



WHITE
PAPER

Key Performance Indicators Video Service Providers Must Track to Drive Views and Engagement



INTRODUCTION

New metrics emerge from shifting video landscape and content consumption.

As video service providers aggressively roll out new apps, services and UIs across more devices than ever, content delivery continues to expand beyond the set-top box. Because of this, video service providers are now tasked with understanding how these new solutions affect viewer engagement and how to best optimize the experience.

From new UIs, to content discovery-focused devices, to next-generation viewing experiences, these new video service offerings drive an unprecedented amount of meaningful, personalized data. Accessing the data isn't the challenge, but extracting meaningful signals to derive key performance indicators (KPIs) that truly align with a video service provider's goals can be difficult. When executed correctly, along with the right technology and best practices, meaningful changes can be implemented through data-driven decisions to optimize viewing experiences, which in turn result in increased viewer satisfaction, loyalty and trust.

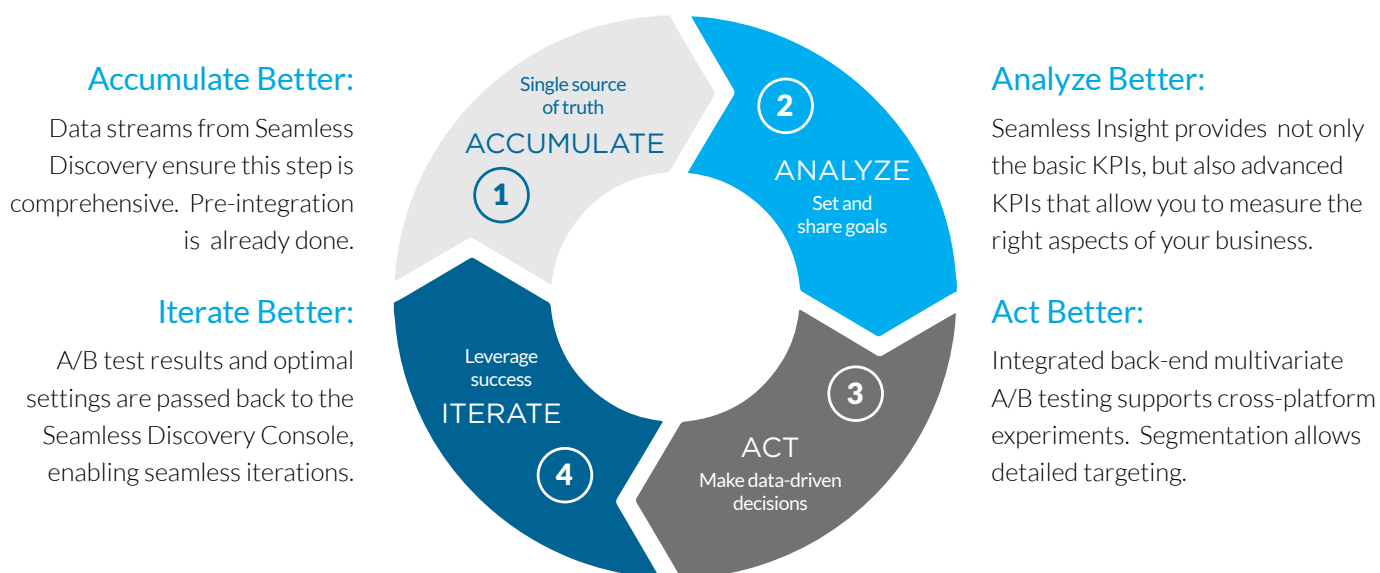
STEP 1: UNDERSTANDING HOW CONTENT DISCOVERY ADDS TO THE COMPLEXITY OF DATA ANALYSIS

As many have seen firsthand, storing large amounts of data is easy, but the real difficulty is determining which datasets are valuable and thus need to be analyzed and leveraged. Once video discovery functionality such as content recommendations is implemented, millions of data points provide valuable information and insights into subscriber viewing behaviors and interests. In addition, this abundance of data, combined with the right analytics technology and tools, enables video service providers to make educated decisions that then increase the number of viewers, overall engagement, and ultimately, average revenue per user (ARPU).

Once both data ingestion and data management are completed, the next challenge is providing performance insight into the overall product offering and each content discovery feature in an aggregated form, in order to balance performance and interactivity. It is crucial to fully understand which content and discovery features perform well and which areas need attention, as well as how viewers engage with the platform. This allows the video service provider to identify ways to improve and update each personalized content discovery feature. Once these areas are fully optimized, the video service provider then begins to create and manage merchandising campaigns that promote cross-selling and up-selling of content, packages, and/or offerings.

Data-Driven Decisions: Accumulate, Analyze, Act and Iterate

The image below illustrates the iterative process that enables data-driven decisions.



TiVo has successfully met these challenges head-on across its global customer implementations for leading pay-TV providers, digital publishers, and consumer electronics manufacturers, on all types of devices. First, video service providers should ask themselves, “Do we have enough data, and do we have the correct type of data?” Then, they need to consider, “How can we gather value from the data?” Key actions that need to be tracked include data on the health/stability of a platform, usage of content discovery functionality (search, recommendations, “more like this,” carousels, etc.), viewer behavioral data, devices and more. However, by reporting on each content discovery feature’s performance and viewing habits separately, or in a silo, it becomes difficult to capture a holistic picture of how viewers are engaging and interacting with a video offering. Furthermore, when analyzed individually, the data can often contradict each other, resulting in conflicting conclusions as well as indecisiveness in how to move forward.

For example, based on the presumption that more page views equate to higher usage of the service, which in turn leads to improved viewer satisfaction and loyalty, a video service provider might set a goal to increase page view counts by a certain percentage. Later, the metric is reviewed and found to be higher, thus achieving the objective. The problem with this approach is that increased page views does not necessarily mean increased satisfaction. In fact, more page views may indicate dissatisfaction and frustration as a result of too many menu options or the inability to locate desired content. Furthermore, in this case, the objective given to the product manager should have been to decrease page views.

Added to the confusion of analyzing data generated from content discovery-focused video experiences is that viewers will differ in the way in which they want to find something to watch at different times. One day a viewer could be in “search mode” and have a very specific piece of video content in mind, and other times viewers could be in more of a “browsing mood.” Therefore, it’s imperative to have an analytics platform that not only tracks individual metrics and KPIs, but also looks at the whole picture of viewers’ interactions from start to finish and identifies key trends which can be used to optimize search, personalized recommendations, carousels, “more like this” functionality, and content promotions to increase viewer engagement. TiVo has outlined seven KPIs that video service providers must track and analyze to keep a constant pulse on its viewers, and to enable data-driven decisions to improve the overall viewing experience.

STEP 2: IDENTIFYING KPIs

TiVo believes all video service providers should be tracking a standard set of KPIs. Once a solution is in place to track these seven KPIs, more robust metrics can be created. Initially, it is important to conduct an in-depth analysis of the performance of a video offering and its content discovery functionality. Though the starting point is a high-level metric of interaction and success, a deep dive into an application’s granular details, such as actual titles clicked, is imperative in order to troubleshoot problems based on their root cause. An executive can use this information with a product manager to discuss why their platform is not performing to a standard based on baseline KPIs. Correspondingly, the product manager focuses on the problematic aspects of their offering, and drives faster iteration cycles.

The KPIs all video service providers must monitor are:

1. Traffic Volume

While traffic volume is one of the more commonly measured KPIs, video service providers may find this metric challenging due to the number of product offerings, devices and operating systems that need to be supported. Video service providers will need to break down traffic volume for each of these devices and operating systems in order to get a true understanding of unique visits, unique devices, clicks or page views, unique households and/or profiles.

2. Health and Performance

Video service providers should monitor the stability of their product offering and its content discovery functionality, as any downtime or network delays can affect viewer satisfaction and revenue. Beyond measuring up-time, TiVo suggests video service providers also track in real-time the success/failure rate of API calls, and viewer events, including clicks, views and likes.

3. Overall Usage of Each Content Discovery Feature

Search – While most video service providers are tracking the search terms their visitors are using to find content, TiVo highly recommends also tracking failed search terms. By reviewing failed search terms, video service providers can identify aliases for common spelling errors and aliases for terms not mapped to the desired content of that particular search term. However, it is also important to track top searches and conversion rates as well as how searches are tracking toward previously set goals, by product offering, device, and operating system.

Recommendations – At the very least, video service providers need to monitor the recommendations’ overall performance, including total recommendations per day, month, etc. and the conversion rates of those efforts. More specific goals need to be set as well, including top titles and episodes surfaced, by product, device and operating system.

Carousels – In order to get viewers to their content quickly, carousels, which are the latest trend in next-generation video UIs, should be tracked by which perform best. Two of TiVo’s best practices are to ensure carousels are personalized and to track success at several different levels across all devices, products and operating systems. The KPIs to monitor for carousels include:

- Overall carousel performance: are viewers getting to their content quickly?
- Track what content in the carousels is converting and what is not, allowing for adjustments in lesser performing content within the carousel.
- Carousel positioning: identify the carousels that perform best and in which row (i.e., does a particular carousel perform better when in the fourth row vs. second row?)

More Like This – One of the most implemented, and frequently first-deployed, content discovery features is “more like this” functionality. Again, it’s important to monitor this functionality by its impressions, top titles and episodes surfaced, as well as clicks and conversion rates.

4. Viewer’s Behavioral Data and Trends

Views – Video service providers are obviously spending great resources and efforts to increase the amount of content viewed and the time spent on their platform. At a high level, it’s important to track total views; however, at the very least, video service providers need to monitor top titles viewed, top episodes, and networks. By tracking this data on an hourly/daily basis, the programming, revenue and content acquisition teams can keep a constant pulse on their efforts.

Recordings – Tracking recordings is often one of the most overlooked KPIs. This KPI keeps video service providers informed on two major areas of focus. First, the data can determine whether viewers are seeing promotions for new series or episodes and setting their DVR. Secondly, this information helps identify what trends are happening with viewers’ record settings and can be leveraged to promote those shows to other viewers with similar interests. Recording metrics can also provide a revenue opportunity for the video service provider. If a network or content owner’s new show or series is not being set for future recording, the video service provider can suggest to the network/content owner to increase advertising promotion to ensure premiere ratings meet expectations. Additionally, recording data can be leveraged to create a personalized carousel named “Shows to Record” populated with shows that viewers with similar interests are recording.

Revenue Metrics – Today, video service providers offer numerous service offerings and packages all with several common goals, to increase ARPU and/or the number of viewers. A few of these methods include PVOD catalogs, the purchase of a TV show’s entire season for binge viewing, or promoting the next-level subscription to viewers. Daily tracking reports allow video service providers to adjust promotions of premium content regularly versus waiting for an end-of-month report. The challenge with an end-of-month report is a premium piece of content might not be available to viewers any longer, so it’s critical to maximize the revenue potential by making more regular, or timely, adjustments.

5. Audience Segmentation and Identification

Video service providers need the ability to identify clusters, or segments of viewers, for similar viewing interests and overlaps in viewing behavior. This allows the video service provider to identify content and premium package promotions that should be A/B tested to each of these segments.

6. UI/UX Engagement

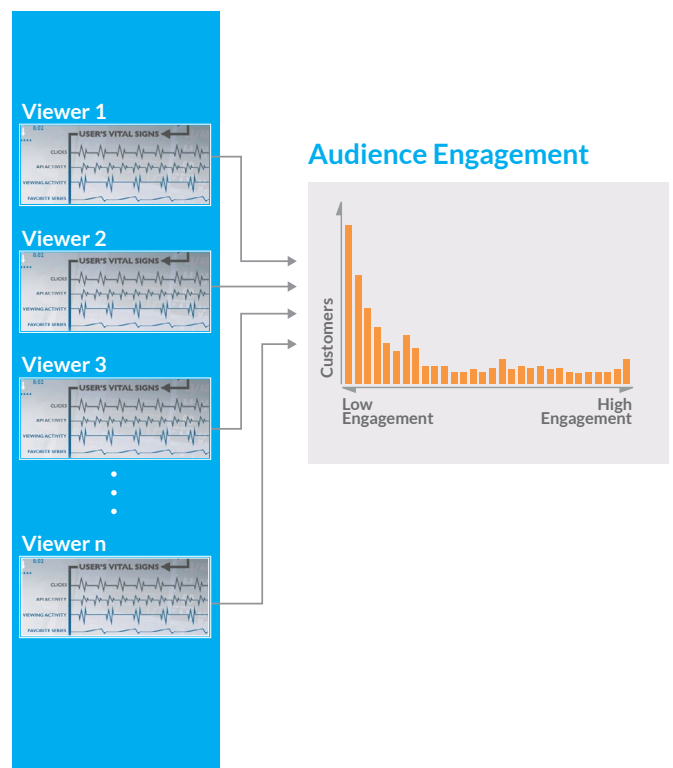
As mentioned throughout this white paper, video service providers must confront the challenge of providing several UI/UXs to support all accessible devices. Analytics is key to measuring these efforts and ensuring each UI/UX is delivering the results expected. To ensure goals are achieved faster, TiVo recommends leveraging multivariate A/B tests (instead of a more basic univariate test) in order to test various components of a UI/UX in a more timely fashion.

7. Introducing Discovery Sessions

TiVo believes video data can be taken a step further than the common clicks, conversions, views, etc. Therefore, the most critical and impactful new metric is what TiVo refers to as the “discovery session.”



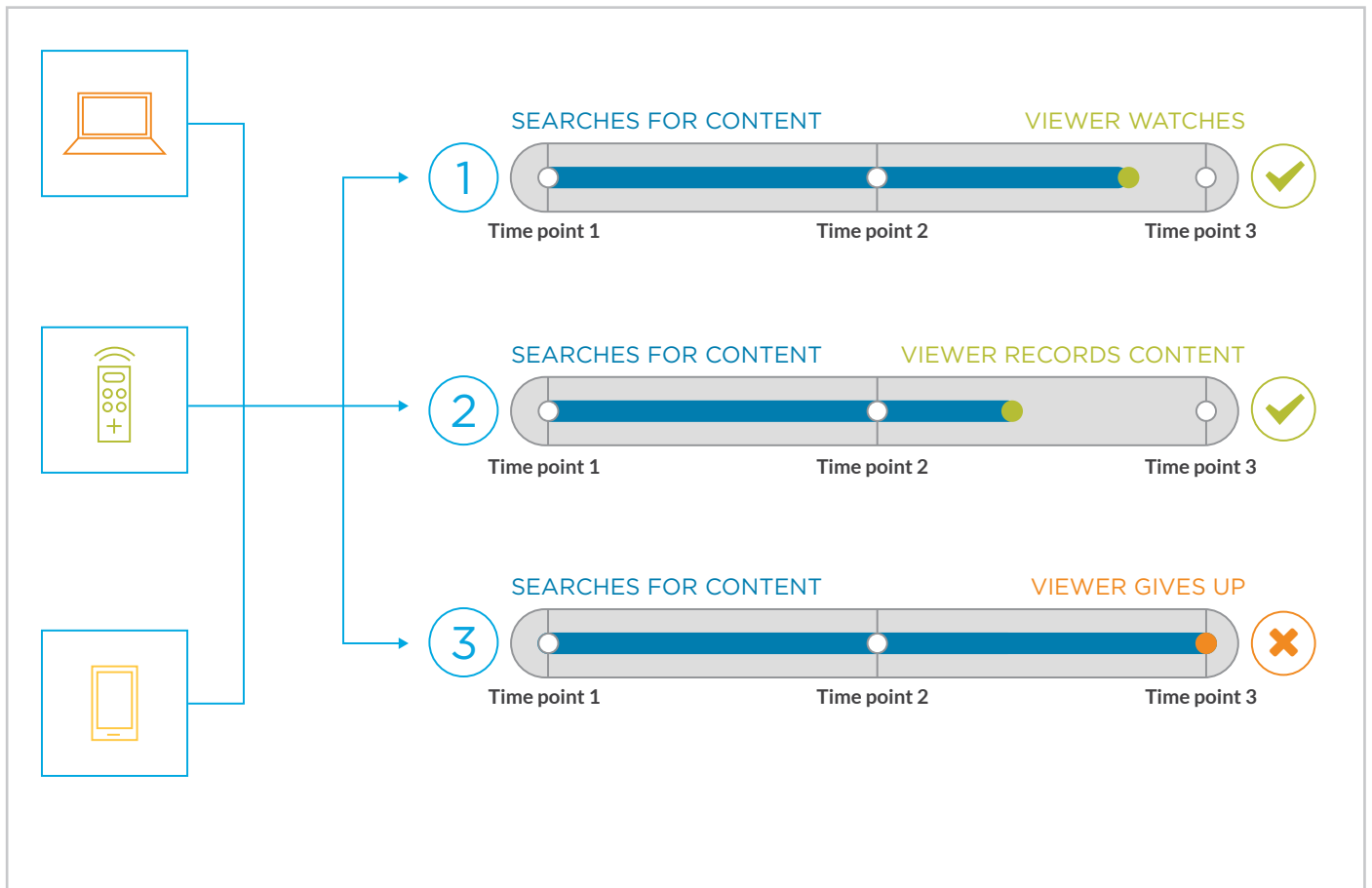
Today, viewers discover content by browsing, searching, and perusing what is offered to them via one or more UI pages, and on one or more devices. Next, the content is consumed, frequently on a different device than where the initial search began. For example, a viewer may use his/her mobile device to discover content, but then consume that content on his/her TV. A discovery session begins when the viewer turns on the TV, or engages with the video service provider’s website or app, and combines these seemingly disparate events into a single analyzable event. Doing so removes much of the noise of all those disparate interactions, and allows for meaningful metrics to be created, such as counts of discovery sessions and conversion rates to indicate how the overall product offering is performing, as well as what viewers’ engagement is with it. Because viewers want to discover relevant content in the shortest period of time, this one metric can be leveraged to assess not only the scenario where a viewer visits one page and then consumes content, but also the scenario where a viewer visits many pages, as he/she browses for that long-tail cult hit or documentary. In either case, the signals captured are collected to generate one discovery session.



TiVo measures a discovery session, and everything that occurs during it, until the viewer takes one of three actions (see image below): watches a piece of content (successful session), records a piece of content (successful session) or abandons the effort to find content (failed session). As part of creating this discovery session metric, several other key metrics are generated and should be tracked, including:

1. Number of discovery sessions (per day, per device, per account, etc.)
2. Average duration of a discovery session (and a breakdown of those with long sessions and those with short sessions)
3. Average number of clicks in a discovery session (and breakdown of those with a large number of clicks and those with a small number of clicks)
4. Direct views or “watchlist”/records (measuring how well the offering immediately gets viewers to their content)
5. Conversion rates at the discovery session level (a concise metric of how the overall experience is performing)

Data-Driven Decisions: Accumulate, Analyze, Act and Iterate



STEP 3: FITTING THE PIECES TOGETHER

A discovery session is merely a starting point, and an analysis is incomplete with only this high-level summary metric. If a negative trend in a discovery session is observed, it warrants further investigation to identify an underlying cause. Therefore, video service providers need the ability to drill down further to easily view the following metrics.

1. Performance by UI, akin to a “page’s performance”
2. Performance by type of content discovery feature or use case – (searches vs. recommendations vs. “more like this” vs. carousels)
3. All carousels’ performance (both counts and conversion rates)
4. Individual carousel’s performance (both counts and conversion rates) As more and more applications move toward the concept of a carousel, this drives more viewers towards interacting with those UXs. Most UIs provide a series of carousels, plus the ability to sort content in the carousel by a viewer’s personal preference, as well as carousels that are dynamically powered. For example, carousels can be powered by content popularity, personal preference or historical viewing habits (e.g., “Because you watched *Top Gear*”). The discovery session metrics will provide a high-level perspective on how these pages work together (or in some cases don’t) to drive viewers to their content. It’s important to then step down a level, and understand which of the carousels are performing well, and which are underperforming. Overlaying performance with screen real-estate or page positioning enables data-driven conclusions about carousel performance in their given placement.



For example, the table below illustrates an analysis performed on four carousels presented in the image to the left.

Carousel Position on the Screen	Carousel Name	Conversion to View Performance
1	Watch Now	5.1%
2	Because You Watched...	8.6%
3	Trending	17.0%
4-10	Various Personalized Carousels	Various (5.0% down to 0.5%)

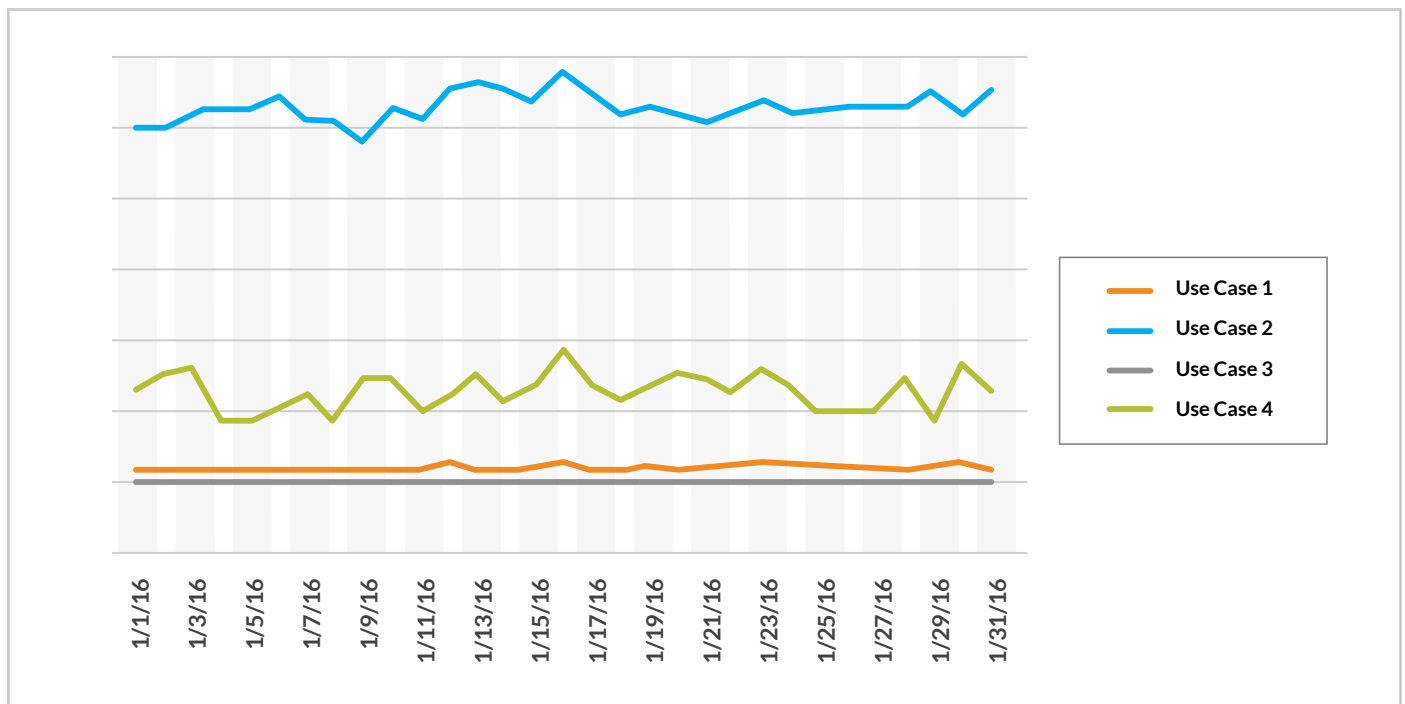
Based on this analysis, the video service provider should consider a multivariate A/B test that includes the “Trending” carousel in the first position, and swap the “Watch Now” and “Because You Watched...” carousels. Furthermore, a video service provider might want to investigate what is driving the performance of the “Trending” carousel. This takes the analysis to the next level by investigating the titles that frequently populate the carousel. In this example, it shows that the TV sitcom *Scandal* is getting most of the clicks. Based on this information, a video service provider may wish to boost *Scandal* to an even higher position in the UI. Providing a more prominent position to a program with a high volume of clicks ultimately allows viewers to find their desired content faster, and with less time spent browsing. This simple and quick data-driven adjustment is just one example that will boost viewer satisfaction.

STEP 4: SETTING BASELINE KPIs

Not all surfaced video content is acted upon equally; therefore, it's important to measure each content discovery feature individually. A common question TiVo receives is, "How high should the conversion rates be for each content discovery functionality deployed (or each use case), such as recommendations, carousels, search or 'more like this'?" Although this is a valid question, TiVo believes a better question to ask (and answer) is, "How do each of these content discovery use cases perform, and can a baseline be set for each, allowing for future tweaks to increase the initial baseline set?"

For example, the chart below shows conversion rates for multiple content discovery use cases, some of which are higher and some of which are lower. This is a function of many factors, not the least of which include UI placement, UX flow, type of content discovery use case (such as recommendations vs. search vs. carousels vs. "more like this") and others. Search, for instance, typically has very high conversion rates. As mentioned earlier, when viewers use search, they have a very specific intent to find content. On the other hand, "more like this" conversions typically only occur when viewers are on the details page of a piece of content. "More like this" impressions can happen for a number of reasons, such as when a viewer wishes to confirm he or she has selected the latest or next episode of a show he or she is watching. This leads to high counts of impressions, but low counts of conversions. Therefore, it's important to expect that some content discovery use cases will intrinsically have a higher conversion rate than others.

Various Content Discovery Use Case Performance

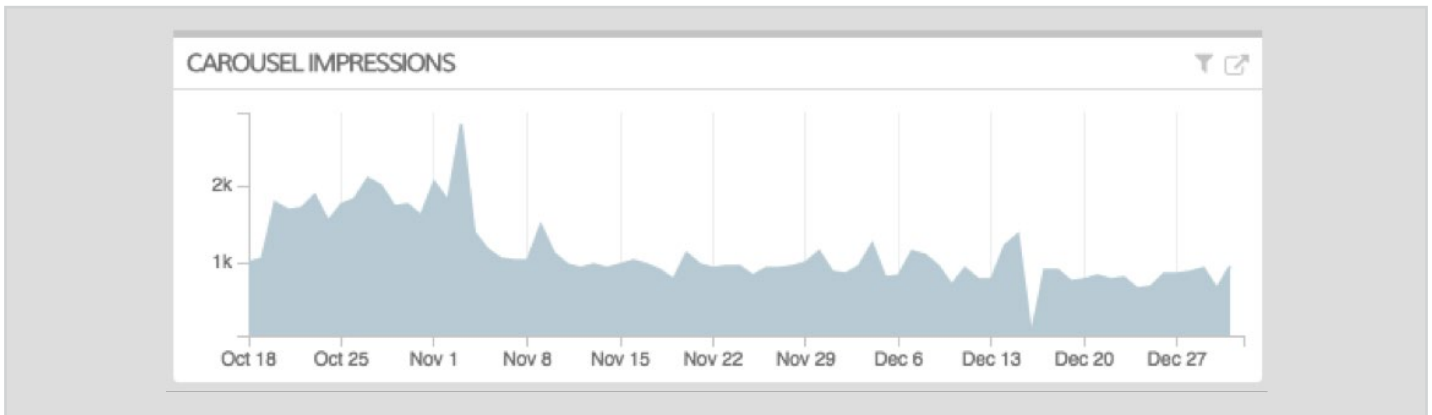


Building these baseline conversion rates becomes critical not only to understand what to expect, but also to seamlessly identify when these metrics have moved significantly from their historical baseline, as well as to know when to take action. In the example to the left, it's evident that the variations of Use Case 2 and Use Case 4 are intrinsically higher than the variations of Use Case 1 and Use Case 3. Thus, it's important to have sufficient data to know when a change represents a meaningful difference, and when this is simply noise. This involves measuring over sufficient periods of time.

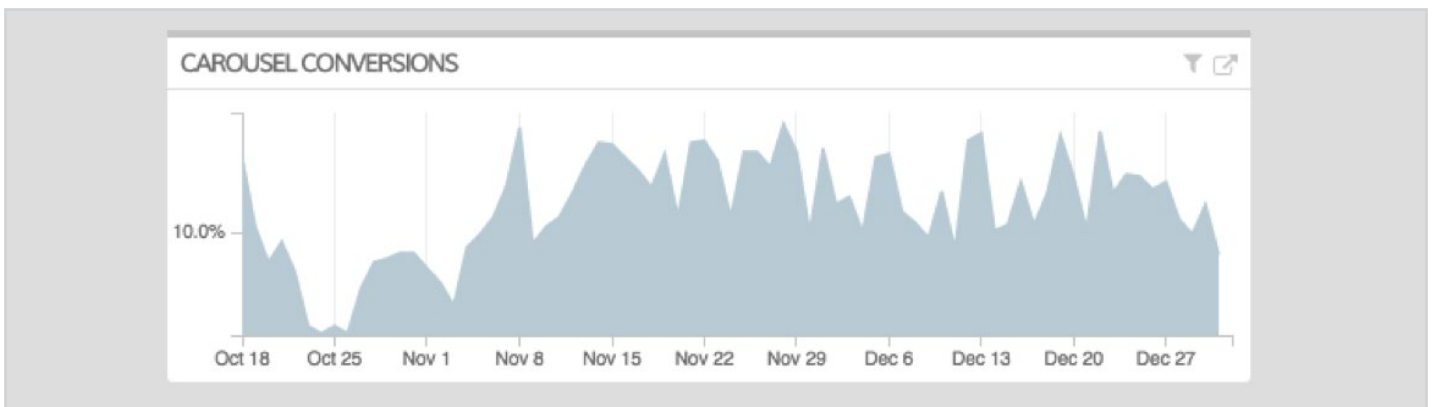
STEP 5: BALANCING INITIAL REACTIONS WITH LONG-TERM ANALYSES

TiVo believes that true meaningful (and statistical) trends initially take weeks or months to develop. While it may be tempting to take action when first starting to gather data, video service providers should be prepared to push back on the urge to take any immediate action, and let the metrics settle. For example, when launching a content discovery feature or a new service or when updating an existing solution with a new UX/UI, adoption is often strong initially because viewers are interested in exploring new capabilities; however, after a few weeks, traffic levels off and the signal of true usage and engagement becomes clear. Once a good sampling of data has been gathered, the video service provider should then review trends on a more frequent basis, such as daily and weekly.

The image below illustrates an example of all carousels within a mobile application where the first few weeks of post-launch usage drove significant traffic (i.e., page views), but then settled down to a more constant pattern of usage.



At first, this higher traffic volume led to low conversion rates on the carousels (shown in the below image); viewers were educating themselves not only about the new app, but also how the new UX could be used. The chart shows that only after the first few weeks did the conversion rates settle into the true value.

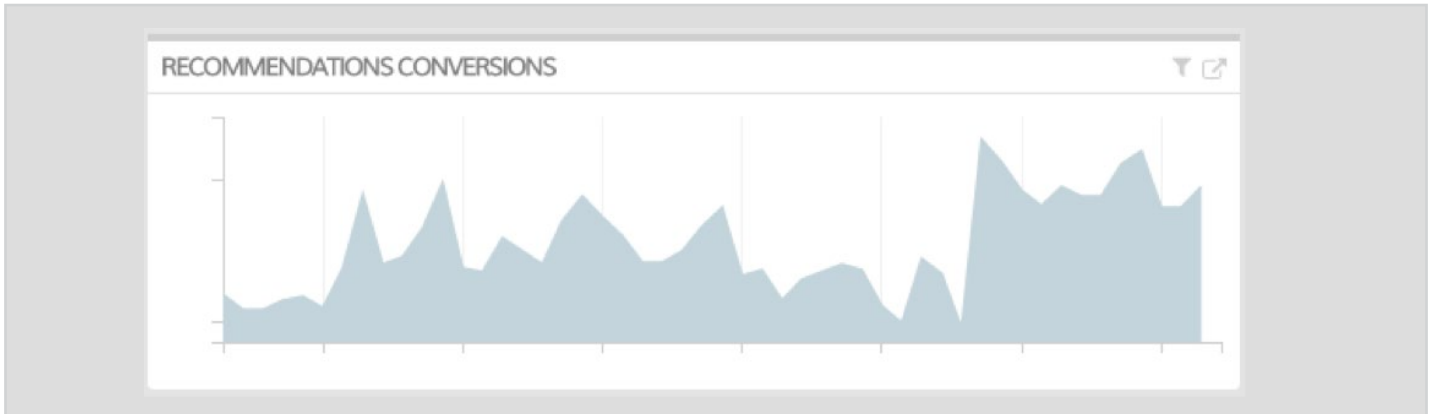


Waiting for metrics to stabilize is important; if conclusions were reached about the efficacy of the app in the first few weeks, viewer satisfaction with the app could have been underestimated.

STEP 6: THE END RESULT: DATA-DRIVEN OPTIMIZATION

Metrics should be calculated and reviewed not because they are “interesting,” but rather because taking action on these metrics produces a meaningful change in the business. In addition, reports should not only inform business executives of the current state, but also provide meaningful metrics to enable data-driven business decisions. In addition, leveraging metrics derived from content discovery functionality continuously optimizes content, and conducting A/B tests identifies new ways to further improve viewer satisfaction and engagement.

For example, an A/B test was performed to increase overall conversion rates for content recommendations. After implementing the top-performing variable from the test results, this data-driven optimization was able to drive a significant increase in the conversion rate, lifting this metric by approximately 23 percent.



When implementing content discovery functionality, it’s important to ensure the data is made available to other systems (e.g., via APIs) for these actions to take place. When discovery sessions become a synonym for viewer satisfaction, optimizing this metric provides significantly more value than simply trying to drive increased page views.

[Click here to learn more about TiVo’s content discovery platform, Seamless Discovery[®], and our analytics platform, Seamless Insight[™].](#)

ABOUT TIVO

TiVo Corporation (NASDAQ: TIVO) is a global leader in entertainment technology and audience insights. From the interactive program guide to the DVR, TiVo delivers innovative products and licensable technologies that revolutionize how people find content across a changing media landscape. TiVo enables the world’s leading media and entertainment providers to deliver the ultimate entertainment experience. Explore the next generation of entertainment at tivo.com, forward.tivo.com or follow us on Twitter [@tivo](https://twitter.com/tivo) or [@tivoforbusiness](https://twitter.com/tivoforbusiness).



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