



Q3 2017 Online Video and Pay-TV Trends Report:

Consumer Behavior Across Pay-TV, OTT,
Connected Devices and Content Discovery



Introduction



TiVo enables pay-TV providers, digital publishers and consumer electronics (CE) manufacturers to power personalized search, recommendations, carousels and sports discovery, as well as gain invaluable insights into these features through analytics. TiVo's customers include Charter, DISH Network, DIRECTV, Sharp Electronics and other leading global pay-TV providers and broadcast networks.

Each quarter, TiVo seeks real consumer opinions to uncover key trends relevant to pay-TV providers, digital publishers and CE manufacturers. Consumers' genuine, unbiased perspectives and feedback drive continuous improvements to TiVo's Personalized Content Discovery Platform, which leverages user behavior, dynamic metadata and voice recognition technology to provide highly intuitive entertainment discovery.

This survey has been conducted every quarter since 2012. It enables the company to track key trends in TV viewing habits, identify consumer opinions of pay-TV providers and monitor emerging technologies, streaming devices, smart home devices, over-the-top (OTT) services, TV network apps and content discovery features (e.g., personalized recommendations). In addition to key quarter-over-quarter (q/q), year-over-year (y/y) and long-term trends, TiVo's Q3 2017 *Online Video and Pay-TV Trends Report* covers many new topics, including:

- Details on how different generations respond to cross-catalog video experiences (combining pay-TV and Netflix, Hulu, etc.).
- Usage of advanced content discovery functionality, such as recommendations and search, and the affect on viewer engagement and satisfaction.
- Voice functionality adoption among smart home device users, and what that means for pay-TV providers.
- How targeted marketing efforts increased adoption and engagement with voice functionality.
- Whether age plays a role in who streams sporting events.

SURVEY DEMOGRAPHICS

- Q3 2017 Survey Size: 3,013
- Geographic Regions: United States, Canada
- Age of Respondents: 18+

This survey was conducted in Q3 2017 by a leading third-party survey service; TiVo analyzed the results. TiVo conducts this survey on a quarterly basis and publishes a report evaluating and analyzing key trends across the pay-TV industry. The purpose of this survey is to track consumer trends over time in order to offer pay-TV providers unbiased feedback regarding consumer behaviors, industry perceptions and opinions of new technology hitting the market.

PAY-TV PROVIDERS

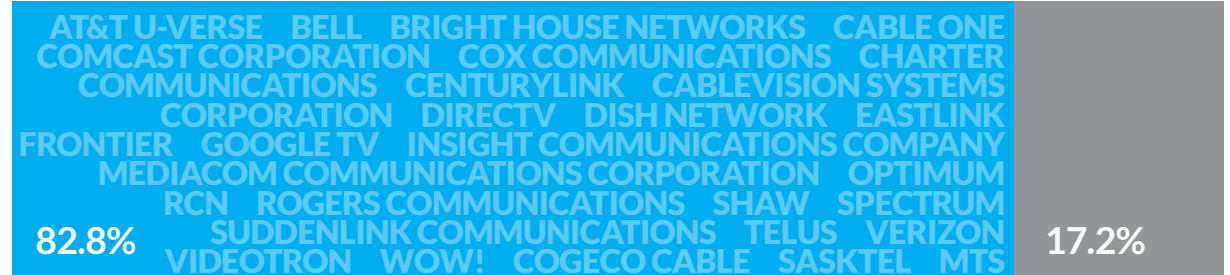
Who is your current cable/satellite service provider?



I have cable/satellite service



I do not have cable/satellite service



The State of Pay-TV



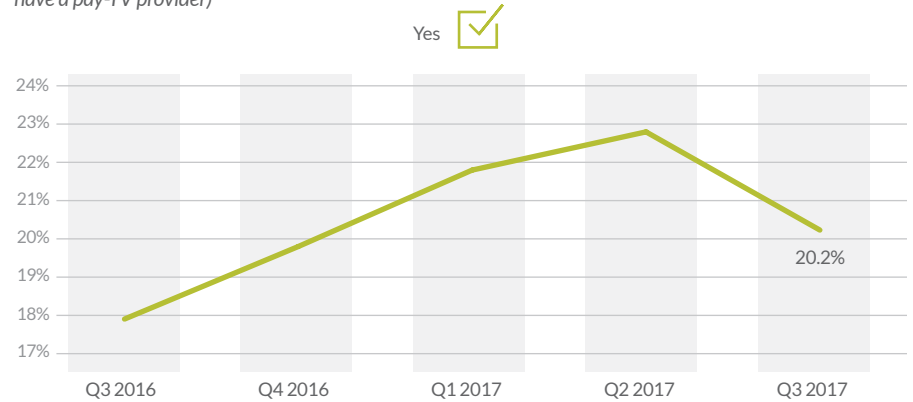
RESPONDENTS WITHOUT PAY-TV SERVICE

While the majority of this report examines how consumers with pay-TV service interact with their providers' offerings, TiVo first sought to understand the audience without pay-TV service. In Q3 2017, 82.8% of respondents have pay-TV service. Of those without pay-TV service, 20.2% cut service in the last 12 months. The number of those cutting cable within the preceding year has been trending upward with an increase of nearly 3 percentage points y/y; however, this quarter's survey results mark the first quarter since Q3 2016 to see a slight decrease in those who cut cable in the last 12 months — whether this trend will continue remains to be seen. This quarter's decrease is a positive for pay-TV providers, and while it's possible service cuts may continue to trend downward, the fact remains that one-fifth of respondents still cut service in the last 12 months. An audience of that size still makes it imperative to understand what factors caused the behavior.

Of respondents without pay-TV service, 45.9% use an antenna to watch over-the-air (OTA) TV. While this audience represents nearly half of those without pay-TV service, minimal growth occurred q/q, y/y, and over two years. Is the OTA market saturated, or could there be more room for growth? With one quarter left in the year, TiVo will monitor this trend to see if consumers are aligned with the idea of using a skinny bundle, such as a Sling TV or PlayStation Vue, along with an antenna for local programming, or if the idea continues to experience stagnant adoption.

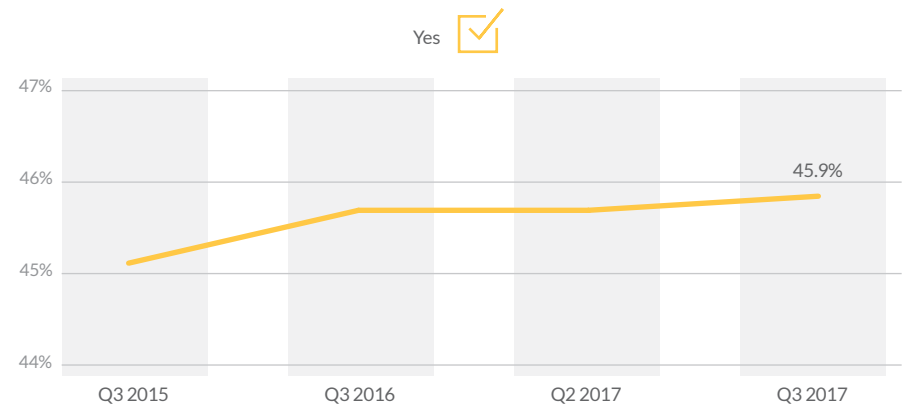
CUT PAY-TV SERVICE

Did you cut cable/satellite service in the last 12 months? (Only answered by respondents who do not have a pay-TV provider)



ANTENNA USE

Do you use an antenna to access the basic channels on your TV?



The State of Pay-TV



For the fifth quarter in a row, the following three reasons topped the list of why respondents cancelled pay-TV service:

1. **“Price - Too expensive”** - 85%
2. **“I use an internet streaming service, such as Netflix, Hulu, Amazon Video, etc.”** - 41.5%
3. **“I use an antenna to get the basic channels on my TV”** - 23.6%

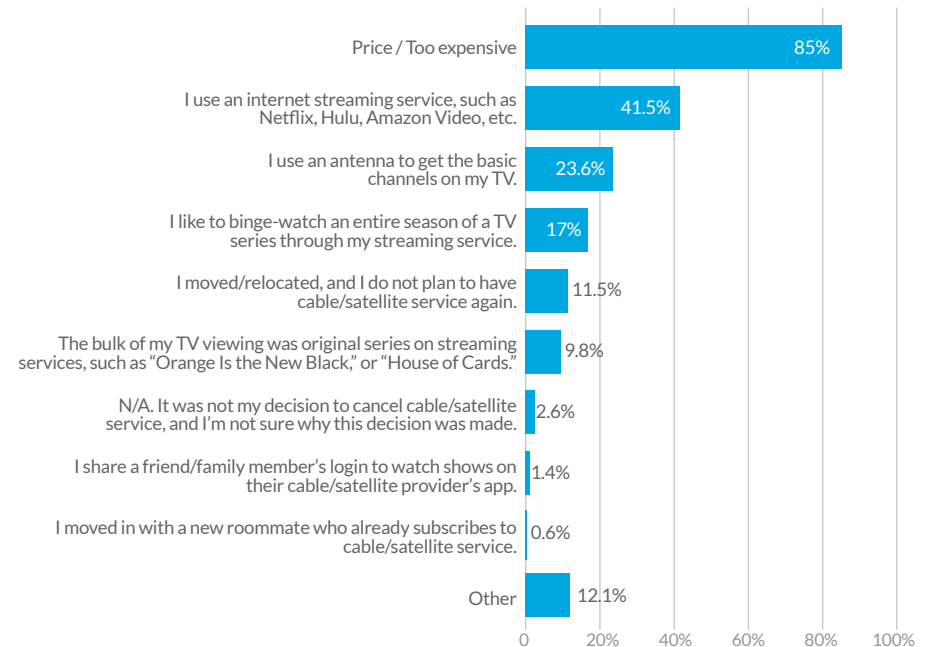
While pay-TV providers may be unable to lower prices on their current packages, they should address the second most common reason respondents cancelled their pay-TV service. TiVo believes integrating OTT services into the set-top box (STB) keeps viewers within the pay-TV providers’ environment, making it easier for them to toggle back to the pay-TV providers’ services. If viewers switch to a streaming device to access an OTT app, it’s less likely they will switch back to pay-TV, creating a situation that could lead to decreased value perception for one’s cable/satellite offering. Pay-TV providers need to offer a stickier STB user experience with a streamlined solution for viewers to access all their content – one enticing enough to make it tough for viewers to leave.

RESPONDENTS WITH PAY-TV SERVICE

Of the nearly 83% of respondents with pay-TV service, nearly half (48.7%) pay \$51-100 per month for it. Another sizable block of respondents (36.8%) pay \$101-151 per month. These results further illustrate a common complaint among consumers about the pay-TV industry today – the rising cost of service. Specifically, selection of the \$126-150 payment category is higher than it has ever been since the question’s introduction in Q1 2016. In addition, those who selected “less than \$50” decreased slightly q/q. While the results don’t show a significant fluctuation, they do mirror respondents’ frustrated and dissatisfied sentiments toward the already high, and rising, cost of pay-TV service.

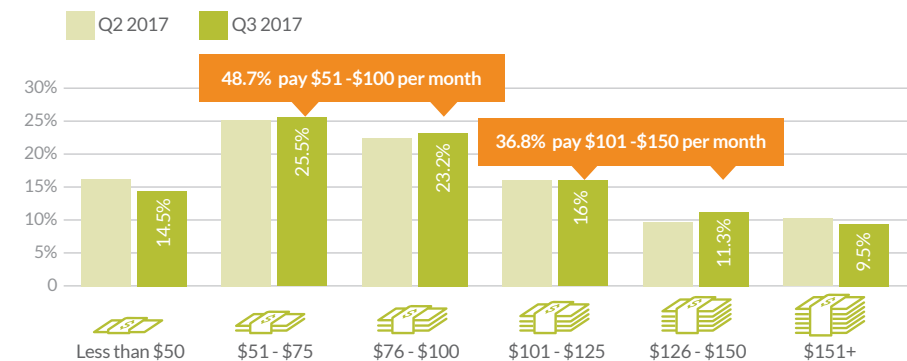
TOP FACTORS FOR CUTTING PAY-TV SERVICE

What factors influenced your decision to cancel your cable/satellite service? (Choose all that apply)



BILL AMOUNT

How much is your monthly cable/satellite bill for TV services only? (Not including video-on-demand/movie purchases, phone or internet)



The State of Pay-TV



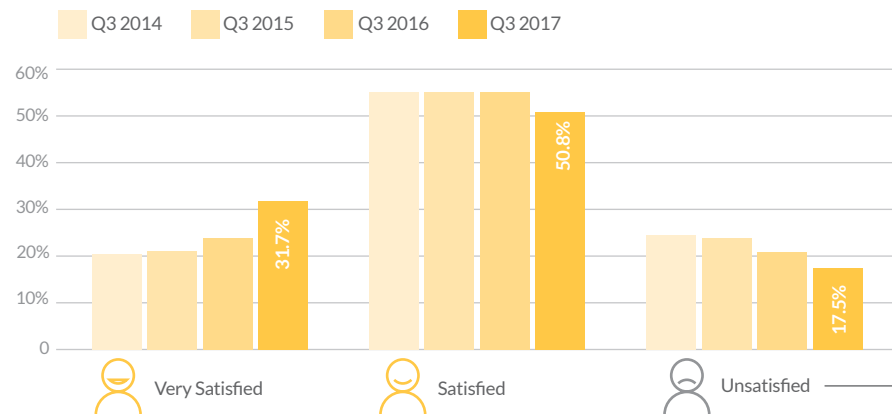
In Q3 2017, just over half (50.8%) of respondents are “satisfied” with the value of their pay-TV service and another 31.7% are “very satisfied.” While it’s hard to please an entire audience, pay-TV providers will find it promising that a smaller group (17.5%) answered “unsatisfied with the service”—plus, this answer decreased 3.5 percentage points y/y, 6.5 points over two years and 7.1 points over three years. The top three reasons for dissatisfaction are:

1. **“Too expensive / Increasing fees for cable/satellite service”** - 85.6%, with an increase of 7.8 percentage points q/q and 3.6 percentage points y/y
2. **“Bad channel selection”** - 33.5%, with an increase of 5.9 percentage points q/q and 4.8 percentage points y/y
3. **“Poor customer service”** - 30.5%

This is the first quarter in 2017 where the answer choice “poor cable/satellite service” was not in the top three; however, it just missed a tie for the third spot at 30.3%.

VALUE

How would you rate the level of value you are receiving from your cable/satellite service provider?

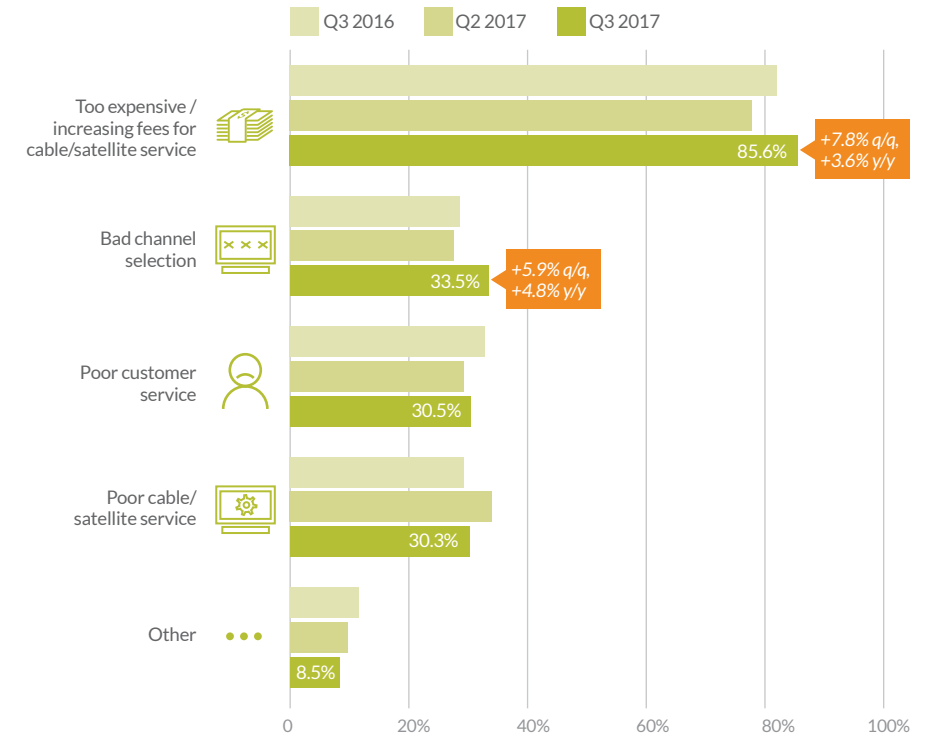


“Very Satisfied:”
+7.7% y/y, +10.6% over two years, +11.2% over three years

“Unsatisfied:”
-3.5% y/y, -6.5% over two years, -7.1% over three years

IF UNSATISFIED...

Why do you feel you’re not getting enough value from your provider? (Choose all that apply)



The State of Pay-TV



POTENTIAL CHURN

Of respondents with pay-TV service, 7.5% have switched pay-TV providers in the last three months. While this is at its lowest level since the Q2 2014 survey results, it represents a significant chunk of pay-TV subscribers for any provider to lose in a year, let alone in a quarter. Though this group didn't abandon pay-TV altogether, instead jumping from one provider to another, cable/satellite providers will feel the pressure to acquire new subscribers in an effort to recover these losses. Furthermore, when asked if planning to change pay-TV providers in the next six months, respondents answered as follows:

- 5.4% plan to **cut** their pay-TV service.
- 7.7% plan to **change** to another pay-TV provider.
- 5.8% plan to **switch to an online service or app**, such as Netflix, Amazon, Hulu, etc.
- 27.5% are on the fence, answering **"maybe."**

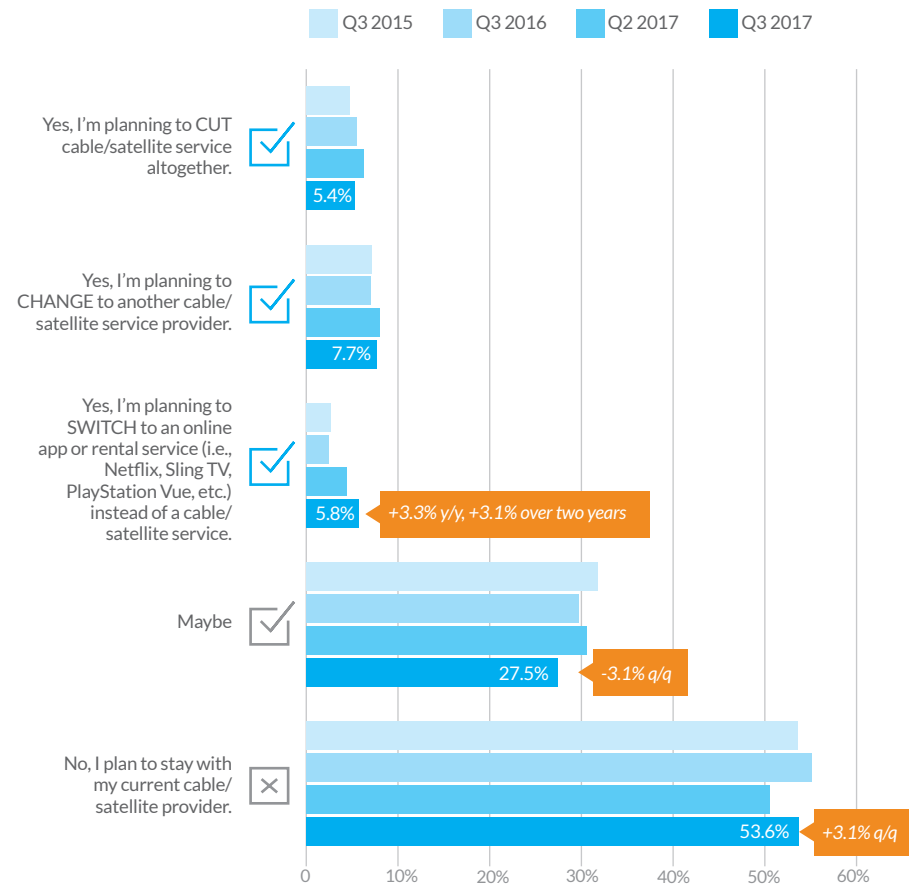
SWITCHED PAY-TV PROVIDERS

Have you switched cable/satellite providers in the last three months?



PLANNING TO LEAVE PAY-TV PROVIDER

Do you plan to change cable/satellite providers in the next six months?



The State of Pay-TV



POTENTIAL CHURN (CONTINUED)

These figures account for 46.4% of respondents — meaning just under half of respondents could potentially leave their current pay-TV provider in the next six months. The size of this audience should not be ignored, this quarter’s results revealed some positive news for pay-TV providers, as well as SVOD providers.

- **Pay-TV Providers** – While the number of respondents planning to cut, change, switch to an online service, or answering that they might do so has historically been on the rise — the Q3 2017 survey results decreased 3.1 percentage points q/q, and mark the lowest this group has been across all quarters since Q3 2016. Additionally, this quarter’s results show more positive news for pay-TV providers since the answer choice, “No, I plan to stay with my current cable/satellite provider” increased 3.1 percentage points q/q, bringing this answer choice to its highest level since Q3 2016. The 46.4% who could potentially churn still require attention, however, these positive trends will be welcome news for pay-TV providers, and TiVo will monitor whether the upward trend line continues.
- **SVOD Providers** – The number of those planning to switch to an online app or rental service rose significantly, with increases of 3.3 percentage points y/y and 3.1 points over two years. Despite recent quarters of survey results showing slowed SVOD adoption (**discussed more in the OTT section of this report**), the Q3 2017 results for those who plan to switch in the next six months demonstrate possible domestic growth potential remains.



Analytical Commentary

CORRELATION OF PERCEIVED VALUE OF PAY-TV SERVICE AND COST

How much does the price of services play into customer satisfaction? When bridging the gap between ‘unsatisfied’ and ‘very satisfied,’ it turns out every dollar counts in the relationship between perceived value and satisfaction.

Because this report previously mentioned high monthly bills as the top reason for pay-TV service dissatisfaction, TiVo wanted to dig deeper into how average bill amounts relate to perceived value among customers. The chart below illustrates respondents who are unsatisfied pay just over \$100 a month on average for TV service, while those who are very satisfied pay under \$90 a month on average. The gap of \$13.70, or 13.4%, between these two levels of satisfaction is significant. Pay-TV providers have the ability to easily identify their highest paying customers, and TiVo is aware focusing on this audience is a priority for most providers. However, once identified, providers could offer loyalty programs, which should include packages in the \$80-90 range, in effort to increase satisfaction levels and eliminate the risk of churn from this group.

Value of Pay-TV Service	Average Monthly Bill for TV Services Only
Very satisfied with the service	\$88.53
Satisfied with the service	\$93.10
Unsatisfied with the service	\$102.23

Keep in mind the prices in the chart are for TV service only — and most respondents also pay for Internet, and may also have phone service through their pay-TV provider. Because prices for these services can add up quickly, pay-TV providers must get creative with their packages to improve satisfaction and prevent additional churn.

The State of Pay-TV



POTENTIAL CHURN (CONTINUED)

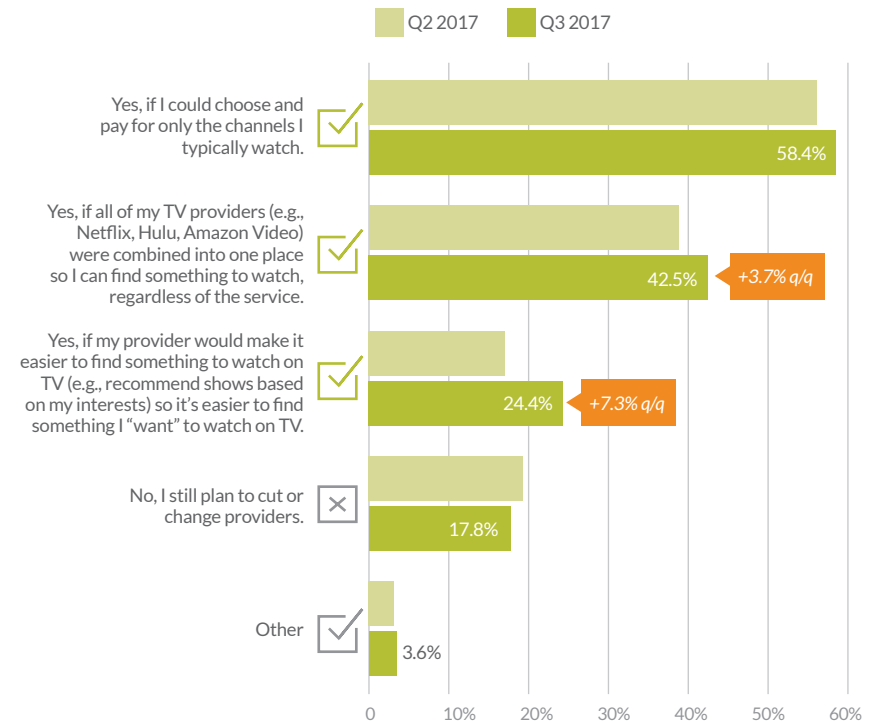
TiVo found it noteworthy that 7.5% of respondents answered they switched providers in the last 12 months, while nearly the same percentage (7.7%) answered they planned to change providers in the next six months. This particular audience must be enticed to stay with their pay-TV providers. Due to the vast array of options available today for TV, pay-TV providers need to provide competitive options to subscribers who have called customer service with issues, or seem to be repeatedly unsatisfied. With the potential for high churn facing the pay-TV industry, it becomes even more imperative to know what it takes to retain subscribers. The Q3 2017 survey results illuminated several areas that, if implemented, could restore subscriber loyalty, including:

- **Desire for À La Carte/Skinny Bundles:** The number one feature (58.4%) that would convince respondents to stay with their current pay-TV provider is the ability to choose and pay for only the channels watched; respondent desire for this option increased slightly q/q.
- **Cross-Catalog User Experience:** The second most popular feature, selected by just under half (42.5%) of respondents, is for all content, regardless of provider or service, to be combined into one place, and interest in this option increased 3.7% q/q.
- **Improved Content Discovery:** Lastly, the third most popular feature, desired by 24.4% of respondents, is an improved method of finding something to watch on TV (e.g., by recommending shows based on interests). The importance of content discovery among respondents experienced a notable increase of 7.3 percentage points q/q, further illustrating increased eagerness for an easy-to-navigate user interface that allows viewers to quickly find their favorite TV shows and movies.



PLANNING TO SWITCH PAY-TV PROVIDERS? IF YES...

Would you consider keeping your existing cable/satellite service provider if they allowed you to do the following? (Choose all that apply)



À la Carte Pay-TV Packages



In Q3 2017, 82% of respondents want to pay for only the channels they watch, and this audience increased 4.5 percentage points q/q and 4 y/y, making it the highest result since the start of the question in Q1 2015. On average, respondents want to pay \$31.17 total per month — or \$1.42 per channel, per month — for a self-selected channel package, and they want an average of 22 channels in their ideal line-up. \$31.17 is the highest average price respondents are willing to pay for an à la carte package across all 2017 surveys, so far. Over the current year, the average à la carte package price has increased by \$2.38 (7.6%) from Q2 2017 to Q3 2017, and by \$5.44 (17.5%) from Q1 2017 to Q3 2017. Also, the average number of desired channels increased by three channels — from 19 in Q2 and Q1 2017, to 22 this quarter.

It's no secret a major reason pay-TV providers have been reluctant to offer an à la carte package is it is not financially feasible. Offering larger channel packages offsets the cost of higher-priced channels with lower-priced niche channels. However, consumer mindset is beginning to shift toward wanting to pay more per package than ever before, perhaps making it feasible for pay-TV providers to begin testing true à la carte offerings.

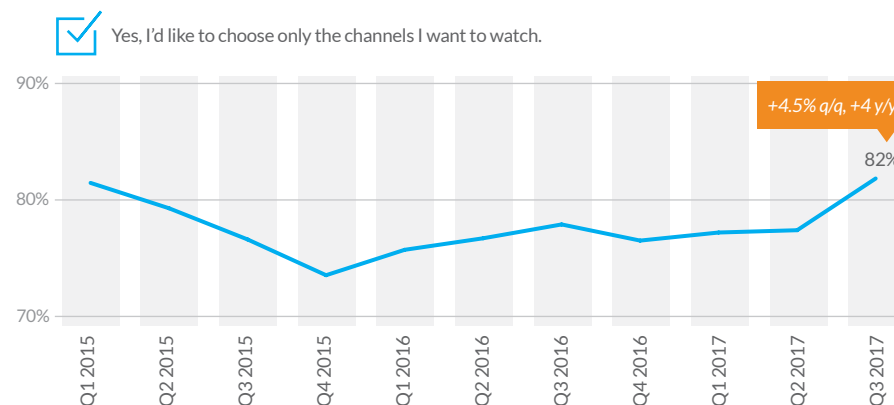
Dating back to the start of the question in Q1 2015, this is the first quarter A&E has placed in the top five most popular channels, eclipsing a major network for the fifth spot. In addition, Q3 2017 survey results mark the second quarter in a row NBC has not made the top five most popular channels among all respondents.

Because the report surveys respondents in both the U.S. and Canada, the charts on pages 9-10 are displayed by country. Though much of the video content is the same in both countries, some Canadian content is unavailable in the U.S. Here is a breakdown of the Q3 2017 à la carte results by region (see charts on pages 9-10):

- **U.S.:** The average price respondents want to pay for a package of self-selected channels is \$34.45 total per month — or \$1.44 per channel, per month. On average, these respondents chose 24 channels to compose their ideal line-up.
- **Canada:** The average price respondents want to pay for a package of self-selected channels is \$24.85 total per month — or \$1.24 per channel, per month. On average, these respondents chose 20 channels to compose their ideal line-up.

INTEREST IN AN À LA CARTE PAY-TV PACKAGE

When purchasing cable/satellite service, you often choose from pre-set channel packages. Would you like the ability to make your own package by selecting ONLY the channels you WANT to watch?



THE TOP 10 MOST POPULAR CHANNELS SELECTED AMONG ALL RESPONDENTS:

1. ABC	59.1%
2. CBS	55.1%
3. FOX	53.4%
4. Discovery Channel	52.1%
5. A&E	49.8%
6. NBC	48.8%
7. HBO	48.3%
8. History	47.4%
9. Food Network	40.4%
10. AMC	40.3%

THE TOP 10 CHANNELS FOR WHICH RESPONDENTS WILL PAY THE MOST TO WATCH:

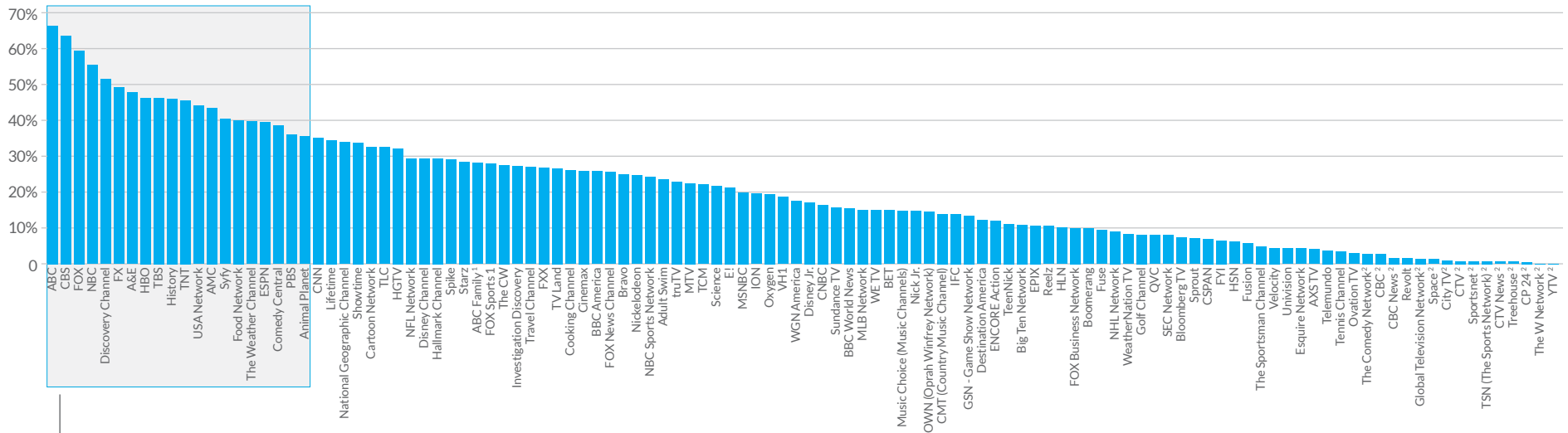
1. HBO	\$2.53
2. Revolt	\$2.40
3. Cinemax	\$2.19
4. AXS TV	\$2.19
5. Starz	\$2.15
6. Telemundo	\$2.08
7. Showtime	\$2.03
8. Fusion	\$1.99
9. NFL Network	\$1.96
10. Adult Swim	\$1.90

À la Carte Pay-TV Packages



IDEAL CHANNELS IN AN À LA CARTE PAY-TV PACKAGE - U.S.

If YES, which channels would you be interested in including in your TV package? (Choose all that apply)



Q3 2017		
Top 20 Channels Among U.S. Respondents	Popularity Among U.S. Respondents	Price Per Channel
ABC	66.3%	\$1.26
CBS	63.6%	\$1.20
FOX	59.4%	\$1.43
NBC	55.4%	\$1.20
Discovery Channel	51.5%	\$1.32
FX	49.2%	\$1.37
A&E	47.8%	\$1.39
HBO	46.3%	\$2.78
TBS	46.3%	\$1.26
History	46%	\$1.32
TNT	45.6%	\$1.25
USA Network	44.1%	\$1.26
AMC	43.5%	\$1.42
Syfy	40.4%	\$1.33
Food Network	40%	\$1.57
The Weather Channel	39.7%	\$1.10
ESPN	39.6%	\$1.84
Comedy Central	38.6%	\$1.46
PBS	36%	\$1.16
Animal Planet	35.6%	\$1.28
		Total \$28.22

Q2 2017		
Top 20 Channels Among U.S. Respondents	Popularity Among U.S. Respondents	Price Per Channel
ABC	66.8%	\$1.46
CBS	62.4%	\$1.25
FOX	57.5%	\$1.33
Discovery Channel	55.2%	\$1.40
NBC	54.4%	\$1.22
History	50.7%	\$1.46
FX	48.3%	\$1.48
A&E	47.4%	\$1.44
TNT	46.8%	\$1.34
TBS	46.5%	\$1.26
HBO	45.1%	\$2.96
AMC	43.3%	\$1.43
Food Network	42.4%	\$1.58
USA Network	42.3%	\$1.37
ESPN	41.9%	\$1.85
PBS	39.5%	\$1.20
Syfy	39.4%	\$1.40
Comedy Central	39.2%	\$1.47
Lifetime	37.3%	\$1.51
Animal Planet	37.1%	\$1.56
		Total \$29.97

¹ Renamed to Freeform
² Canada Only

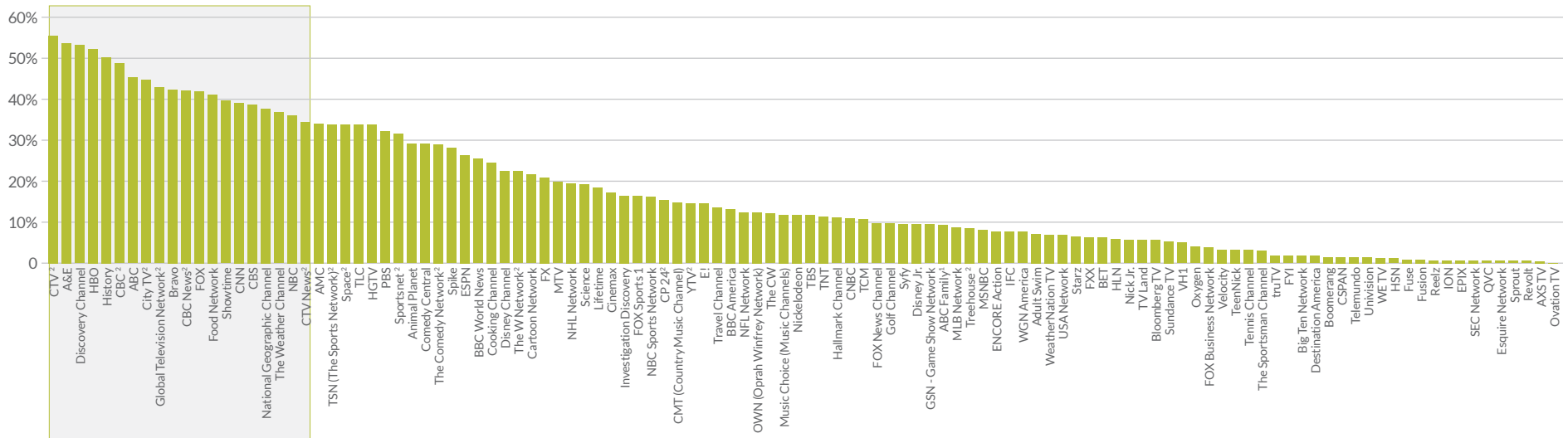
-5.8% q/q

À la Carte Pay-TV Packages



IDEAL CHANNELS IN AN À LA CARTE PAY-TV PACKAGE - CANADA

If YES, which channels would you be interested in including in your TV package? (Choose all that apply)



Q3 2017		
Top 20 Channels Among Canadians	Popularity Among Canadians	Price Per Channel
CTV	55.5%	\$1.14
A&E	53.7%	\$1.19
Discovery Channel	53.2%	\$1.33
HBO	52.3%	\$2.11
History	50.2%	\$1.34
CBC	48.7%	\$1.24
ABC	45.3%	\$1.12
City TV	44.7%	\$1.08
Global Television Network	42.9%	\$1.13
Bravo	42.3%	\$1.22
CBC News	42.2%	\$1.21
FOX	41.9%	\$1.16
Food Network	41.1%	\$1.21
Showtime	39.6%	\$1.44
CNN	39.1%	\$1.20
CBS	38.7%	\$1.00
National Geographic Channel	37.7%	\$1.29
The Weather Channel	36.8%	\$0.98
NBC	36.1%	\$1.11
CTV News	34.5%	\$1.18
Total		\$24.68

Q2 2017		
Top 20 Channels Among Canadians	Popularity Among Canadians	Price Per Channel
A&E	51.7%	\$1.45
History	50.9%	\$1.37
Discovery Channel	49.8%	\$1.37
HBO	46.5%	\$1.87
CBC ¹	44.2%	\$1.27
CTV	42.8%	\$1.22
ABC	42.7%	\$1.33
Global Television Network	41.5%	\$1.28
City TV	40.4%	\$1.18
National Geographic Channel	37.8%	\$1.51
CBC News	37.1%	\$1.26
Bravo	36.3%	\$1.36
CNN	35.0%	\$1.34
The Weather Channel	34.8%	\$1.03
FOX	34.7%	\$1.09
NBC	34.5%	\$1.04
CBS	33.9%	\$1.11
Showtime	33.7%	\$1.50
Food Network	33.7%	\$1.51
HGTV	33.5%	\$1.26
Total		\$26.34

-6.3% q/q

2 Canada Only

TV Viewing Habits

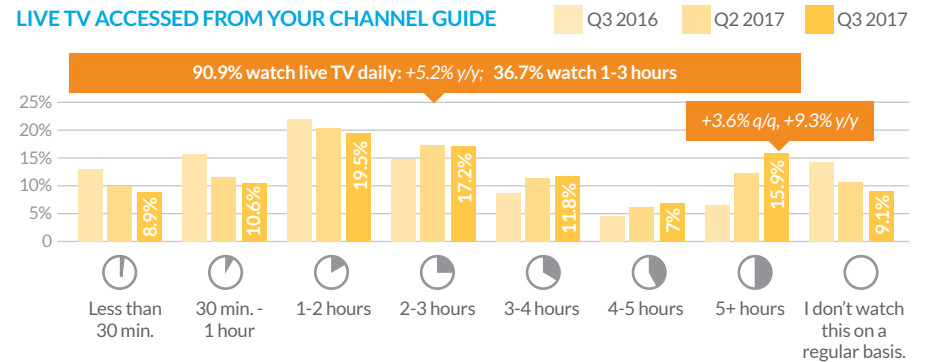


According to Q3 2017 survey results, respondents' TV-viewing behavior, per day, is as follows:

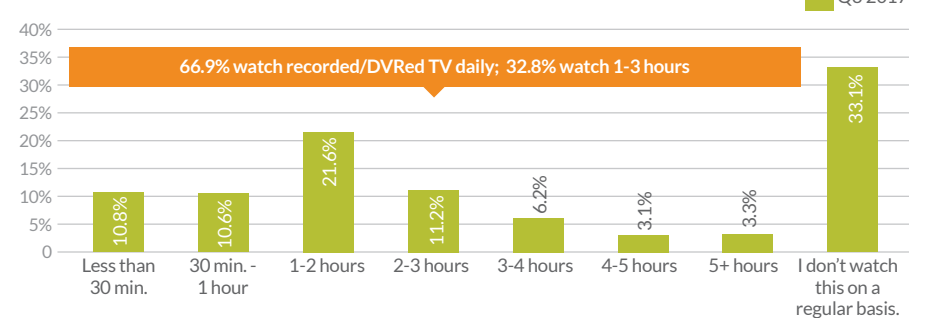
- 90.9% watch live TV daily, an increase of 5.2 percentage points y/y.
 - The largest segment of respondents (36.7%) watch 1-3 hours of TV per day. However, those who watch 5+ hours per day increased 3.6 percentage points q/q and 9.3 points y/y.
- 66.9% watch previously recorded/DVRed TV shows/movies on a daily basis.
 - The largest segment of respondents (32.8%) watch 1-3 hours per day of previously recorded/DVRed TV shows/movies.
- 62.4% watch OTT/streaming shows on a daily basis.
 - The largest segment of respondents (30.1%) watch 1-3 hours of OTT/streaming shows each day.

TV VIEWING TIME

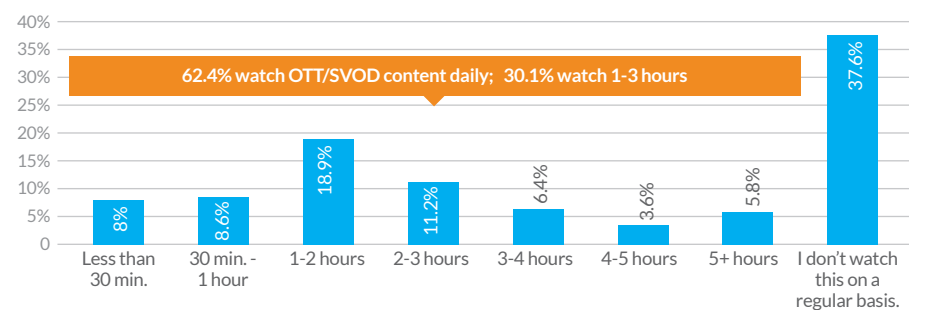
On average, how much of your daily TV viewing time is spent watching the following types of TV? (Provide an answer to all three categories listed below)



PREVIOUSLY RECORDED/DVRed TV SHOW/MOVIES



OTT/STREAMING SHOWS FROM SERVICES SUCH AS NETFLIX, HULU, AMAZON VIDEO



TV Viewing Habits



SENTIMENTS ON CURRENT PAY-TV CONTENT AND NEXT-GEN USER EXPERIENCES

The pay-TV section of the report highlights the need for improved content discovery functionality to help viewers find something to watch on TV, yet, there is some good news when it comes to how respondents feel about fitting in all their favorite shows including:

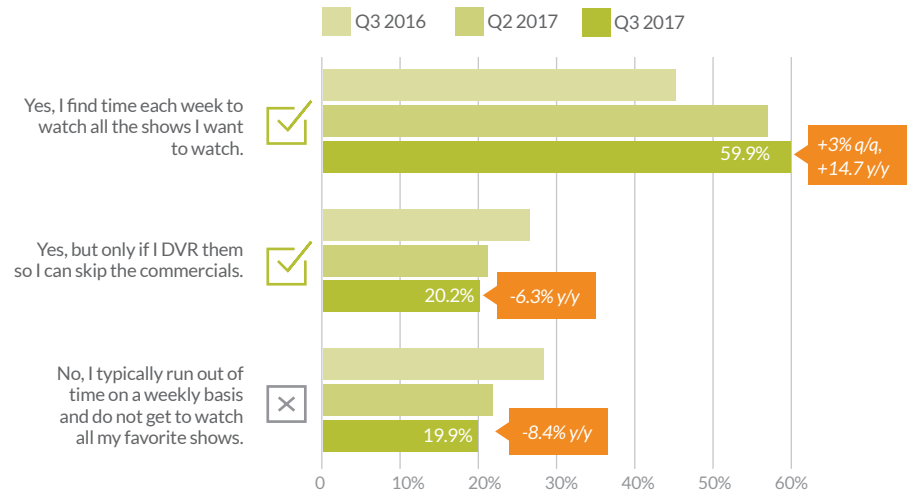
- Nearly 60% of respondents feel they have enough time to watch all their favorite TV shows and movies in a given week, and those pleased with their ability to do so increased nearly 3 percentage points q/q and 14.7 y/y, marking the highest this result has been dating back to the start of the question in Q3 2016.
- The number who have to DVR content to fit in all their favorite TV shows/movies each week decreased 6.3 percentage points y/y, and this number is also the lowest since the start of this question.
- The answer choice, “No, I typically run out of time on a weekly basis and do not get to watch all my favorite shows,” decreased 8.4 percentage points y/y.

In Q3 2017, nearly 70% of respondents feel it is easy to find something to watch on TV (which is covered more on page 25 in the Content Discovery section of the report). Even with such a large audience pleased with their ability to find something to watch, it’s important to remember more video services are available today than ever, each with its own interface. Since pay-TV providers rely so heavily on the traditional guide, TiVo wanted to provide insight into how respondents feel about the carousel format, or categorized groups of content, offered by many of the online video providers today.

- Twenty-two percent of respondents with pay-TV service would like their guide converted to a carousel format, or categorized into groups, a sentiment that increased 3.2 percentage points y/y.
- Another 35% would like access to their current guide and carousel format.

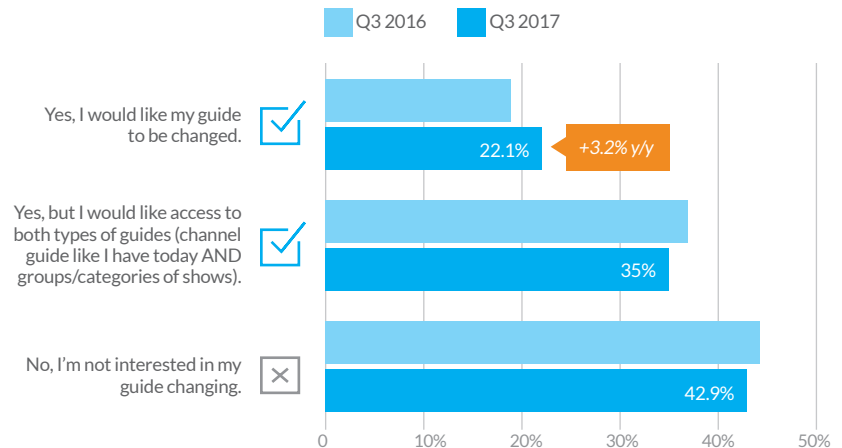
TIME FOR FAVORITE TV SHOWS

On average each week, do you feel you have enough time to watch all your favorite TV shows?



CHANNEL GUIDE OR CAROUSELS

Would you like your channel guide to be changed, so that it’s sorted or categorized into groups/lists of TV shows or movies? For example, “What is on Now,” “Because You Watched This,” “Live Sports On Now.”



TV Viewing Habits

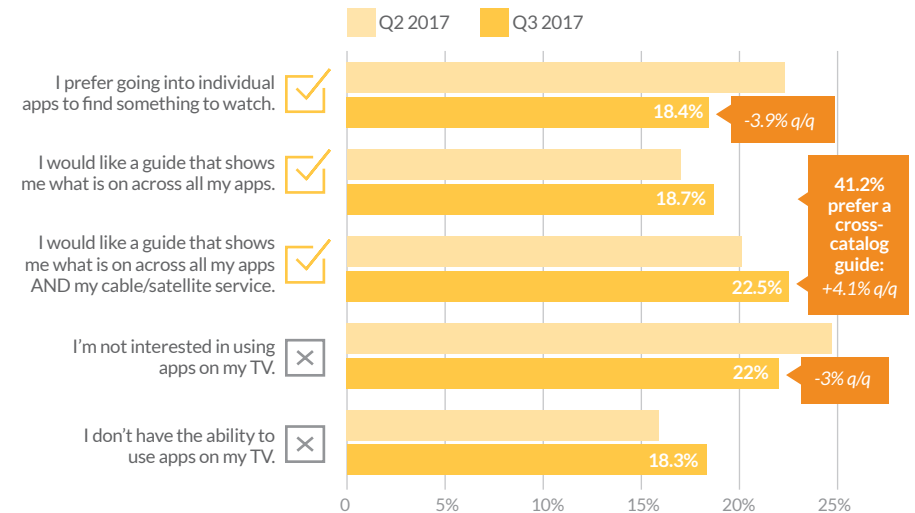


OTT streaming apps (e.g., Netflix, Hulu, etc.) continue to gain traction among consumers and are increasingly accessed in the home via smart TVs. Thus, the need for cross-catalog viewer experiences is becoming more important. While straying from the traditional pay-TV guide is not an easy task, it's important to keep a pulse on how consumers feel about this change. In Q3 2017, the survey reported the following:

- 41.2% of respondents would like a guide that shows them what is on TV across all of their video apps, and this audience increased 4.1 percentage points q/q.
- The number of respondents that prefer going into each app individually to find something to watch is at the lowest it's been since this question was first asked in Q4 2016. Based on this audience's 3.9 percentage point q/q drop, an improved cross-catalog experience is becoming the standard choice for viewers.
- A decrease of 3 percentage points q/q in the answer choice "I'm not interested in using apps on my TV," further indicates the future of TV is a fully integrated pay-TV solution, one that gives viewers the ability to find and watch multiple video services. TiVo recommends all providers have a solution of this sort on their product list.

CROSS-CATALOG GUIDE OR TRADITIONAL GUIDE

Do you prefer using individual TV apps (Netflix, Hulu, etc.) to find something to watch, or would you prefer a unified guide-like format that combines all of your available content into a single guide that shows all app content (Netflix, Hulu, etc.) and cable/satellite content?



OTT Trends: Subscription and Transactional Video-On-Demand (SVOD and TVOD)



SVOD MARKET SHARE AND ADOPTION

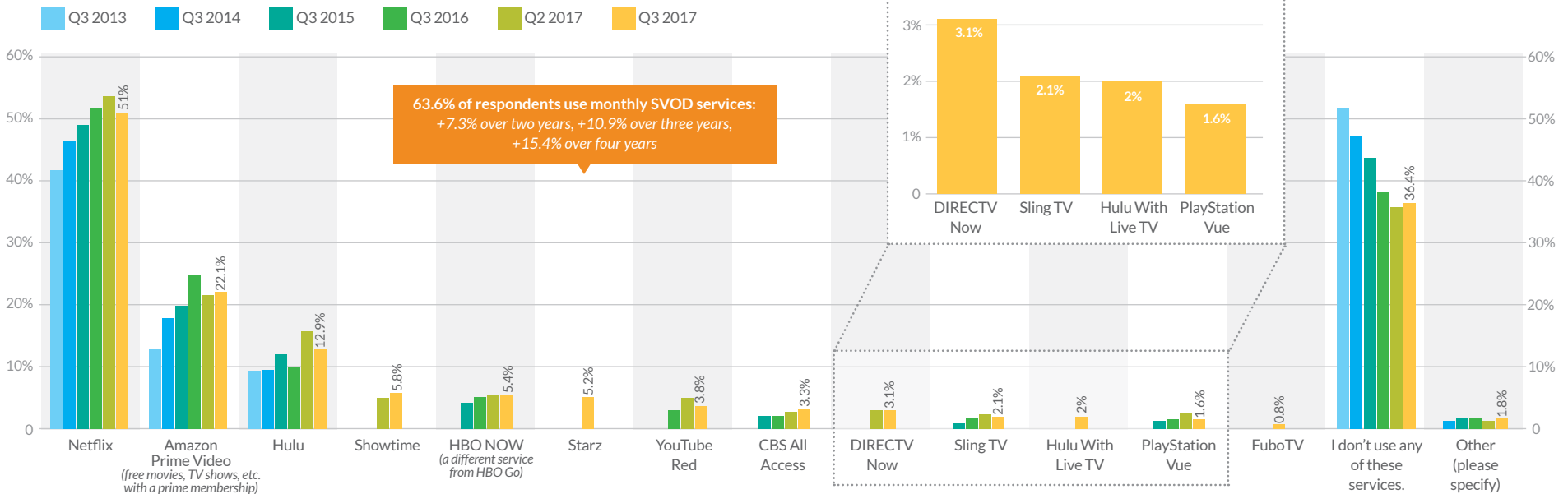
In Q3 2017, 63.6% of all respondents use monthly SVOD services, and this category increased 7.3 percentage points over two years, 10.9 over three years, and 15.4 over four years. A deeper dive into the adoption of SVOD services shows:

- 60.6% of respondents who are cord-cutters or cord-nevers (those who don't subscribe to cable/satellite service) have one or more SVOD subscriptions.
- 64.7% of respondents with pay-TV service are what TiVo refers to as "cord-cheaters" (those who have cable/satellite service and use SVOD services) have one or more SVOD subscriptions.

In Q3 2017, the top services used are Netflix (51%), Amazon Prime Video (22.1%) and Hulu (12.9%). However, it appears that more recently, both q/q and y/y, overall growth of SVOD services has begun to slow down. Is the market saturated with providers, and are the options proving to be overwhelming in the eyes of consumers? Will growth pick up as skinny bundle providers, such as PlayStation Vue and Sling TV, continue to tweak their offerings and platforms? Adding to these questions, no SVOD service experienced positive increases worth noting since the Q2 2017 survey results. In fact, Hulu and Netflix both experienced slight declines – nearly 3 percentage points q/q. However, Hulu experienced a 3 percentage point increase y/y. With the recent surge in award-nominated original content by Hulu, it's possible the provider is reaping the rewards of that success.

OTT/SVOD SERVICES

Do you use any of these monthly subscription services for movies or TV shows? (Choose all that apply)



OTT Trends: SVOD and TVOD



While Netflix, Amazon Prime Video and Hulu have the greatest penetration, possibly due to their low subscription fees, TiVo continues to examine skinny bundle providers. This quarter, TiVo added FuboTV and Hulu with Live TV as answer choices. Though FuboTV's market share is very low according to survey results, TiVo is interested in knowing if it can successfully carve out a niche market¹. Also, another new SVOD service, Hulu with Live TV, is already at 2% adoption among survey respondents, despite only being available to consumers since mid-2017.

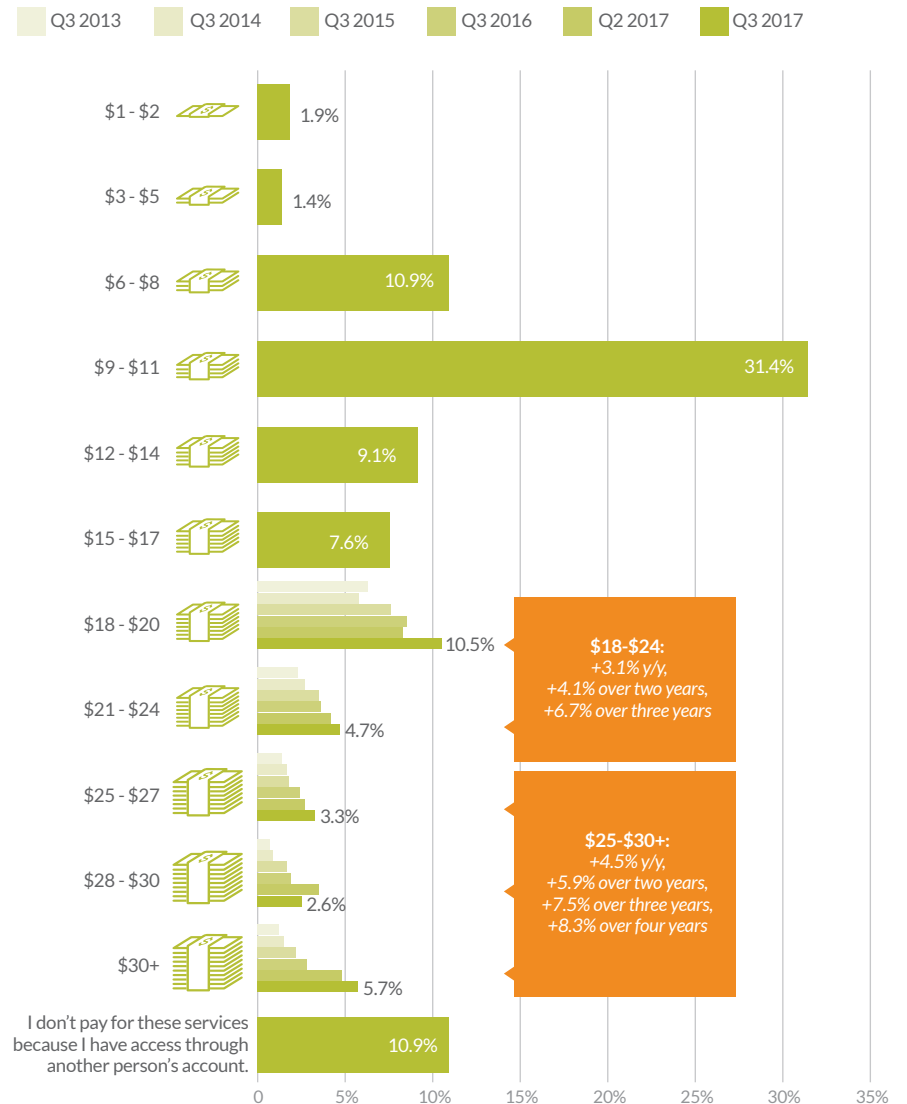
SVOD ENGAGEMENT

While SVOD market share might not be growing at a rapid pace of late, the positive increases in engagement are a good sign. Nearly one-third of respondents spend \$9-11 per month on SVOD services. However, Q3 2017 survey results prove respondents are spending more, based on the following increases:

- **\$18-24** – This combined spend category represents 15.2% of respondents, marking its highest percentage since Q2 2013. Also, this combined spend category increased nearly 3 percentage points q/q, 3.1 y/y, 4.1 over two years, and 6.7 over three years.
- **\$25-30+** – This combined spend category, which includes those paying any amount over \$30, represents 11.6% of respondents, also the highest percentage for this combined category since Q2 2013. This combined category increased 4.5 percentage points y/y, 5.9 over two years, 7.5 over three years, and 8.3 over four years.

SVOD BILL AMOUNT

How much do you spend each month on subscription services (Combined spend on Netflix, Hulu, etc.)?



¹ Daniel Frankel, "FuboTV out of beta on key devices, rolls out new UI for Apple TV," *Fierce Cable*, October 5, 2017

OTT Trends: SVOD and TVOD

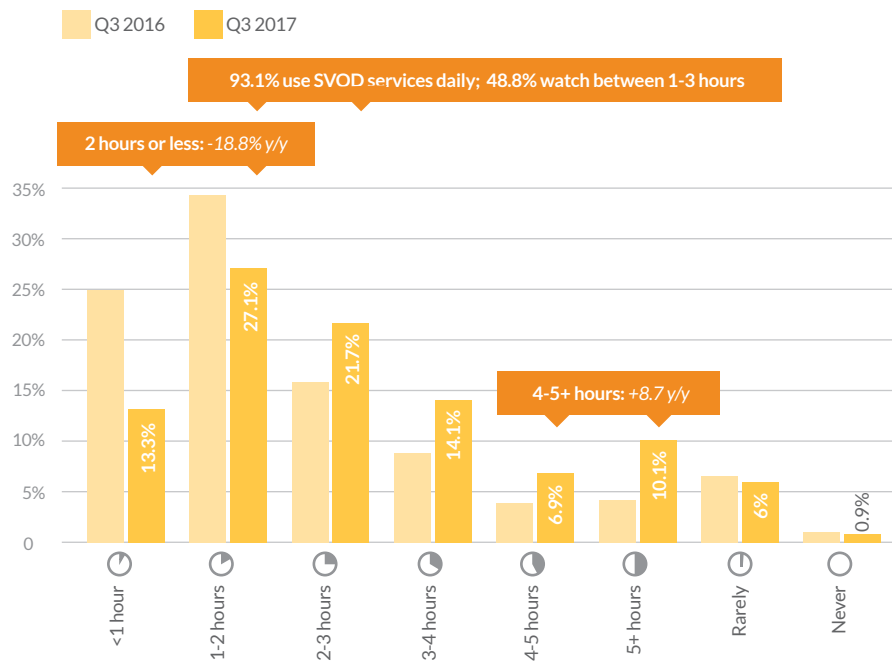


Of respondents using SVOD services, 93.1% of respondents watch them on a daily basis. The largest group, at just under half (48.8%) of respondents, watches 1-3 hours per day of SVOD content. These two results illustrate respondents are spending more time watching SVOD content each day than they were one year ago:

1. The number of respondents watching two hours or less decreased 18.8 percentage points y/y.
2. The number of respondents watching four or more hours of SVOD content increased 8.7 percentage points y/y.

VIEW TIME FOR SVOD

On average, how many hours per day do you watch content on these subscription services?



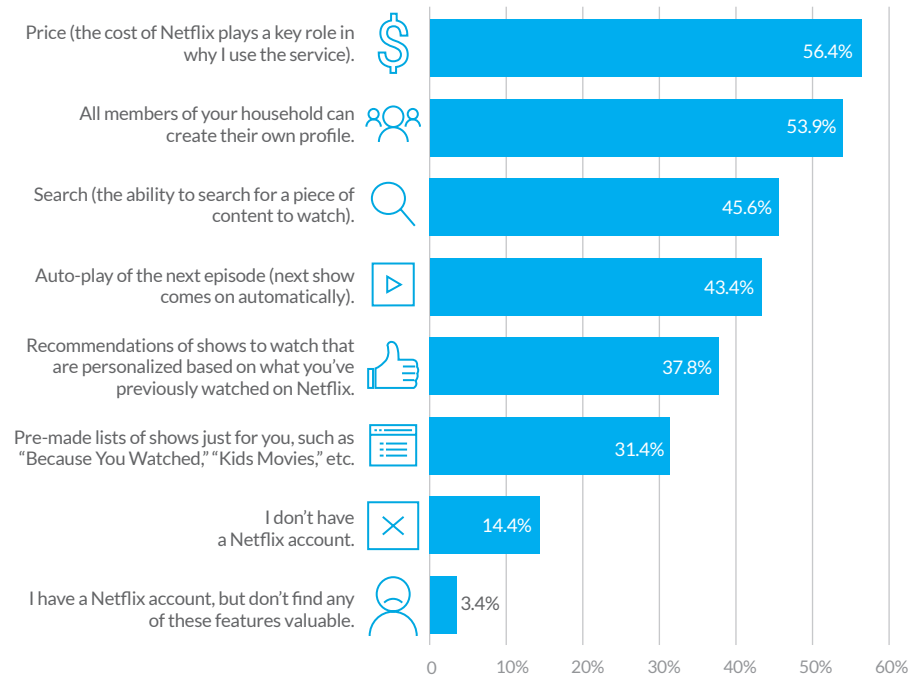
Netflix remains the clear leader in the SVOD industry, and therefore, it's important to understand why respondents enjoy the service. According to respondents in Q3 2017, the top three most appealing Netflix features are:

1. Price (the cost of Netflix plays a key role in why I use the service) – 56.4%
2. All members of your household can create their own profile – 53.9%
3. Search (the ability to search for a piece of content to watch) – 45.6%

Interestingly, since the survey was conducted, Netflix has announced a price increase² for its most popular plans, which may affect respondent sentiment on Netflix's price. TiVo will monitor this question as price hikes take effect.

NETFLIX'S APPEALING FEATURES

If you are a Netflix subscriber, which of Netflix's features do you find appealing? (Choose all that apply)



² Mike Snider, "Netflix price hike probably not the last for cord-cutters," USA Today, October 7, 2017

OTT Trends: SVOD and TVOD



TVOD MARKET SHARE AND ADOPTION

In Q3 2017, 32.7% of respondents purchase a pay-per-rental, or a TVOD service, but unfortunately, adoption of these services decreased 3.5 percentage points q/q, and 3.6 points y/y. More specifically, 34.3% of respondents are cord-cheaters (those who have cable/satellite service and also use a TVOD service), and 29.1% of those use both TVOD and SVOD services.

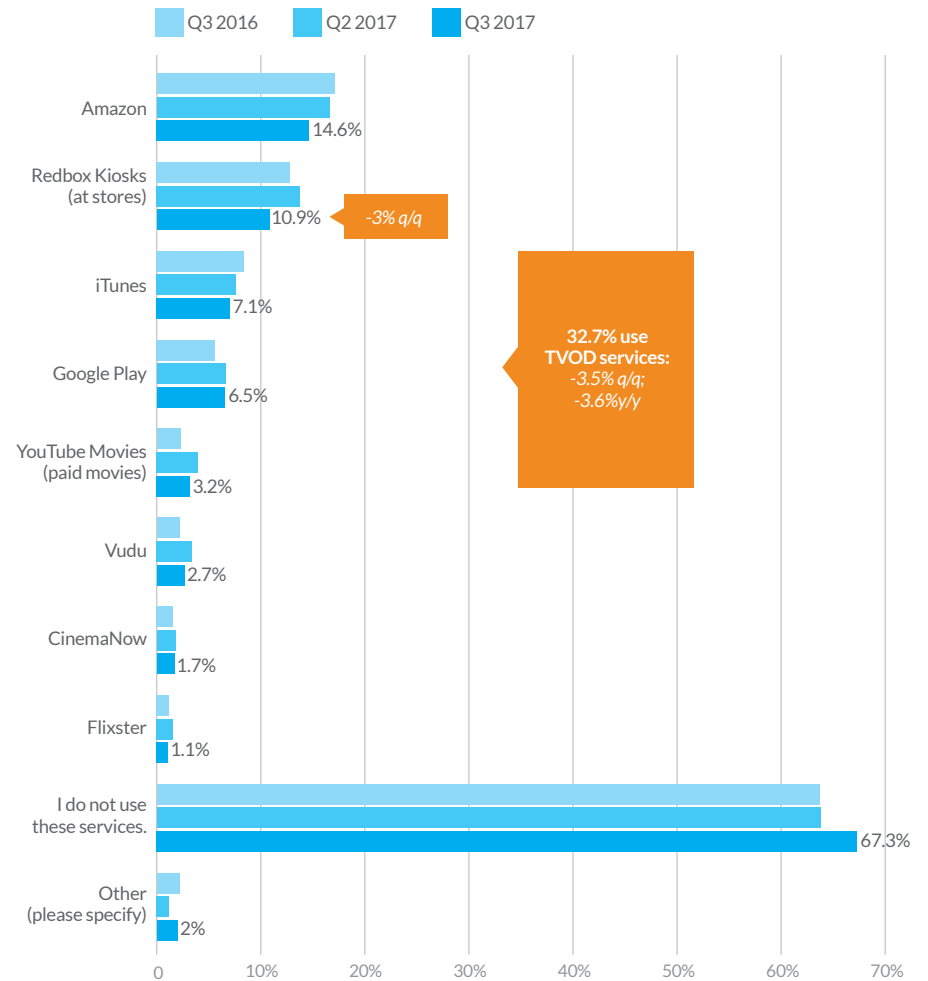
The three most-used services are Amazon, Redbox Kiosks (at stores) and iTunes. However, these three services experienced grim survey results, including the following:

- Amazon saw its lowest adoption rate since Q3 2015.
- iTunes saw its lowest adoption rate since Q2 2013.
- Redbox experienced a decrease of 3 percentage points q/q, which is the lowest rate it's been since Q2 2013.

The drop in TVOD adoption could be attributed to one dominant factor — the sheer amount of content now available through SVOD services. TiVo believes TVOD adoption will likely continue to fall as SVOD catalogs grow in volume, and as original content increases, a factor that differentiates SVOD from TVOD.

TVOD SERVICES

Do you rent or purchase movies from services like Amazon, CinemaNow, iTunes, Redbox kiosks, Vudu, etc.? (Choose all that apply)



OTT Trends: SVOD and TVOD



TVOD ENGAGEMENT

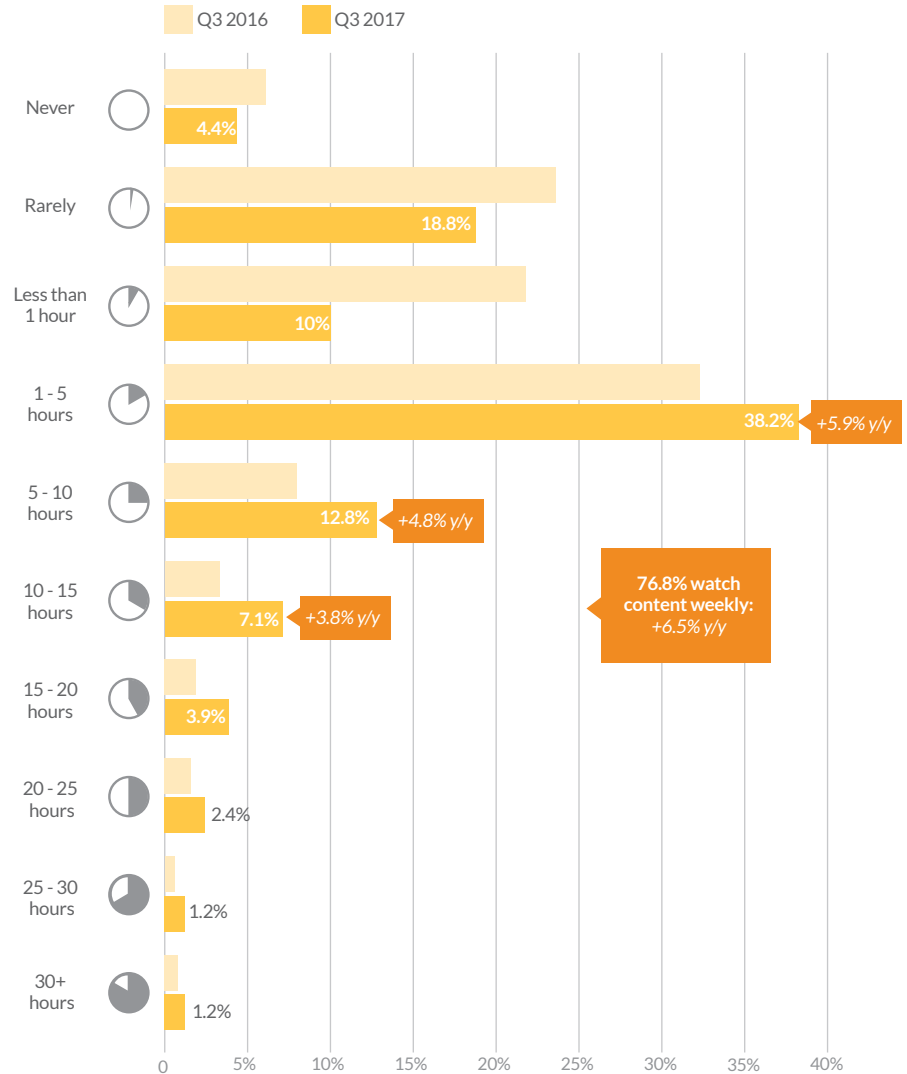
While adoption rates decline, positive news for TVOD services can be found in engagement. More than three-quarters of respondents (76.8%) who use TVOD services watch content each week. Results found in Q3 2017 include:

- Weekly view time increased 6.5 percentage points y/y.
- The bulk of respondents (38.2%) watch 1-5 hours per week, and this category increased 5.9 percentage points y/y.
- Those who watch 5-10 hours per week increased 4.8 percentage points y/y.
- The category of 10-15 hours increased 3.8 percentage points y/y.

So, while overall adoption might be on a downturn, those who do use TVOD services are watching more than they did one year ago.

VIEW TIME FOR TVOD SERVICES

On average, how many hours per week do you watch content on these pay-per-rental services?



OTT Trends: SVOD and TVOD



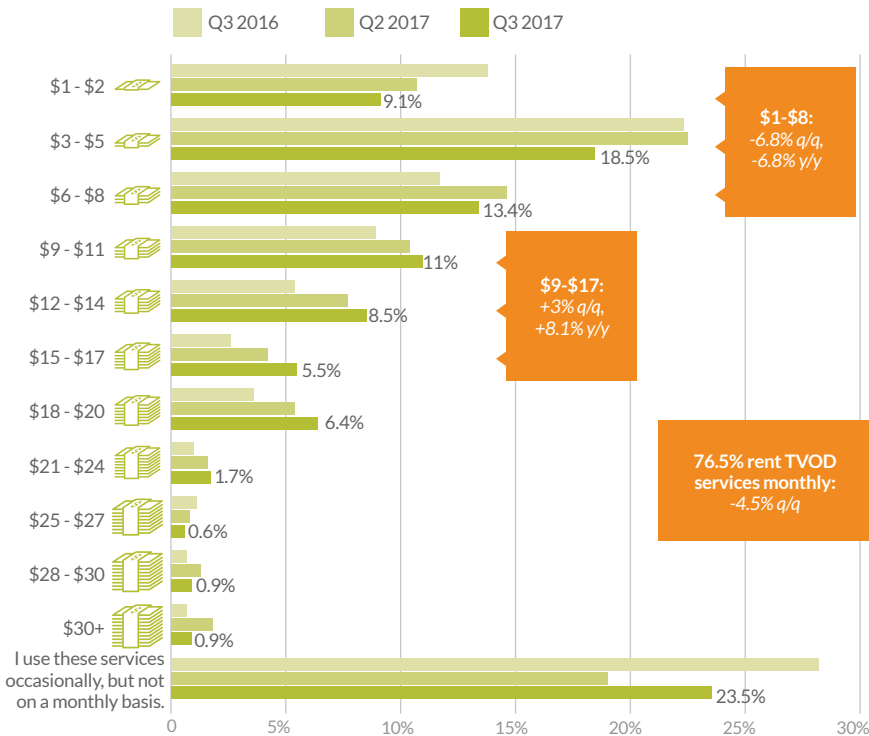
TVOD ENGAGEMENT (CONTINUED)

Of respondents who use TVOD services, 76.5% spend money on rentals each month. The largest group of respondents (31.9%) spends \$3-8 per month on TVOD services. While overall monthly spend on TVOD services decreased 4.5 percentage points q/q, the middle tier of spending groups experienced growth, including the following results:

- Those spending \$9-17 a month increased nearly 3 percentage points q/q and 8.1 y/y.
- Those spending \$1-8 decreased 6.8 percentage points q/q and y/y.

MONTHLY SPEND ON TVOD SERVICES

How much do you spend per month renting movies from these pay-per-rental services?



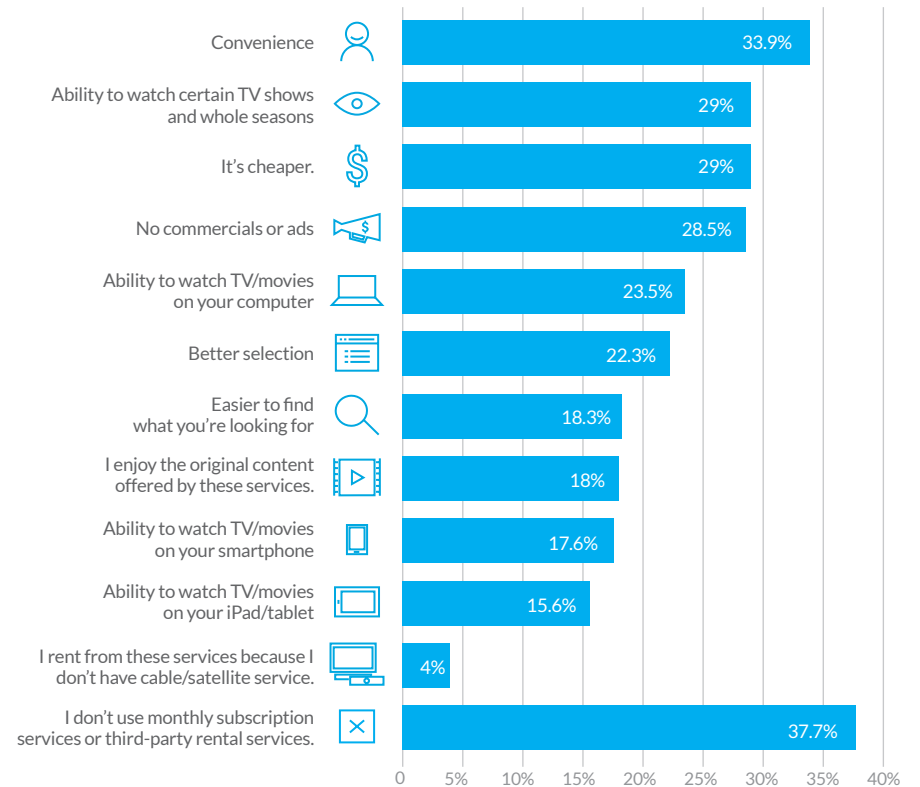
THE ENTICEMENT OF OTT SERVICES

For the sixth quarter in a row, the top reasons respondents use SVOD and/or TVOD services are:

- Convenience – 33.9%
- Ability to watch certain TV shows and whole seasons – 29%
- It's cheaper – 29%
- No commercials or ads – 28.5%

REASONS TO USE OTT SERVICES

Why do you use third-party rental and/or monthly subscription services like Amazon, iTunes, Netflix, Vudu, CinemaNow, Blockbuster, Redbox or YouTube? (Choose all that apply)



TV Network Apps

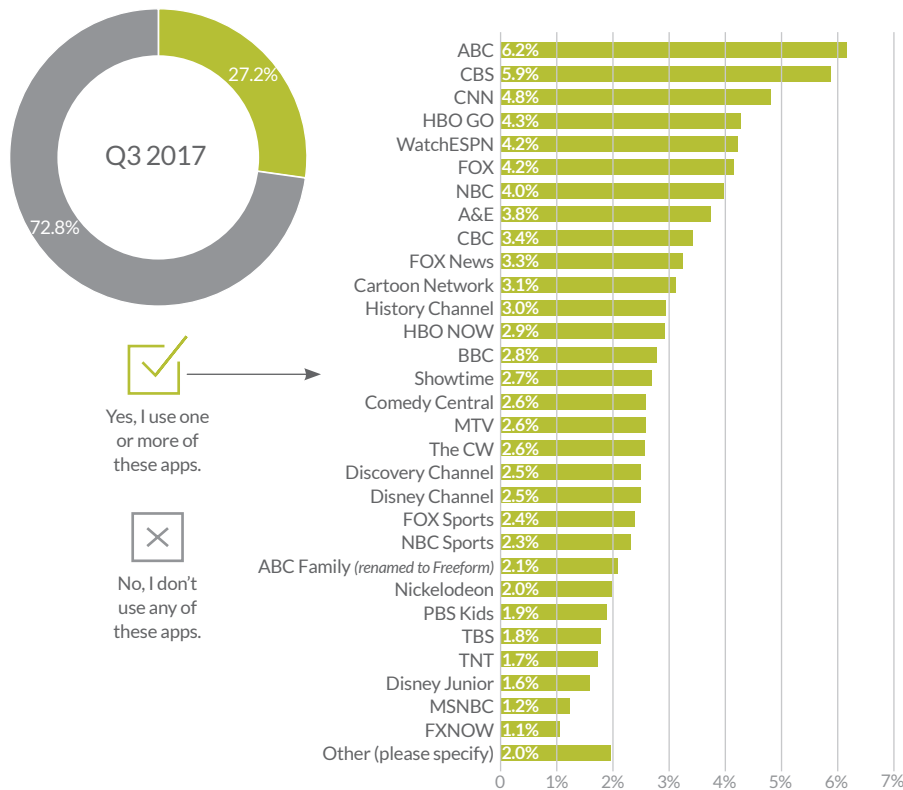


In Q3 2017, 27.2% of respondents have TV Network apps; this percentage marks their highest rate of adoption since Q1 2016³. The most popular apps among respondents are:

1. ABC – 6.2%
2. CBS – 5.9%
3. CNN – 4.8%
4. HBO GO – 4.3%
5. Watch ESPN – 4.2%
6. FOX – 4.2%

TV NETWORK APPS

Do you have any of the following TV/TV network apps downloaded on your iPad/tablet, smartphone, and/or streaming device? (Choose all that apply)

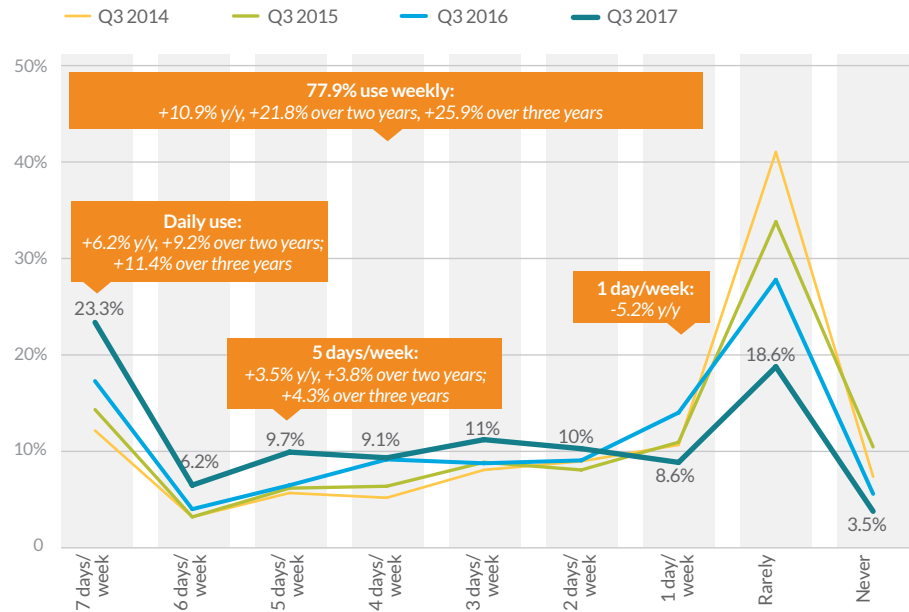


Of respondents using TV Network apps, 77.9% of respondents do so on a weekly basis, a slight q/q increase, a 10.9 percentage point increase y/y, a 21.8 percentage point increase over two years and a 25.9 points increase over three years. Several positive trends regarding weekly usage of TV Network apps include:

- **Daily** usage increased 6.2 percentage points y/y, 9.2 points over two years, and 11.4 points over three years.
- **Usage of six days a week** increased slightly y/y.
- **Usage of five days a week** increased 3.5 percentage points y/y, 3.8 points over two years, and 4.3 points over three years.
- **Usage of one day a week** decreased 5.2 percentage points y/y, and 2.1 points over two years.

TV NETWORK APPS WEEKLY USAGE

How often do you use these TV/TV Network apps?



³ It is important to note the answer choices changed slightly in the Q3 2017 Survey.

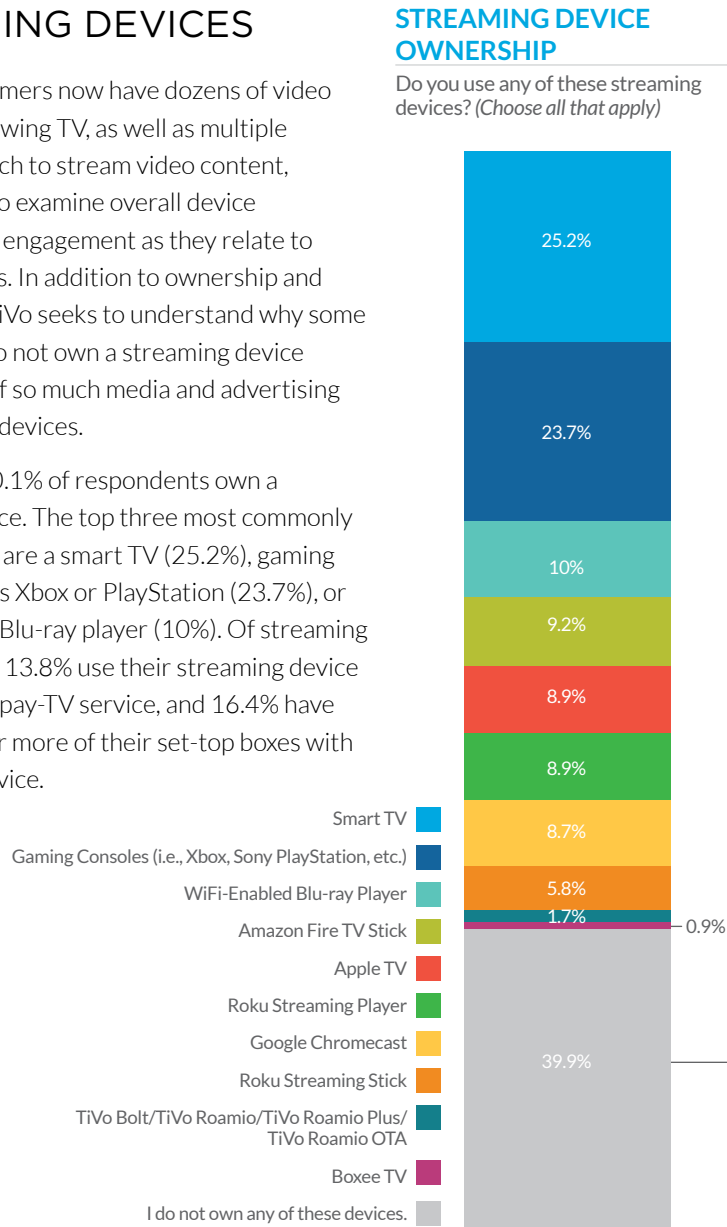
Connected Devices



STREAMING DEVICES

Because consumers now have dozens of video services for viewing TV, as well as multiple screens on which to stream video content, it's important to examine overall device ownership and engagement as they relate to pay-TV services. In addition to ownership and engagement, TiVo seeks to understand why some respondents do not own a streaming device during an era of so much media and advertising hype for these devices.

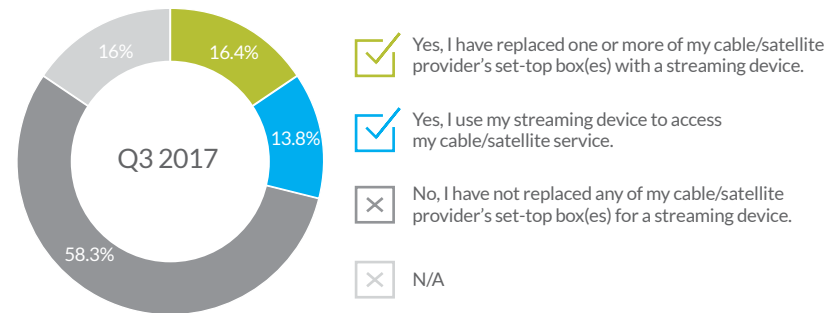
In Q3 2017, 60.1% of respondents own a streaming device. The top three most commonly owned devices are a smart TV (25.2%), gaming console, such as Xbox or PlayStation (23.7%), or Wi-Fi-enabled Blu-ray player (10%). Of streaming device owners, 13.8% use their streaming device to access their pay-TV service, and 16.4% have replaced one or more of their set-top boxes with a streaming device.



For streaming device manufacturers, the question arises: why aren't consumers buying these devices despite the hype surrounding new video services and devices? The primary reason 34.3% of respondents do not own a streaming device is they don't consider it necessary in addition to their pay-TV STB. Additionally, there was nearly a tie for the second most-selected answer choice, and this was between a lack of familiarity with these devices (22.8%) and either inability to afford or lack of desire to pay for these devices (22%). While affordability may be a factor out of manufacturers' control, lack of familiarity can be overcome by building awareness through solid marketing that highlights the benefits of these devices and presents specific use cases on exactly how to use them.

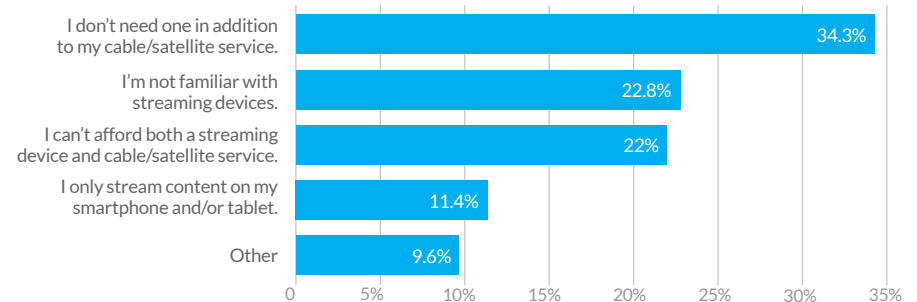
REPLACE SET-TOP BOXES WITH STREAMING DEVICES

If YES, have you replaced any set-top boxes in your home with a streaming device, and if so, do you use it to access your cable/satellite service? (Choose all that apply)



IF NO...

Why haven't you purchased a streaming device?



Connected Devices

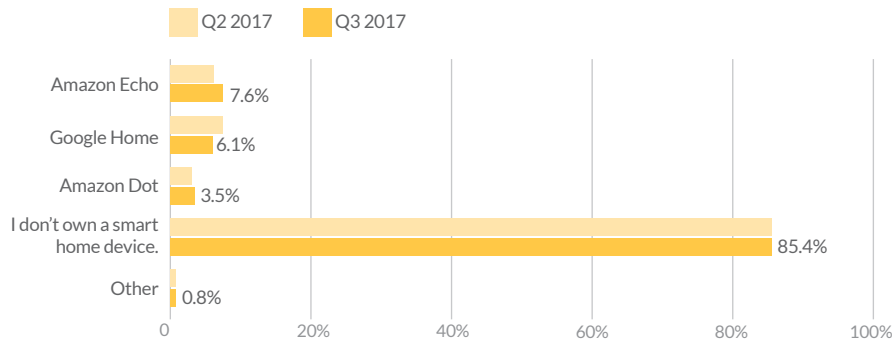


SMART HOME DEVICES

In Q3 2017, 14.6% of respondents own a smart home device, which is flat q/q. In a reversal of Q2 2017 results, Amazon Echo is the most-owned (7.6%) smart home device over Google Home (6.1%).

SMART HOME DEVICES

Which of the following “smart home devices” do you own? (Choose all that apply)



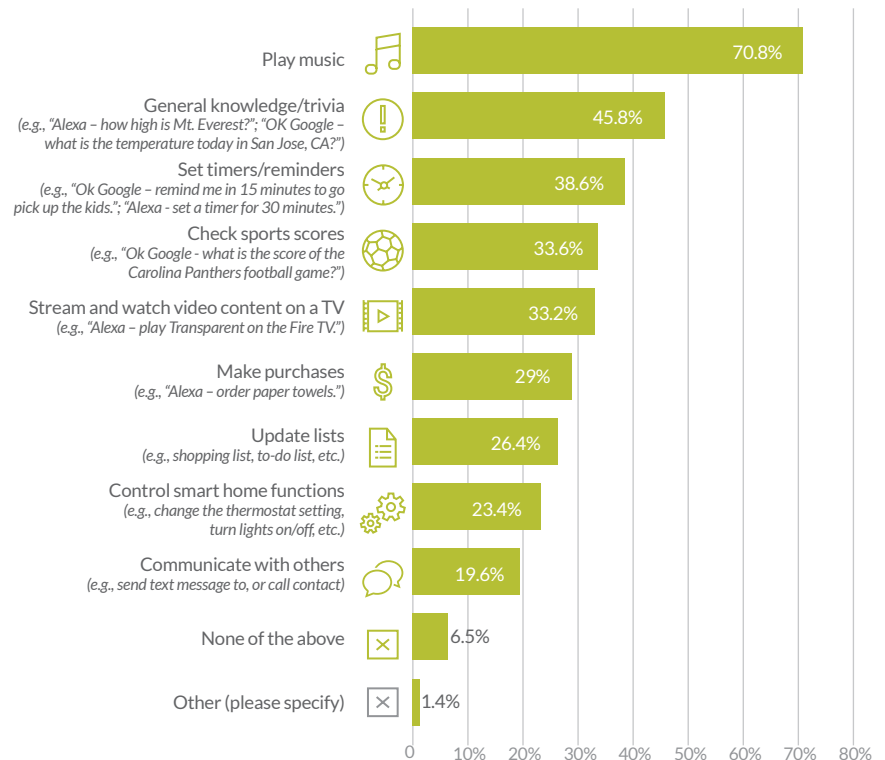
With more than two years on the market, smart home devices continue to gain popularity as they become increasingly more integrated around the house, helping with more day-to-day tasks than ever before, such as building grocery lists, ordering an Uber ride, setting birthday reminders, etc. Therefore, for Q3 2017, this section has evolved as TiVo seeks to understand how respondents are using these devices as well as how these devices have integrated into the everyday tasks of consumers.

Therefore, new to TiVo’s Q3 2017 *Online Video and Pay-TV Report*, the top three uses for smart home devices are:

- “Play music” – 70.8%
- “General knowledge/trivia (e.g., “Alexa – how high is Mount Everest?”; “OK Google – what is the temperature today in San Jose, California?”)” – 45.8%
- “Set timers/reminders (e.g., “OK Google – remind me in 15 minutes to go pick up the kids.”; “Alexa – set a timer for 30 minutes.”)” – 38.6%

SMART HOME DEVICES? IF YES...

Do you use your smart home device for any of the following activities? (Choose all that apply)



Connected Devices



SMART HOME DEVICES (CONTINUED)

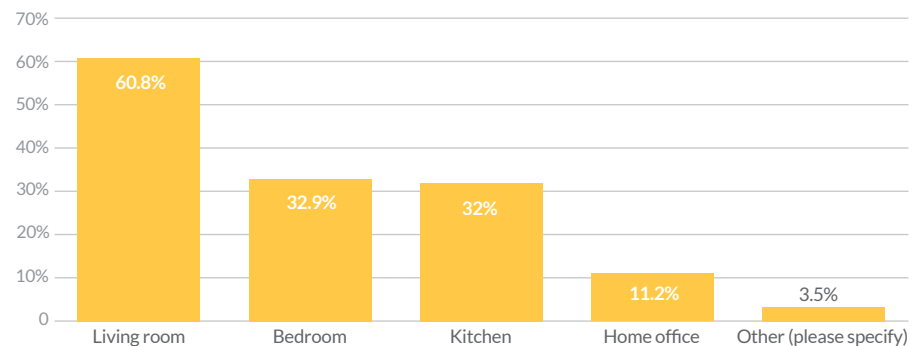
Though smart home devices, in their current state, are overwhelmingly (70.8%) used for music, the development of applications for use cases outside of music can increase adoption and engagement. More use cases and external apps working in tandem with smart home devices necessitates using targeted marketing to educate consumers on the benefits and optimal integration of the many available and upcoming options.

For an enhanced experience of their smart home device, mobile device users can discover compatible apps to add to their smart home device in the Play Store, or App Store. This mode of delivery can be challenging for smart home device owners, since they must review available apps via some sort of web browser, and then activate the skill or app in order to use it through their smart home device. At present, there are a significantly smaller number of skills and apps compatible with smart home devices as compared to mobile apps at large. However, now that Amazon has announced that they will start charging for various skills and apps, this space will be interesting to watch. While consumer's initial reaction might be negative, this move could create a better revenue model for skill and app developers⁴, while also exploring the future potential of smart home devices.

In addition to examining how respondents are using smart home devices, TiVo also wanted to understand where these devices are located within the home. Is there truly a “battle for the living room” beginning to unfold among smart home devices and video devices such as pay-TV STB and other streaming devices? According to Q3 2017 survey results, the living room is the most popular location for smart home devices (60.8%), and there was nearly a tie for second between the bedroom (32.9%) and the kitchen (32%). Pay-TV providers should take note that well over half of the respondents’ smart home devices are in the living room, bringing it one step closer to being able to assist users in watching or finding video content. When a smart home device is in the living room, it makes it easy for a user to say “What channel is ESPN?” or “What time does *Dancing With The Stars* air?”, allowing viewers to get to their content faster than they would by typing the same search via a keyboard.

SMART HOME DEVICE LOCATION

Where is your smart home device(s) located in your house? (Choose all that apply)



⁴ [Sara Perez, "Amazon introduces paid subscriptions for Alexa skills, makes them free for Prime members," Yahoo! Finance, October 25, 2017](#)

Content Discovery: Recommendations, Search and Sports Discovery

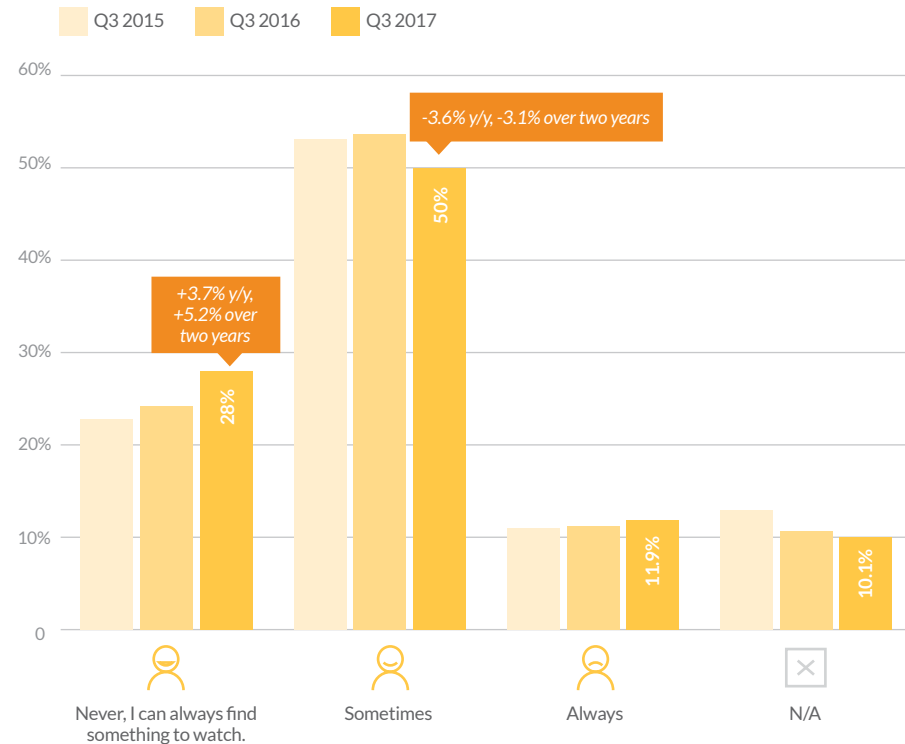


While 11.9% of respondents are “always” frustrated when trying to find something on TV, the largest group (50%) gets frustrated only “sometimes.” When it comes to content discovery, three trends emerged from the Q3 2017 survey results that illustrate positive results for pay-TV providers, including:

1. The answer choice “sometimes” is flat q/q, and it decreased 3.6 percentage points y/y and 3.1 points over two years. While it’s tough to confirm this for sure, ideally these missing percentage points will eventually move to the “Never, I can always find something to watch” answer category.
2. The answer choice “Never, I can always find something to watch” represents 28% of respondents with pay-TV service, and this audience has increased 3.7 percentage points y/y and 5.2 points over two years.
3. Furthermore, this same category of “Never, I can always find something to watch” is at its highest level since Q3 2013, suggesting rising satisfaction and falling frustration among pay-TV subscribers.

FINDING SOMETHING TO WATCH

How often do you get frustrated when trying to find something to watch on TV?



Content Discovery: Recommendations, Search and Sports Discovery



Each pay-TV and video offering has a unique user interface, and this, in turn, affects how easily viewers find content. Therefore, it's important to monitor how consumers feel about video services' interfaces and various features, and ultimately, whether it is easy to find something to watch. Starting with content discovery, here is a breakdown of the Q3 2017 survey results for the two main video services covered in the survey.

Pay-TV Service Content Discovery

- 69.5% of respondents feel it is easy to find something to watch on TV, a slight increase q/q and 11.2 percentage points y/y.
- This positive sentiment toward finding something to watch on TV is the highest response here dating back to Q2 2013.

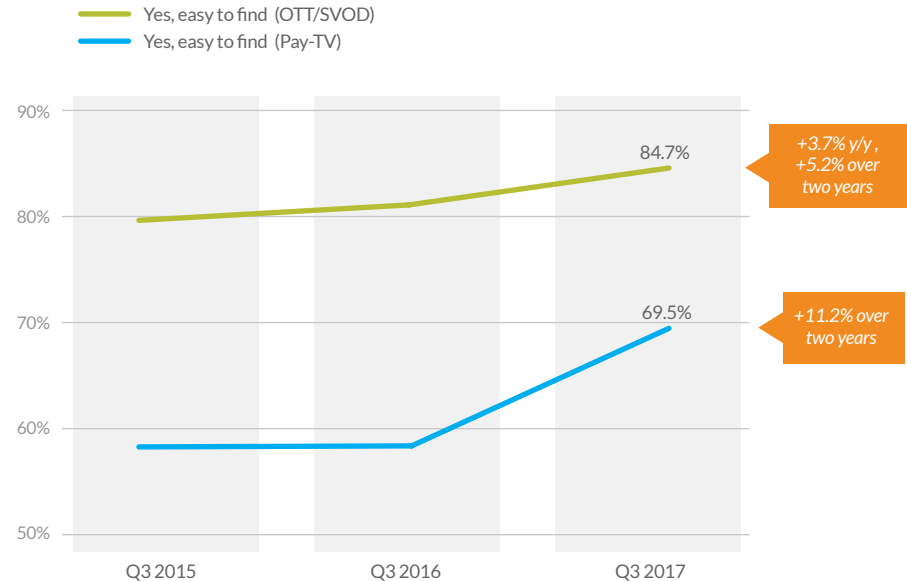
SVOD Content Discovery

- 84.7% of respondents feel it's easy to find something to watch on SVOD services, an increase of 3.7 percentage points y/y and 5.2 over two years.

The results show a 15.2 percentage point difference between the two service types, favoring SVOD services over pay-TV offerings; however, this favorability toward content discovery on SVOD services decreased 4.2 percentage points q/q. While pay-TV respondent satisfaction in finding something to watch is the highest it's been since 2013, pay-TV providers must still work to bridge the gap in satisfaction with video content discovery.

EASY-TO-DISCOVER CONTENT

Do you feel it is easy to find something you "want" to watch on TV?





Analytical Commentary

DOES USE OF ADVANCED CONTENT DISCOVERY FUNCTIONALITY AFFECT VIEWER ENGAGEMENT?



TiVo regularly talks with pay-TV providers about tracking viewer engagement, an important Key Performance Indicator (KPI). Keeping a pulse on viewer engagement not only offers insight into viewers' activity with content offered in their pay-TV services, but this metric also correlates directly with viewer satisfaction. While many factors, such as viewing habits, can affect viewer engagement metrics, another key contributor is how often viewers leverage advanced content discovery functionality such as search, list/category search, content recommendations, voice search and more. TiVo has always believed offering high-quality content discovery functionality can positively affect viewer engagement, which can, in turn, positively affect satisfaction. The question is: do respondents really feel this way?

By analyzing a number of questions that gauge interest in or track respondent use of numerous content discovery functionalities, TiVo was able to determine how various features affect respondents' level of satisfaction*. Using content discovery features asked about in the survey, TiVo took an aggregate of personalized recommendations, pre-made category lists, search by typing and search with voice – and then came up with the Advanced Discovery Feature Use metric, which refers to the average number of features respondents in each category use. The chart to the right shows respondents who use, or are interested in using, at least two content discovery features are also the same respondents who fall into the “very satisfied with the service” category. This category overlap reveals the most engaged respondents are also those most pleased with their service.

Value of Pay-TV Service	Advanced Discovery Feature Use (range between 0-4)	Frustration with Finding TV Shows/Movies to Watch**
Unsatisfied with the service	1.6	1.7
Satisfied with the service	1.7	1.3
Very satisfied with the service	2.0	1.1

The chart also illustrates those that are less frustrated with trying to find something on TV, including both linear and sports content, are more satisfied and engaged. This analysis further illustrates viewer engagement with advanced content discovery functionality does correlate with overall satisfaction with pay-TV service. Thus, it's important for pay-TV providers to educate viewers on new functionality such as recommendations and voice search, and to market their benefits and ease of use, in addition to exactly how new functionality can be leveraged.

*Questions used to calculate Advanced Discovery Feature Use metric:

- Does your cable/satellite provider make personalized recommendations of TV shows, movies and/or sports to you based on your interests or past viewing habits on your in-home TV/set-top box?
- Do you use the pre-made category lists to search for channels such as “Family/Kids Shows,” “Sports,” or “Lifestyle Channels”?
- Do you ever type in a TV show, movie title or topic into a search box to find something to watch in your cable/satellite guide?
- Do any of the devices you view TV and/or movies on allow you to talk into the device to search for a TV show/movie, or change channels, etc.? (e.g., search by saying, “Is a scary movie on now?”)

** The following data was formulated by assigning weighted averages to the answer choices “sometimes=1,” “never=0” and “always=2” from the survey question, “How often do you get frustrated when trying to find something to watch on TV?”

Content Discovery: Recommendations, Search and Sports Discovery



RECOMMENDATIONS

In Q3 2017, 16.6% of respondents answered their pay-TV provider makes recommendations of TV shows, movies and/or sports. The good news is that awareness is up since those who answered, "I don't know if my cable/satellite provider recommends TV shows, movies and/or sports to me" decreased 3.1 percentage points q/q. Less positive news is that those who said their provider offered recommendations dropped slightly q/q, while those who said their provider did not offer recommendations increased 3.5 percentage points q/q. Many North American pay-TV providers have launched recommendations and TiVo feels this is another opportunity for providers to do a better job educating their subscribers on the benefits of recommendations, as well as on how to use them.

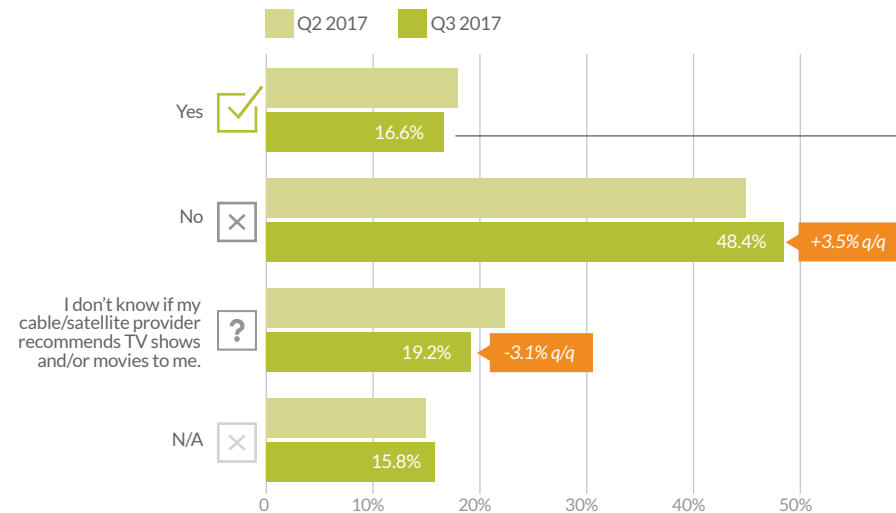
Of those with recommendations, 25.2% answered they are "always accurate," and another 62% answered they are "sometimes accurate." While there wasn't huge q/q

growth for this question, "always accurate" is the highest it's been since the addition of the 'I don't know' answer choice in Q4 2016⁵.

Of the respondents that do not have access to recommendations, 46.1% would like this functionality. The desire for recommendations increased slightly q/q and by 7.6 percentage points y/y.

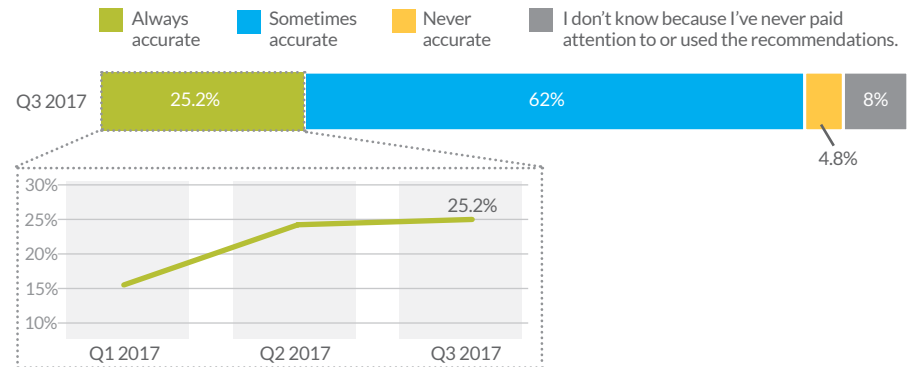
RECOMMENDATIONS

Does your cable/satellite provider make personalized recommendations of TV shows and movies to you based on your interests, past viewing habits, etc.?



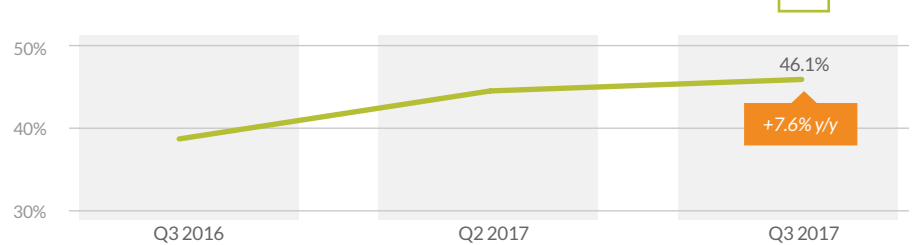
IF YES...

Do you feel the recommendations are accurate/relevant?



IF NO...

Would you like to have TV shows and movies recommended to you (and personalized to your liking)?



⁵ The answer choices changed in Q4 2016 for this question, therefore, TiVo doesn't calculate longer-term trends prior to this date.

Content Discovery: Recommendations, Search and Sports Discovery



Search is another form of content discovery that, like the video industry as a whole, has evolved over the lifetime of this report. Therefore, to account for the various search methods offered within pay-TV offerings today, this report breaks search functionality into four categories: lists or category searches, cross-catalog search, text search and voice search.

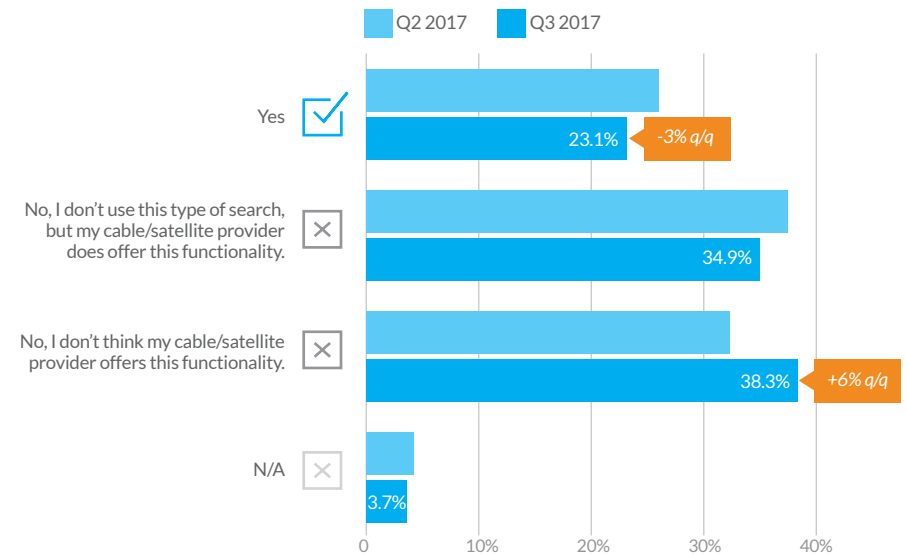
LIST/CATEGORY SEARCH

In Q3 2017, 23.1% of respondents use pre-made category lists, such as “Family/Kids Shows” or “Scary Movies” to search for something to watch, though use of this search type decreased nearly 3% q/q. Additionally, the answer choice “No, I don’t think my provider offers this functionality” increased 6 percentage points q/q. These results illustrate two negative points for the pay-TV industry today.

1. It’s never good to see a decline in usage of a functionality intended to help viewers find something to watch. Oftentimes, with strong reliance on the traditional pay-TV guide, viewers can struggle to navigate to this functionality, or they may forget how to access it from their remote. Again, continuously promoting this method of search functionality, as well as its benefits, will help increase adoption over time.
2. The second issue is awareness among respondents. Unfortunately, the answer “No, I don’t think my provider offers this functionality” increased over the Q2 2017 survey results. Since this search method is offered by many of the large pay-TV providers today, education again remains paramount, particularly as it relates to pay-TV user experience and the ability to find something to watch.

LIST/CATEGORY SEARCH

Do you use the pre-made category lists to search for channels such as “Family/Kids’ Shows,” “Sports,” or “Lifestyle Channels”?



Content Discovery: Recommendations, Search and Sports Discovery

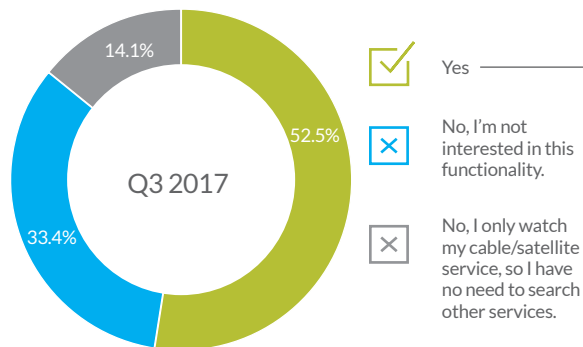


CROSS-CATALOG SEARCH

Over half (52.5%) of respondents would like to be able to conduct “cross-catalog” searches, or the ability to find something to watch across all TV services, including pay-TV, Netflix, Amazon Prime Video, Hulu, etc. TiVo believes that the implementation of cross-catalog functionality is a must-do, and it will continue to monitor interest levels. With more than half of respondents already interested and with the rise of TV apps for smart TVs, pay-TV providers may eventually have no choice but to incorporate cross-catalog functionality.

CROSS-CATALOG SEARCH

Would you like to be able to search for TV shows and movies across all of your TV services (cable/satellite, Netflix, Amazon Prime Video, Hulu, etc.)?



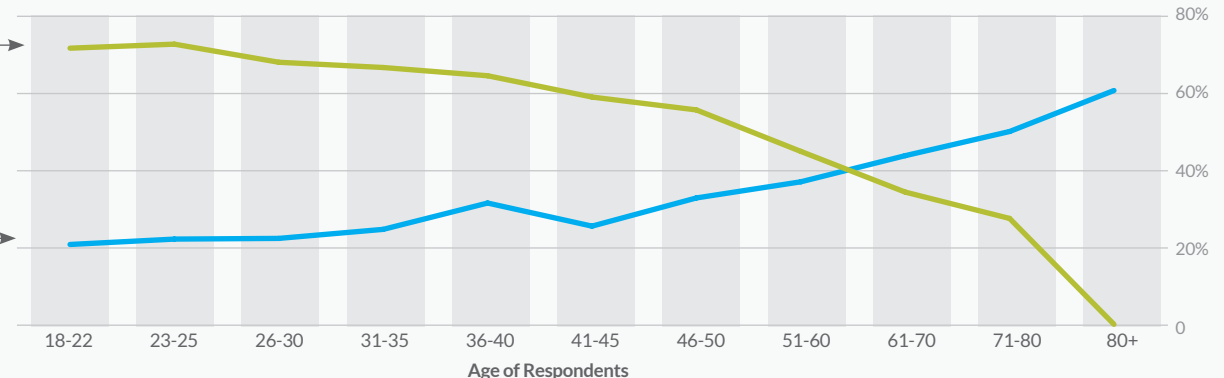
Analytical Commentary

INTEREST IN CROSS-CATALOG SEARCH ANALYZED BY AGE DEMOGRAPHIC

Earlier in the TV Viewing Habits section of the report, it was mentioned that 41.2% of respondents are interested in a cross-catalog video user experience, or all of their video content providers in one place, and over half of respondents would like cross-catalog search functionality. In addition to browsing across a number of video sources, TiVo believes including cross-catalog as a feature of content discovery is a vital aspect of offering a desirable, next-gen video experience. Therefore, TiVo wanted to understand if any trends are emerging in respondent demographics. Are younger generations, the future of pay-TV subscribers, more apt to want to search across numerous video platforms versus an older demographic that might be more loyal solely to their pay-TV service?

The chart below illustrates this is, in fact, the case. Younger viewers desire an integrated video solution that includes pay-TV and OTT services more than older generations do. The results show the highest interest level (73.1%) is among ages 23-25, but it's important to note that well over half of respondents (66.9%) within the age groups of 18-50 are interested in the ability to search across multiple video offerings, or cross-catalog search functionality. What does this mean for pay-TV providers? TiVo has said this previously, but it believes that integrating multiple TV/video offerings is the future, and these results further illustrate that belief. Pay-TV subscribers want this functionality, and pay-TV providers can continue to build value for their services and possibly retain a younger audience by creating features desired by their long-term subscribers.

AGE ANALYSIS FOR RESPONDENTS INTERESTED IN CROSS-CATALOG SEARCH



Content Discovery: Recommendations, Search and Sports Discovery

TEXT SEARCH

Roughly half of respondents (50.4%) answered they do type in a TV show, movie or topic to find something to watch, and nearly all of respondents (89.1%) using text search feel the results are accurate. When it comes to accuracy, pay-TV providers will be encouraged to see minimal negative growth q/q and y/y among those who feel the search results aren't accurate, as well as a 4.3 percentage point decline over two years.

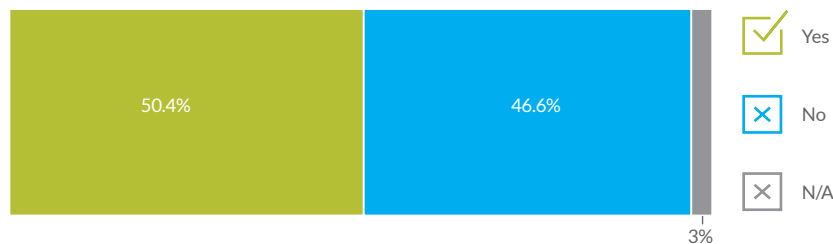
While text-based search is one of the oldest forms of searching for video content – and for many services, it remains the only option – it seems to be holding its audience with just over half (50.4%) of respondents using it. Therefore, continuing to improve the usability of this functionality alongside other content discovery features will please a large chunk of pay-TV subscribers.

In addition, it's equally important to understand why respondents aren't using this functionality to improve their ability to find something to watch. For the second quarter in a row, respondents don't use the search functionality offered by their pay-TV provider for the following reasons:

- "I only watch a few channels so there's no need to search." – 33.2%
- "I am not interested in searching for TV shows/movies." – 21.4%
- "Search is not offered by my cable/satellite provider." – 19.6%

TEXT SEARCH

Do you ever type a TV show, movie title or topic into a search box to find something to watch in your cable/satellite guide?

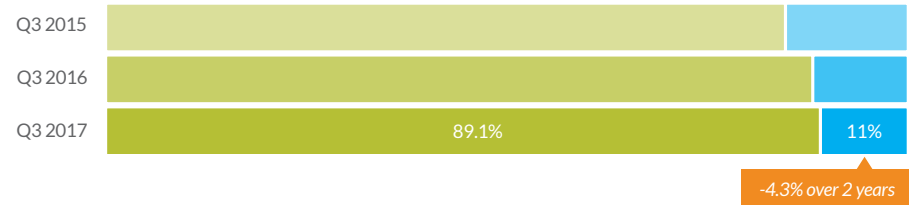


Mirroring the awareness issue noted in the list/category search section, roughly one-fifth of respondents believe that their pay-TV provider does not offer text search, despite the fact that nearly all North American pay-TV providers do offer this feature. Once again, this reveals an education gap among pay-TV subscribers. Continuous marketing on how and where to find this functionality should positively affect adoption, and ultimately improve the user experience for pay-TV subscribers.

IF YES...

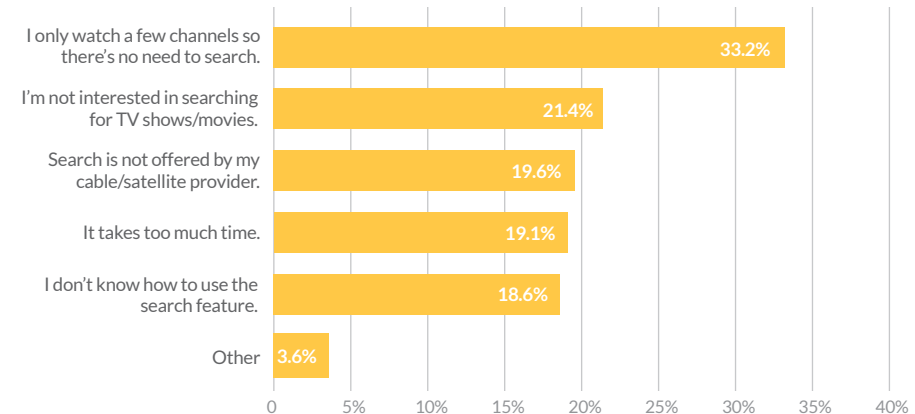
Do you feel the search results are accurate?

Yes No



IF NO...

Why don't you use the search functionality offered to you? (Choose all that apply)



Content Discovery: Recommendations, Search and Sports Discovery



VOICE SEARCH

Of the 20.4% of respondents who can use their voice to find something to watch, just over half (11%) use the functionality. While q/q and y/y growth is relatively flat among those conducting voice searches to find something to watch on TV, the number is up 6.6 percentage points from two years earlier. Also, the answer choice “Yes, I use my voice to find something to watch” is the highest it’s been since the start of the question in Q3 2015.

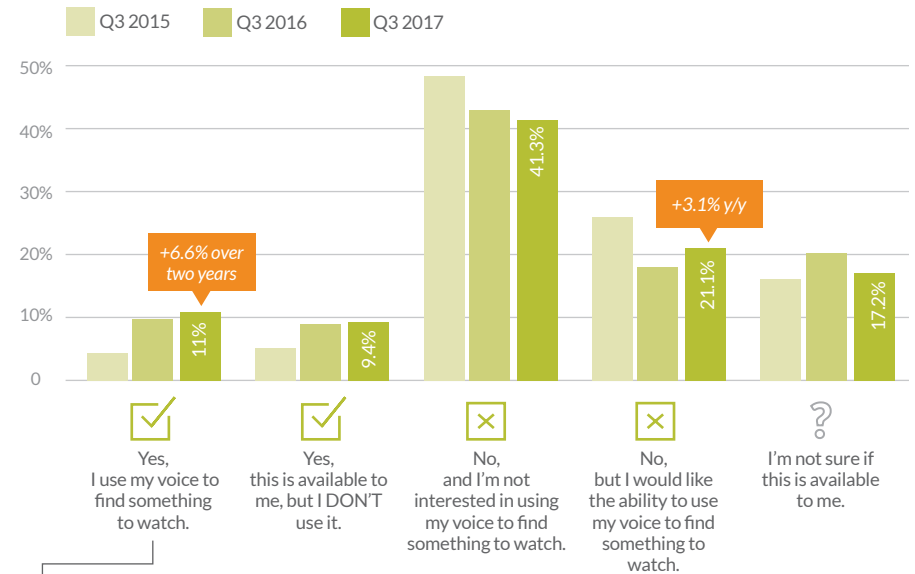
Another 21.1% of respondents do not currently have the ability to conduct voice searches, but are interested in the functionality. Interest in voice search increased by 3.1 percentage points y/y. Hypothetically, if this group was offered voice search and converted to the “Yes, I use my voice to find something to watch” category, adoption could increase to nearly a third of respondents (32.1%). Pay-TV providers should take note of this trend: consumers are not only aware of voice search functionality, but now that they are accessing voice functionality already in their cars, mobile devices, streaming devices and smart home devices; they will soon be expecting it in their pay-TV offerings as well.

Of those who use their pay-TV providers’ voice search functionality, 88.5% use it on a weekly basis. The largest group (30.2%) conducts voice searches 1-3 times per week, and the second largest group (25.7%) conducts 4-7 voice searches per week. The volume of voice searches conducted each week increased 11.8 percentage points y/y. Below are several positive trends for pay-TV providers illustrating growth in the larger volumes of voice searches:

- The category of 12-15 searches increased by 3.2 points y/y.
- The category of 16+ searches increased by 3.8 points y/y.

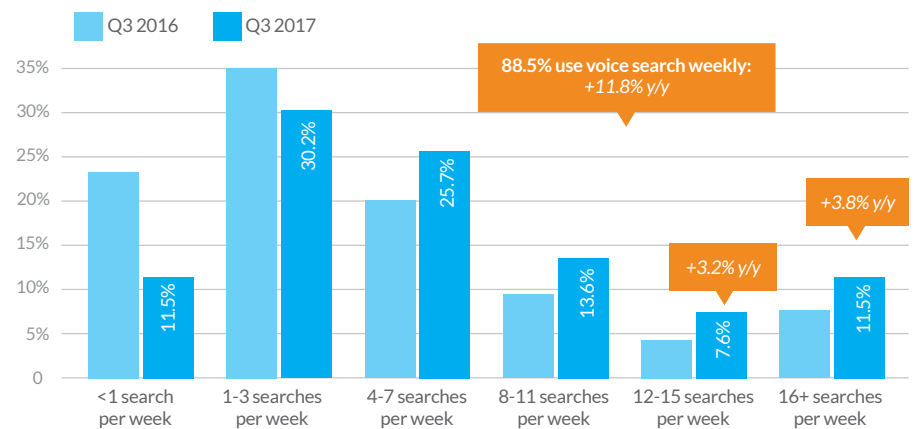
VOICE SEARCH

Do any of the devices on which you view TV and/or movies allow you to talk into them to search for programming, change channels, etc.? (e.g., search by saying, “Is a scary movie on now?”)



IF YES...

How often do you use voice search?



Content Discovery: Recommendations, Search and Sports Discovery



VOICE SEARCH (CONTINUED)

As voice search functionality expands across multiple devices in the living room, including on TV remotes, iPad/tablets, smartphones and smart home devices such as Amazon Echo, TiVo wanted to better understand which devices respondents use to search with their voices. Therefore, new to TiVo's Q3 2017 *Online Video and Pay-TV Trends Report* is a question tracking the top devices, and the results are:

- "Cable/satellite service - set-top box or remote" – 46.5%
- "Amazon Fire TV" – 28.7%
- "Apple TV" – 19.6%

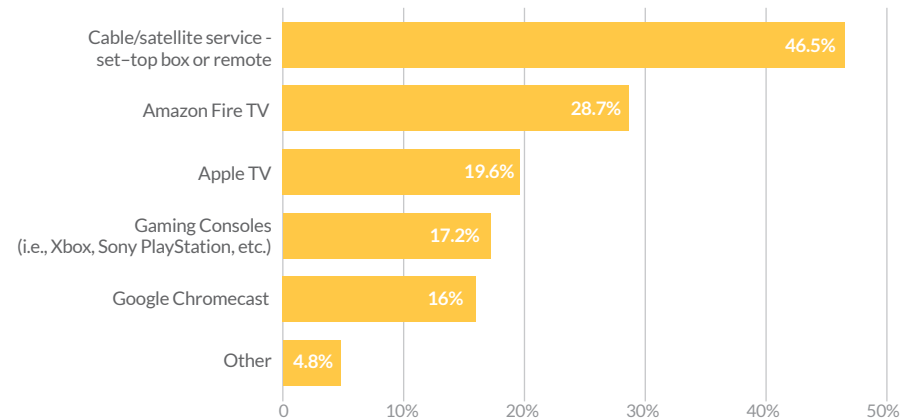
Similar to other forms of search, as voice search begins to gain popularity and becomes a key feature marketed by providers, TiVo seeks to help pay-TV providers better understand why respondents aren't using this form of content discovery. Therefore, also a new topic to TiVo's Q3 2017 *Online Video and Pay-TV Trends Report*, the top reasons respondents are not using voice search today are:

- "It doesn't really do anything for me – it's a gimmick with no real benefit." – 58.8%
- "I'm not comfortable talking into a device to find something to watch on TV." – 18.9%
- "I tried it, but it wasn't good at recognizing what I asked." – 11.5%

While these reasons might represent clear opposition among a large group of respondents, resistance is common with any new functionality. However, these results may indicate that video provider marketing should focus on demonstrating the many benefits of voice search as well as helping consumers feel comfortable with this functionality.

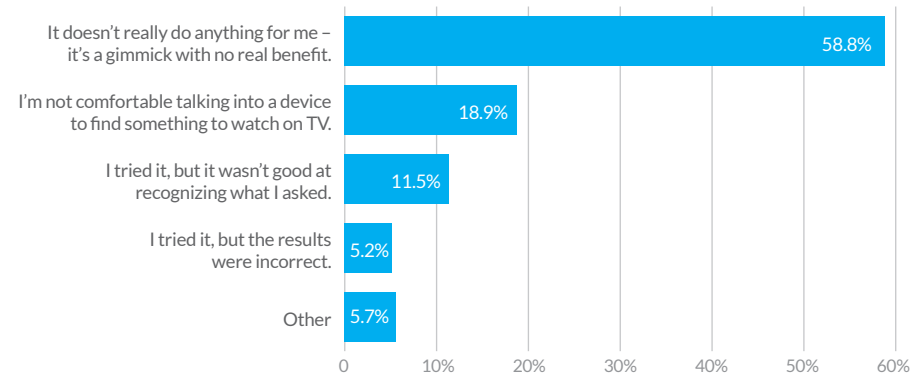
VOICE SEARCH ON VIDEO DEVICES

Which device(s) do you speak into in order to search for something to watch on TV? (Choose all that apply)



VOICE SEARCH? IF NO...

Why aren't you interested in using your voice to search for something to watch on TV? (Choose all that apply)





Analytical Commentary

SMART HOME DEVICE OWNERS WHO USE VOICE SEARCH



Smart home devices rely on voice commands to perform tasks, and more recently, manufacturers' marketing efforts are pushing more living room integration by helping viewers find something to watch on TV. In part because of this push, and because of increased reliance on voice technology, TiVo has repeatedly stated voice functionality is a must-have feature for pay-TV providers. As consumers become accustomed to using their voices to search and to conduct day-to-day activities, finding something to watch on cable/satellite services is ripe for an improved experience via added voice functionality. Thus, TiVo's Data Science Team wanted to understand if a correlation existed between respondents who use smart home devices and those who leverage voice search – whether through smart home devices, set-top boxes with voice capability, or streaming devices with voice capability – to find content to watch.

TiVo discovered over half (62.5%) of the respondents who use their voices to search for something to watch on TV are also smart home device owners; another 13% of those who aren't currently using voices to search for TV but would like to, also own a smart home device. An additional 40.8% of smart home device owners answered they can use voice search to find TV shows and movies, but do not. This sizeable audience could be the result of unsupported functionality by the video provider, or it could be because of a poor voice search user experience. Regardless of the reason, this group is familiar with sending voice commands to a smart home device, and if given a satisfying user experience and education on how to use it for TV viewing, these smart home device owners could be transformed into pay-TV voice search users. As smart home devices grow in popularity, and voice search becomes routine, pay-TV providers must take note of this trend and make voice search a priority in product roadmaps.

Do any of the devices you view TV and/or movies on allow you to talk into the device to search for a TV show/ movie, or change channels, etc.? (e.g., search by saying, "Is a scary movie on now?")	Smart Home Device Owners
I am not sure if this is available to me.	7.5%
No, and I'm not interested in using my voice to find something to watch.	7.6%
No, but I'd like the ability to use my voice to find something to watch.	13%
Yes, I use my voice to find something to watch.	62.5%
Yes, this is available to me, but I DO NOT use it.	40.8%



Quarterly Tips

TARGETED MARKETING CAMPAIGNS DRIVE VOICE SEARCH ADOPTION AND INCREASE ENGAGEMENT



For the last several quarters, TiVo has advised pay-TV providers to produce marketing materials educating viewers exactly how key features work, and why they're beneficial. TiVo's Q2 2017 *Online Video and Pay-TV Trends Report* reviewed the top types of voice searches conducted on a major pay-TV provider's platform (see chart to the right). The report discussed TiVo's best practice of integrating personalization and intent into pay-TV providers' voice search offerings, promoting widespread adoption of truly personalized, advanced conversational services. To make this a reality, pay-TV providers must increase efforts to educate viewers on available options and clearly distinguish their service offerings from those of smart home devices.

Recently, a major pay-TV provider took this advice, providing a first-hand look into how such efforts can impact viewer engagement. The results are eye-opening.

THE VIDEO PROVIDER'S INITIAL GOAL

Before the pay-TV provider launched its marketing campaign, it invested in content discovery functionality to improve viewers' ability to find something to watch. The user experience upgrade included two key features: personalized recommendations and voice search capabilities. However, because voice capabilities were newly introduced to the provider's subscribers, the provider guessed there would be an awareness gap regarding the robust capabilities of their voice search offering. It not only supported simple searches (e.g., "Tune to ESPN"), but also allowed viewers to have "conversations" with their set-top boxes. TiVo refers to this functionality as Conversational Search. It supports natural-language searches such as, "What's on for me tonight?" and "Find me a Bill Murray comedy from the 80s."

ANALYSIS OF VOICE SEARCH USAGE FROM Q2 2017 ANALYTICAL COMMENTARY

VOICE SEARCH CATEGORY	MONTH 1	MONTH 2	MONTH 3	MONTH 4	MONTH 5	MONTH 6	MONTH 7	MONTH 8	MONTH 9	MONTH 10
Show title (e.g., "The Middle")	79%	79%	79%	78%	76%	73%	75%	77%	79%	86%
Channel (e.g., "121")	13%	13%	13%	14%	16%	17%	16%	14%	15%	11%
True conversation (e.g., "What is on TV tonight?")	4%	3%	4%	4%	4%	5%	5%	4%	3%	2%
TV commands (e.g., "Volume up")	2%	2%	2%	2%	2%	2%	2%	2%	1%	1%
Personality (e.g., "Tom Hanks")	1%	1%	2%	2%	2%	1%	2%	2%	2%	1%
Genre (e.g., "Romantic Comedy")	1%	1%	0%	0%	0%	1%	0%	0%	0%	0%

Source: TiVo's Q2 2017 *Online Video and Pay-TV Trends Report*

So, how does a provider build awareness of these new features? The goal is to educate viewers on using voice search to find something to watch and also to demonstrate conversational searches. The simplest promotional avenues would've been via the pay-TV provider's website, social media or flyers in monthly billing statements, but the provider chose to go where the eyeballs are; thus, television commercials were deployed as the most logical answer.

The pay-TV provider wanted its subscribers to learn from the commercials and begin testing the voice search functionality, incrementally increasing adoption of the new feature. The ads introduced subscribers to searches much like the following: "Show action movies only"; "What's on at 8:00?" and "Find me movies with Matthew McConaughey." The ads demonstrated how a viewer could refine the Matthew McConaughey search by simply saying "only comedies" – a command to filter results to McConaughey's comedies only. The ads even showed how speaking a quote could return the movie as a search result.



Quarterly Tips

TARGETED MARKETING CAMPAIGNS DRIVE VOICE SEARCH ADOPTION AND INCREASE ENGAGEMENT

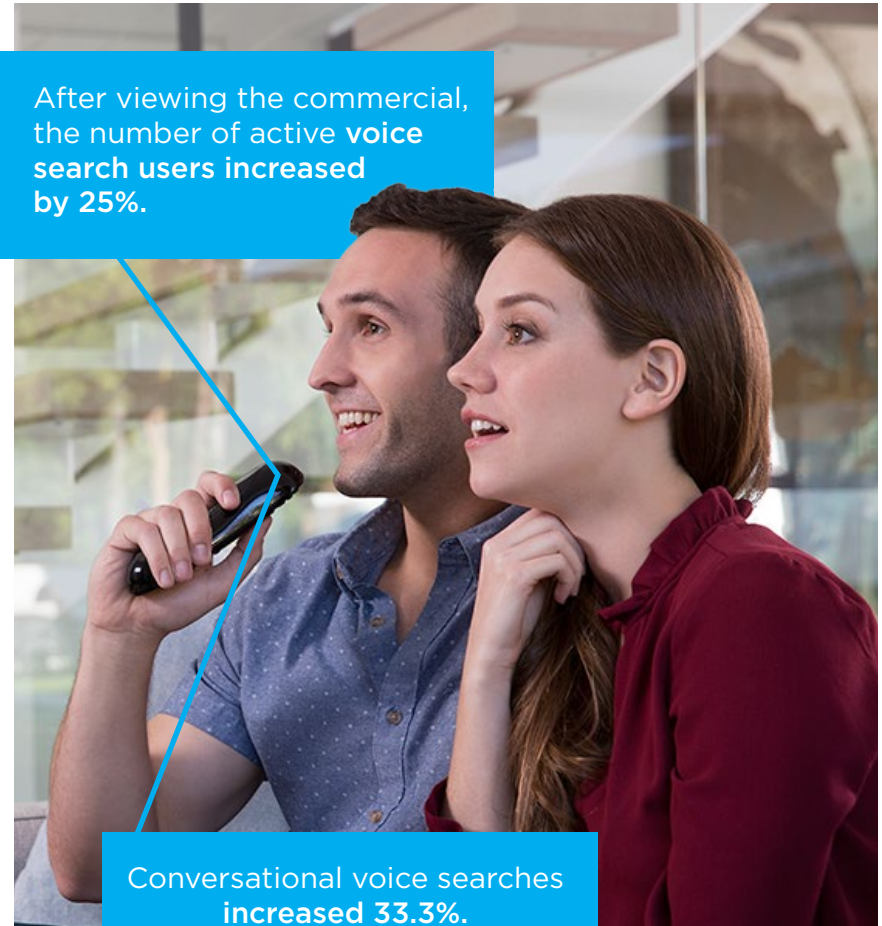


THE RESULTS

To analyze the results of the campaign, the pay-TV provider tracked one month of searches, and ran commercials on the third weekend (Friday through Sunday) of the month. The pay-TV provider saw slow, but steady growth in voice search usage prior to running the ad, and during the three-day commercial run, the ad campaign had a dramatic effect on viewer behavior; not only did subscribers begin to use voice functionality more often, but they also increased searching in a more conversational manner.

- **Adoption of Voice Search:** Those actively using voice search grew by 25% after the pay-TV provider's commercial aired, as opposed to projected regular growth without running commercials.
- **Complexity of Voice Searches:** Conversational voice searches increased 33.3% during this time frame and usage remained high well beyond the commercial run. The ads successfully educated subscribers and changed behaviors, teaching them they could refine their searches and speak to their set-top boxes in a way that was very difficult to do with traditional voice interfaces.

This growth in initial adoption of voice search is exceptional, however, it is important to note the two-pronged approach — thoughtful advertising and powerful technology— contributed to these results. Carefully constructed and well-executed TV ads illustrated how voice search is a more efficient and accurate way of finding something to watch; high-quality, next-generation voice search powered the improved user experience. It's not as simple as selecting a solution that offers voice search, rather, it is important to support advanced conversational features that can be marketed to achieve the results noted above. Without these advanced features, there is limited functionality to market and drive awareness, interest and user behavior. Additionally, the increase in conversational searches illustrates the ROI of providing robust voice technology. By using more advanced search capabilities, users are more likely to get more accurate results, building their confidence in search features and boosting usage of similar features. Combined with the previous results that show the most satisfied customers are those leveraging the advanced discovery features (see page 26) these positive results further demonstrate the functionality was worth launching.



Sports Discovery



In Q3 2017, 28.7% of respondents are “sometimes” frustrated when trying to find sports programming to watch on TV, and another 4.4% are “always” frustrated. While growth hasn’t been huge for these two categories of frustration, roughly 33% of respondents are not fully pleased with their ability to find their favorite sports team or event.

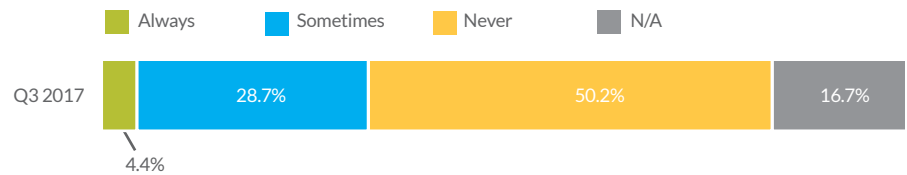
THE FUTURE OF WATCHING SPORTS

Many of the leading streaming providers are purchasing the rights to sporting events, providing consumers a new medium to access their favorite sports content. Therefore, TiVo wanted to better understand if consumers are following this trend to view their sporting events online or on a mobile device. New to TiVo’s Q3 2017 *Online Video and Pay-TV Trends Report* is a question tracking this audience, and the result is 26.7% of respondents are watching their favorite sporting events and/or teams via a streaming service. The top three services respondents used to stream sporting events are:

1. Facebook – 13.9%
2. NFL.com – 8.7%
3. Twitter – 7.1%

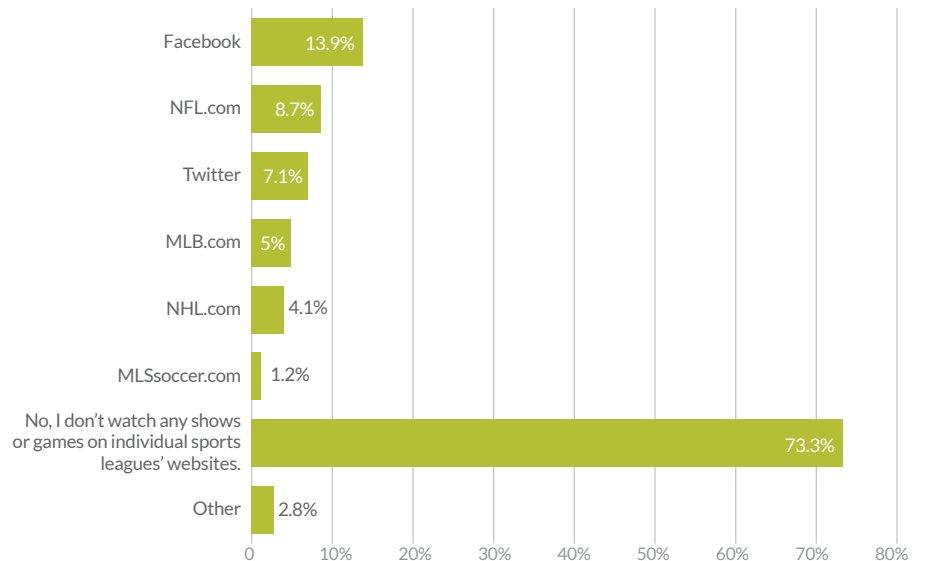
SPORTS DISCOVERY

Do you have trouble finding your favorite sports teams’ games or do you ever miss sporting events because they’re on a channel that is far down in your channel guide?



STREAMING LIVE SPORTING EVENTS

Have you ever streamed sporting events/games on a streaming or mobile device from any of the following websites? (Choose all that apply)



Sports Discovery



While Amazon was not an answer choice in TiVo's Q3 2017 survey (it will be added in future surveys), they are also aggressively pursuing streaming sporting events. It has been reported that Amazon paid \$50 million for the rights to stream the NFL's Thursday Night Football, and with its first NFL games in the books, it appears viewers are responding and the partnership is paying off. According to a recent Variety article⁶, "For the Sept. 28 meeting of the Chicago Bears and Green Bay Packers, Amazon reached 1.6 million viewers worldwide that initiated streams on Amazon Prime Video, according to the NFL. The average worldwide audience watching 'Thursday Night Football' for at least 30 seconds on Amazon Prime Video was 372,000, with each viewer watching an average of 55 minutes."



Amazon's marketing is extra proof they are ready to be a major player in the sports broadcasting world. The box image (shown to the right) is an example of just one of Amazon's many targeted marketing efforts leveraging its already enormous prime membership audience in the effort to gain viewers for its expensive NFL partnership. This partnership, as well as other social networks with streaming rights, might be the most lethal threat yet to pay-TV providers. Amazon is staking its claim in sports broadcasting, and it will be interesting to see if this partnership will take place again for the 2018-19 season, and if viewership will see an uptick.

Meanwhile, in a different approach, Facebook is launching a new original sports reality series on its video steaming service. Facebook is reported to be paying The Bleacher Report (owned by Time Warner Inc.) millions of dollars for a reality show

⁶ [Todd Spangler, "Amazon's 'Thursday Night Football' Debut Tackles 372,000 Average Viewers, Topping Twitter's 2016 Numbers. Variety, September 29, 2017](#)

⁷ ["Facebook pays millions for reality show on NFL's Marshawn Lynch," Reuters, September 12, 2017](#)

about Oakland Raiders running back, Marshawn Lynch⁷. The first two episodes garnered over 1.4 million viewers each, which is not far from Amazon's viewership of their first NFL game. This survey will continue to monitor how social networks provide streaming sports and reality content, and whether this practice will further erode the number of pay-TV subscribers.

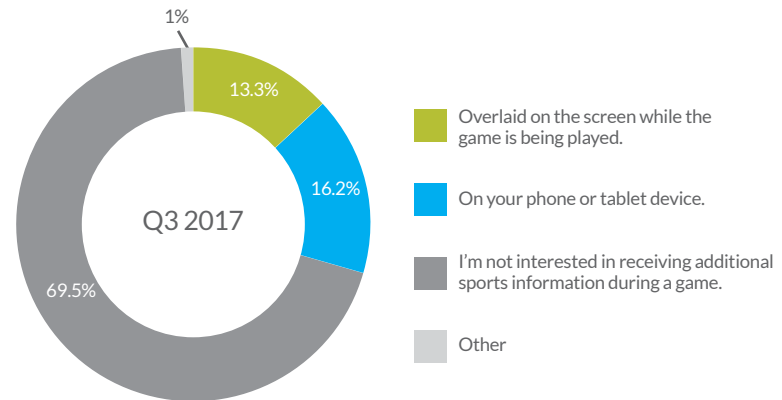
SPORTS DATA

Unlike any other form of video content, sporting events have a wealth of metadata, including scores, player stats, game time, season stats for each team, etc. This is an extremely large amount of information to present to viewers; therefore, in an effort to assist pay-TV providers with real feedback and opinions, TiVo added a question asking whether respondents would like additional sports data to be shown to them – and 30.5% would. Of this near-third of respondents, the two preferred methods of sports data delivery are:

1. "On your phone or table device." – 16.2%
2. "Overlaid on the screen while the game is being played." – 13.3%

ADDITIONAL SPORTS DATA

If you could have additional sports content, such as game stats, player stats, fantasy stats, etc. presented during the game, how would you prefer this to be shown?





Analytical Commentary

DOES AGE PLAY A ROLE IN WHO STREAMS SPORTING EVENTS?



As referenced earlier in the report, pay-TV providers need to understand their future subscribers, and how and where they go to view video content. This is important for offering competitive solutions and defending their services against the rapidly evolving competition. As discussed in the previous section, streaming sporting events, such as NFL games, is one area of rapid evolution. Knowing that holding broadcast rights to sports content has been a significant competitive advantage for pay-TV providers for decades, TiVo was interested in understanding if there are any trends regarding how younger generations are accepting the multiple options for viewing sports content.

Based on the question, "Have you ever streamed sporting events/games on a streaming or mobile device from any of the following websites?" the chart to the right breaks down the top three sports streaming sites by age. Unsurprisingly, it's evident younger generations gravitate toward these services. Specifically, these results show streaming sports is most popular among those aged 18-35. For Twitter, the highest adoption was among those aged 31-35, whereas Facebook was most popular with the ages 26-30, and NFL.com topped the list for those aged 31-35.

Online streaming is the future of watching sporting events, and the days of pay-TV providers having sole broadcast rights are dwindling. Therefore, with other offerings available that are often more affordable, pay-TV providers need to adjust their services and packages to be competitive.

AGE ANALYSIS FOR RESPONDENTS WHO STREAM SPORTING EVENTS

