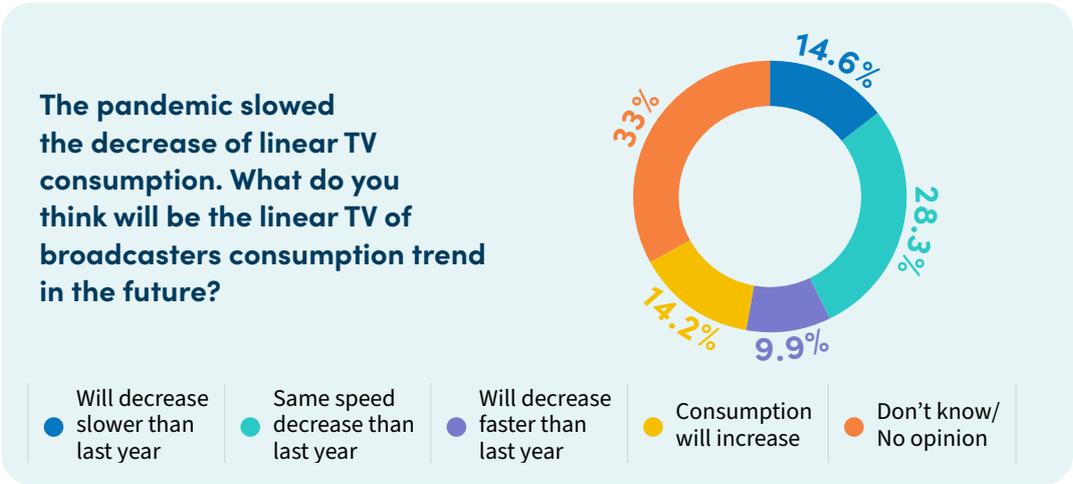
## A shared vision

With traditional consumers returning to routine viewing habits, the future of faith-based content seems clear. Religious programs can better reach out to current and future consumers of this spiritual content niche when aligned with solid analytics on engagement and more.

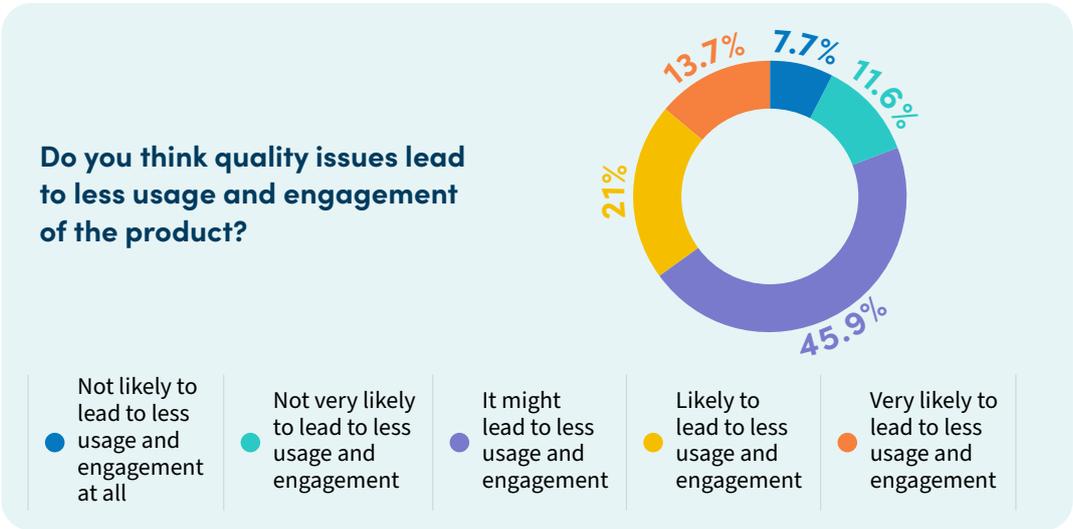
## 2.4 Time will Tell (Survey data)

Streaming providers are certainly taking notes about the changes in consumption patterns and have made their predictions.

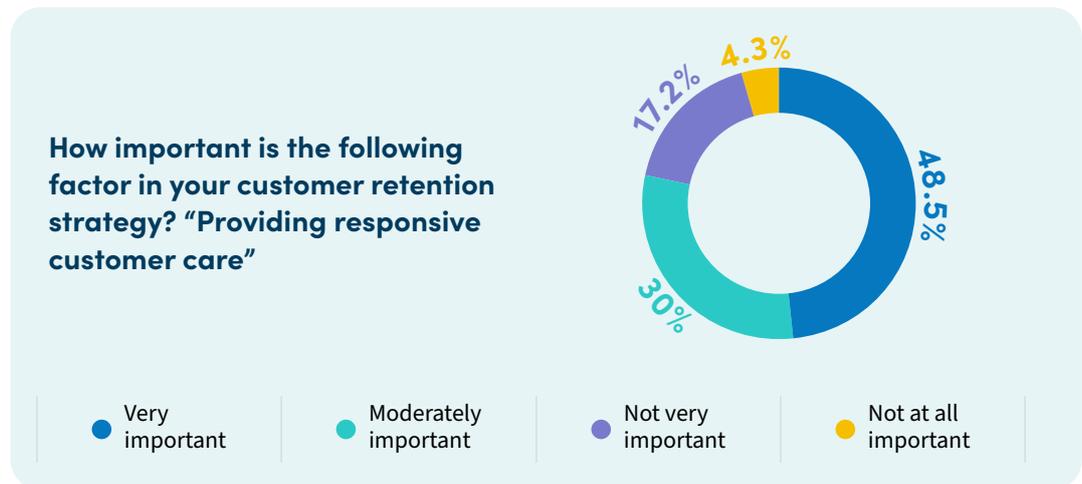
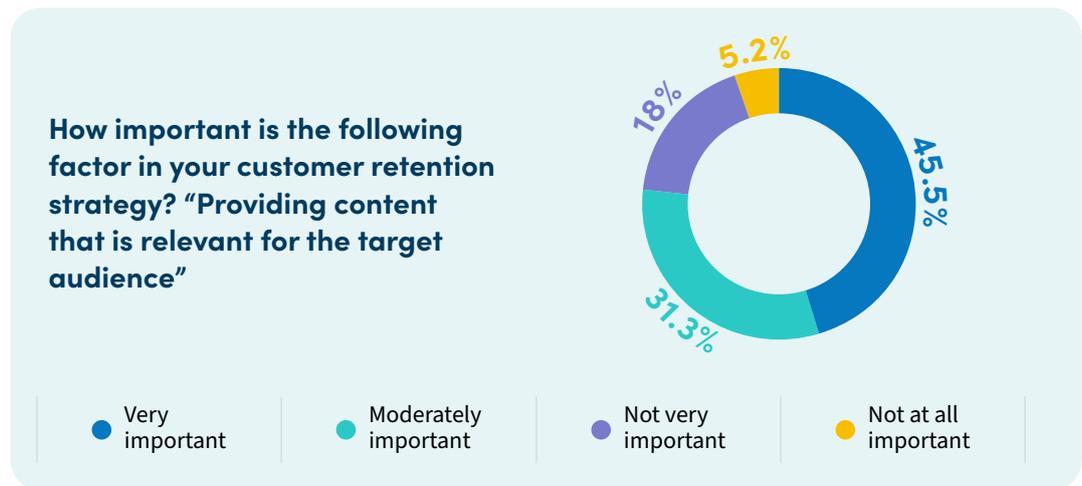
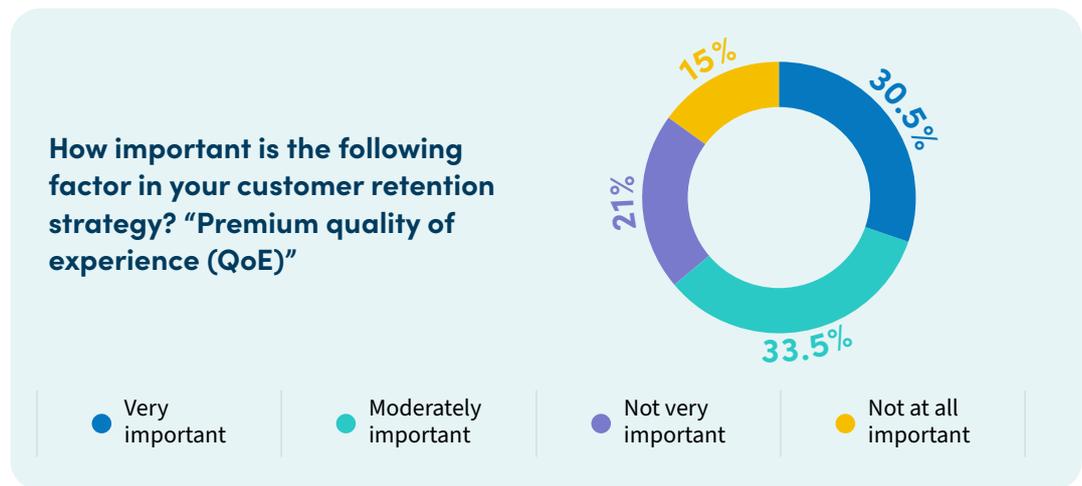
Besides predicting the engagements levels will most likely remain the same or increase in the future, and thinking that households will increase their streaming subscriptions in order to get a wider content offer (see section Implications for providers of this report), respondents are not so sure about the linear TV consumption trend, despite the pandemic slowing the decrease of linear TV consumption during 2020.



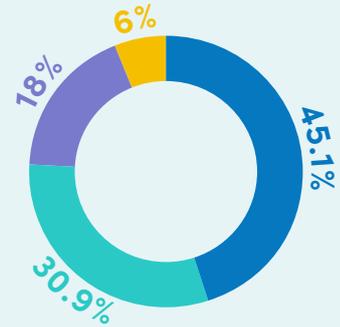
When it comes to the impact that quality issues have on engagement, 45.9% of respondents think quality issues might lead to less usage and engagement, while 34.7% think it is likely or very likely that quality issues lead to less usage and engagement.



A very important topic when looking at the future is how to increase customer retention. We asked our sample how important several factors are in their retention strategy. From the answers, we can conclude that a personalized content catalog and a responsive customer care system are on the top of mind of providers, with the majority of the respondents marking them as Very important. Here are the full results:

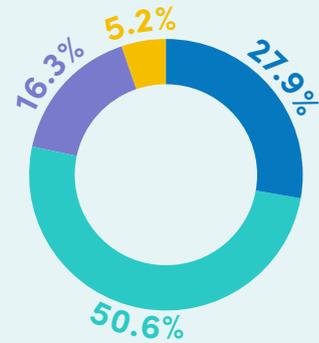


How important is the following factor in your customer retention strategy? "Maintaining an appealing content catalog personalized to different segments"



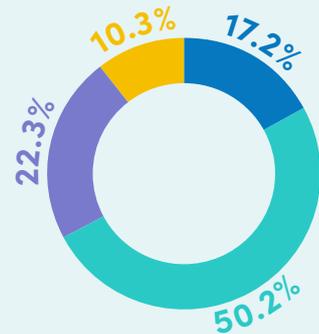
- Very important
- Moderately important
- Not very important
- Not at all important

How important is the following factor in your customer retention strategy? "Product development and enhancement (e.g: features such as offline playback)"



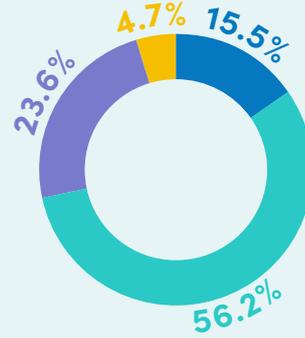
- Very important
- Moderately important
- Not very important
- Not at all important

How important is the following factor in your customer retention strategy? "Innovative pricing with appealing bundles"



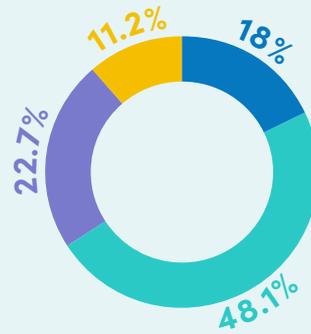
- Very important
- Moderately important
- Not very important
- Not at all important

How important is the following factor in your customer retention strategy? "Promotions for existing users"



- Very important
- Moderately important
- Not very important
- Not at all important

How important is the following factor in your customer retention strategy? "Offer multi-users accounts"



- Very important
- Moderately important
- Not very important
- Not at all important

## 2.5

## Leadership strategies to win the future customer

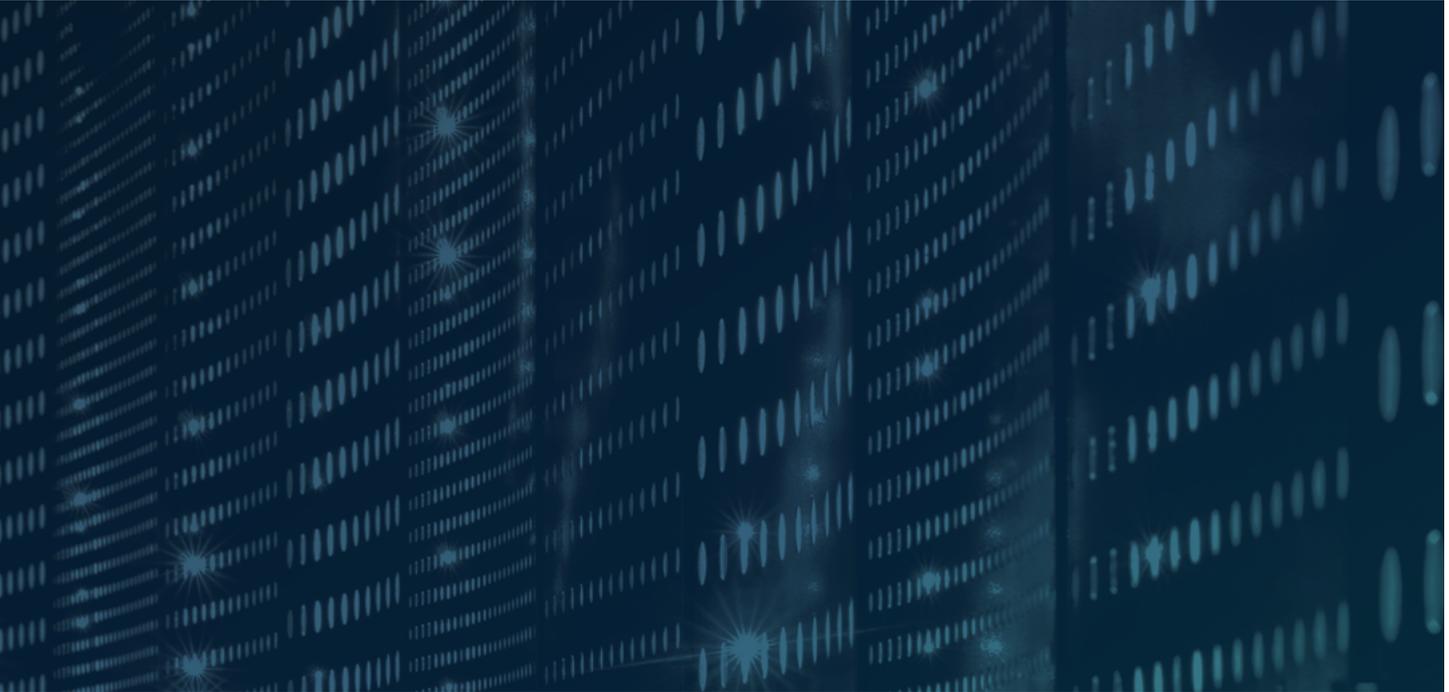
The NPAW Suite data in this report shows streaming services should continue to optimize retention and engagement strategies to remain competitive. For example, the data emphasises the crucial role device awareness has on providing a quality user journey.

In turn, leaders must focus on how data visibility can provide Intelligent Segmentation to battle the complex issue of Churn. From the subscriber's perspective, they can be impacted by various facets of the complex modern streaming experience (e.g. errors, extended join times, etc.). Any combination of these factors can change a subscriber from a loyal fan into a critic. So, to boost subscriber retention in the long term, you need a holistic view that data can provide.

Top quality data shown in understandable dashboards enables businesses to monitor and understand how subscribers perceive the overall quality of service, and where they experience problems. If a subscriber faces video quality or content discovery issues. Data may shed light on the root cause and help you know how to address it long before it blossoms into a problematic situation. Being able to analyze the reasons why churn happens is just as important as constantly monitoring the factors that impact churn.

NPAW Suite data shows insight into delivering a personalized content offering to end-users of your streaming service. Having the right products or titles in the right places is essential for achieving a significant ROI on your bundling and recommendations. Likewise, good analytics data and understanding these data implications can put your business on the road to contextual decision making and higher user fidelity.

## 3. AI and Analytics



### 3.1 Make it happen!

AI has come a long way. However, AI tools need to be more **broadly applicable** to everyday business operations. This is especially true as data sources and workers become more distributed and data itself more complex. Companies need AI-based tools and analytics to open data up to respond better to emerging issues and opportunities. More than ever, data must be scalable, operational, and reusable on multiple levels, not siloed or mysterious, as siloed data usually means inconsistent data coming from different sources.

AI-based data solutions **excel at extracting insights from large data sets** and in delivering it in an understandable format and language for interpretation. With AI, even teams with no data-based knowledge can identify learnings and results and apply them to create and optimize strategies. For example, next-gen natural language assistants and other machine learning apps can connect AI technology and analytics to your business strategy and practices. The results: businesses can harness data and insights to shape their product vision and get a taste of what future trends hold.

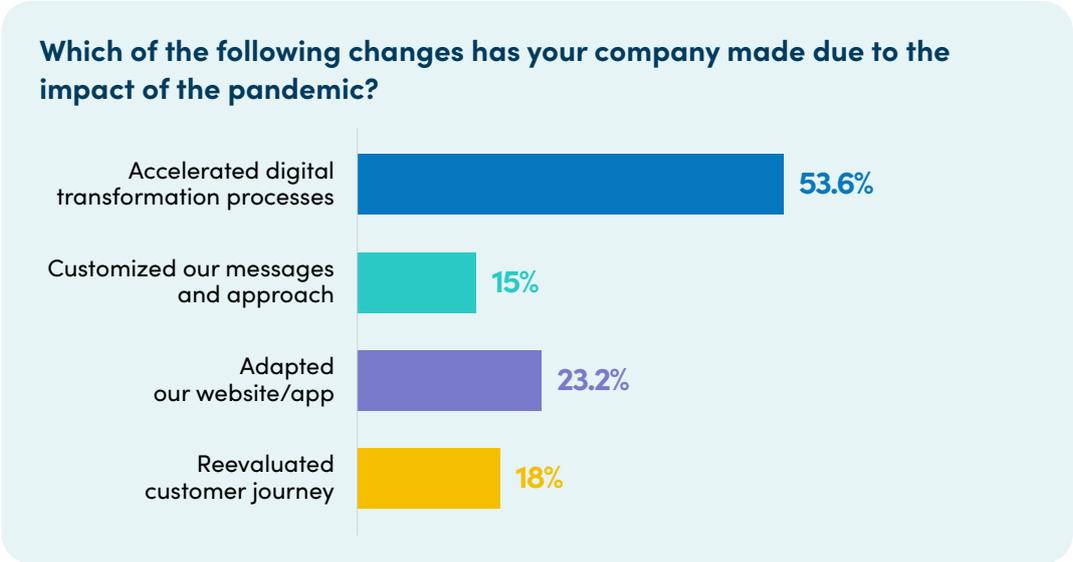
### 3.2 Value and impact

The excitement around AI and its potential impact on every aspect of business is nothing new. But how can organizations accelerate AI’s adoption into **real-life practices**?

When you funnel data through cutting-edge apps, dashboards, and tools, you bring significant situational awareness to teams, projects, and partnerships. The key is to embed the right **user-ready technology** into your business.

Streaming industry players realize they face a more complex data analytics process than ever before. Access to this data is a definite must to address service issues and deliver a smooth streaming experience. AI-driven data insights connect what is happening in different locations, on different devices, and with different content to your business, and much faster than a human being. For example, AI driven alerts help to identify issues in the network in real-time, even if the technical team haven’t even realized there is a problem. Without AI, providers would a big team of analytics experts to track and monitor all the data to obtain fast and efficient results.

Our survey data shows that the main change companies in the streaming space applied to face the challenges brought by the pandemic was accelerated digital transformation processes:



Any **digital transformation** presents diverse business challenges and needs as it unfolds. Likewise, every business is at a different stage of this process, with its own internal and external blockers or limits. However, all companies face two general scenarios: data too complex to be practical or lack of data from current tools or services. Lack of data because they are new to data analytics or they accelerated their AI implementation because of the pandemic (or both). Thus, choosing the right **Business Intelligence Data Platform**, like NPAW offers, means you can operationalize AI in your day-to-day business approach and product development.

### 3.3 Tech takeaways

Pursuing **AI in the context of Business Intelligence** will build resilience, augment the consumer experience and prevent vulnerability. Tools that emerge from serious, cooperative AI development strategies will pivot entities into a solid insight-based game plan.

The question big question now is whether AI only helps to identify issues and analyze the data, or if it can also make decisions and take action based upon the previous data analysis.

Through proper tech implementation, leaders in streaming and those pursuing excellence and data autonomy will harness AI's power in 2021 and the years to come.

## 4. Industry trends and drivers

### 4.1 BI: not just for specialists

Business Intelligence and the successful application of insights no longer come down to a team of specialists. Data analytic cannot be tacked onto product strategy as an afterthought. Instead, it represents a core business skill for any industry. Its usage must permeate business layers and units across a broad spectrum of end-users, democratizing data for all in an organization. The right approach to BI drives business strategy, moving and morphing data into accessible operationalized insights for day-to-day work.

Entities face more and more decentralized data sources and data complexity. In turn, BI can scale up data applicability for any business wanting a competitive advantage. This will happen through the division of traditionally dense analytics software or tools into business-ready apps on platforms accessible from multiple devices and secure sign-in measures.

Data and analytics represent a catalyst for digital transformation and strategy. In other words, data-driven opportunities to execute enterprise-wide actions through leadership and collaboration. A call to action for both Business and IT to join forces and shape the future of their enterprise and projects through next-gen data analytics.

What does this look like on the ground? We need to drive business conversations about what data will be useful. What unexploited data exists and where it exists. Exploration must include what data will drive better business outcomes. In this context, we can predict that the amount of available data will grow constantly, as the industry learns to track and use much more data about the user behavior as they already do. This means involving more stakeholders to pinpoint data gaps and strongholds. Finally, assess ratio of decision-making that should be reserved for your team and what is best done by your tech. The result will be contextual, connected, and continual decision making through data.

## 4.2 Accelerated digital transformation

Digital transformation was a global consequence of the pandemic. And although most, if not all companies, had it on their agenda, few were ready to put their plan into high gear. Many thought they would “get around to it” or had it on their road map for 2022 or beyond. The streaming industry was no exception.

Organizations face challenges as they embark on phases of digital transformation. A shift in both technology and strategy, as well as user profile into more advanced analytics. As mentioned above, a vital component of any change of this type is AI- and analytics-based. However, real operationalization cannot emerge from just sophisticated data tools and techniques accessible to data scientists. Tackling data analytics can seem like a “final frontier” for business users and fully transforming products, processes, etc.

*When it comes to core decision making, analytics and data-driven technologies can't be after-thoughts. They are catalysts for any company who wants to remain competitive and achieve accelerated digital transformation.*

— Sergi Vergés, COO & Co-founder at NPAW

Digital transformation represents a full analog-to-digital changeover. In traditional IT environments, it means services and apps using cloud tech and operating models. Therefore, data assets and analytics are extracted and exploited like never before by an ever-broadening user base. For those already dabbling in BI, digital transformation means examining the process so far and making key changes to fill gaps in end-to-end digital transformation.

## 4.3 Implications for next-gen analytics

From findings on how TV is top device to figures that help streaming providers improve engagement and quality, “Future-fit organizations need to intentionally embed data analytics into their global strategy to stay relevant,” asserts NPAW COO, Sergi Vergés.

For this to happen, data should be accessible for all kind of teams among organizations. Data tools and software programs have to improve their game in terms of usability and UI and make it as intuitive and natural as possible. One way in which we can already see this happening is in the voice control technology and its impact in data accessibility and democratization for team members across different departments.

Data and democratization of data and other emerging technologies and trends in BI will have lasting and transformative effects on the very DNA of the streaming industry.

## 5. Wrapping it all up...

### 5.1 Shaping today's business

The 2020 pandemic brought to light some real vulnerabilities streaming services face. Businesses must now plan for multiple futures and break the mold on inflexible business models and gut-feeling maneuvers. Harnessing available proprietary and third-party data represents a solid foundation for better product design, development, strategy, and composability. Opening up to data analytics, combined with a more flexible decision structure, can enable stakeholders to pivot, rearrange or reorient projects, products, and services based on insights. All have the potential to shape how we do business today and how and who will drive the streaming market.

### 5.2 Why data literacy matters

Better business decisions happen when business and IT teams join efforts through data and analytics tools and bring their dedication and know-how to the table. In doing so, they can build decision execution skills, BI competencies, and more.

Democratization of data drives users towards better decision-making. However, it doesn't stop there. Streaming leaders need to bolster organizational skills and competencies sounding BI and analytics tools to gain true improvements in the data-driven decision-making process. For example, data literacy.

More stakeholders across the organization must be capable of reading, thinking, and communicating about your data in the context of their role. A "data mindset" evolves from this, presenting a chance for leaders to create new habits in data-based decisions, extrapolating decisions and their outcomes.

*By 2023, data literacy will become an explicit and necessary driver of business value. By 2023, more than 33% of large organizations will have analysts practicing decision intelligence (including decision modeling).*

— Gartner, 2021

Situate advanced data users as decision engineers. Specialist data team members can leverage data analysis techniques and drive processes for optimal decision making. They can assess and rethink decision-making processes in this position, and refine the roles human users and AI play. By building trust between business users and these data decision engineers, companies can maximize data analysis, simulation, modeling, statistics, and more.

### 5.3 **BI is here to stay**

Time will tell if end-users will revert to old viewing behaviors. Streaming services should be more vigilant than ever in the second half of 2021. However, industry experts and current data lean towards some pandemic behavior being carried forward into user experience choices.

There are more great things to come for those doing business with the right BI partner. Our expertise is here to serve the global streaming market and beyond. With great apps and dashboards in the pipe, our products will continue to turn insights into strategies. Our growing suite of products covers the entire customer engagement journey, where we convert a wealth of data into actionable BI. Business Intelligence technology and solutions are here to stay, and NPAW is leading the way.

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## 7. Recommended reading

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[Report: Navigating CDN Strategies](#)

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[Analytics Best Practices for Telecom Change Management](#)

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[Measurement Techniques to Optimize Streaming Ads ROI](#)

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[Game of Insights: The 5 Steps you Need to Follow to Drive Retention Using Video Analytics](#)

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## 8. About NPAW

NPAW is the leading video intelligence company helping online streaming services grow. A global leader in its space, NPAW has over a decade of experience developing groundbreaking and scalable analytics solutions to optimize full service performance and user engagement to build media experiences that maximize revenue. Its suite of integrated analytics provides advanced, correlated visibility of platform performance, audience behavior and navigation, advertising and content efficiency in real-time to support data-driven decisions.

NPAW serves more than 150 video-based services and processes over 100 billion plays per year worldwide. Established in 2008 by co-founders of video streaming service Rakuten TV, NPAW has offices in Barcelona and New York with teams throughout the world. For more information, visit [www.npaw.com](http://www.npaw.com).



For more information about the measurements you can make with NPAW, contact us here to set up a free consultation with a streaming video expert.

**GET IN TOUCH**  
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