

APTIV CONNECT QUALIFIER

Analytics

Dramatically improve your team's efficiency by reducing the time you spend on reporting and speeding up troubleshooting.

Near-immediate KPI access

50% less reporting time

Faster mean time to resolution

Lower validation and warranty costs

Most automotive engineers spend a significant portion of their workweek on reporting — and not all of that time is valuable. According to a recent survey, engineers waste 32% of their time on non-value added work. And two-thirds of these lost hours are spent looking for data (23%), aggregating data (18%), downloading and uploading data (16%), or recreating data engineers couldn't find (12%).

With Aptiv Connect Qualifier Analytics, you can cut this wasted time by 50% or more, freeing up your engineers for value-added tasks.

Faster KPIs, less work

Available as an add-on for Aptiv Connect Qualifier, Analytics includes a mix of industry-standard dashboards, which are based on best practices gleaned from Aptiv's years of work with leading vehicle manufacturers, or custom dashboards tailored to your exact needs. You can choose from among several different tiers of service, based on the number of dashboards you need and your total users.

These dashboards update automatically whenever new data comes in from the vehicle data recorders (VDRs) in your test vehicles. You'll always have access to the most up-to-date key performance indicator (KPI) data, which will speed up testing and troubleshooting

Your engineering team won't have to spend weeks or months building your report. You will also eliminate the many hours of collecting, cleaning, and importing data on a regular basis. You will even avoid the hassles of asking your internal IT team for assistance or jumping through the hoops associated with purchasing and learning a new tool. And you'll gain insights into the overall performance of your fleets that might otherwise go unnoticed by engineers looking at a subset of data.

APTIV

A single source of truth

Most vehicle manufacturers have multiple teams using different engineering tools. That can result in disparate reports based on different data that doesn't always match up. In some cases, teams spend a lot of effort sorting out (or even arguing about) which report is right.

With Qualifier Analytics, the data comes directly from the vehicle, so there's no argument about which data is correct. You will be able to standardize your entire organization on the same key performance indicators, making it easier to track quality metrics across teams and platforms. And if you choose, you can also import data from spreadsheets or other sources.

Maximize your efficiency

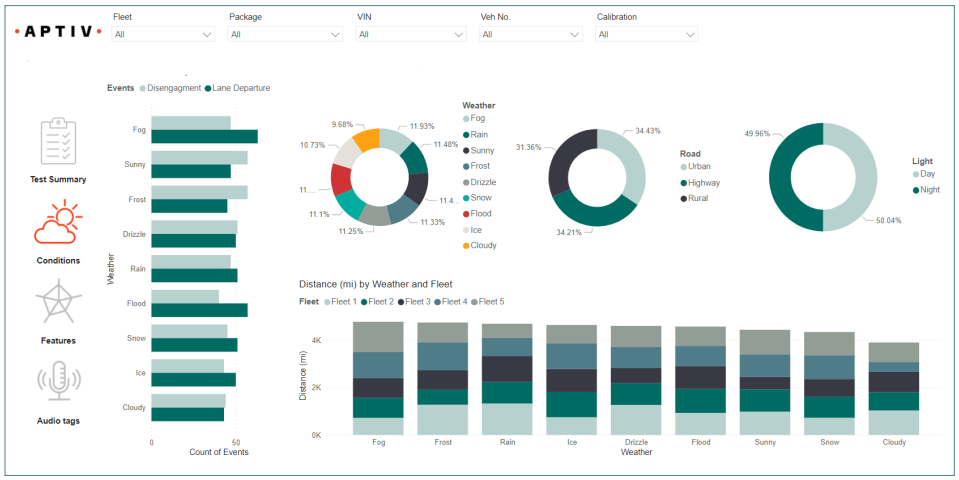
When your entire team uses Qualifier analytics, everyone becomes more efficient. You'll be able to monitor test drives more closely, making sure that each trip results in useful data. And if you need to validate a particular system, you'll be able to run a report that tracks the unique parameters you need with just a mouse click.

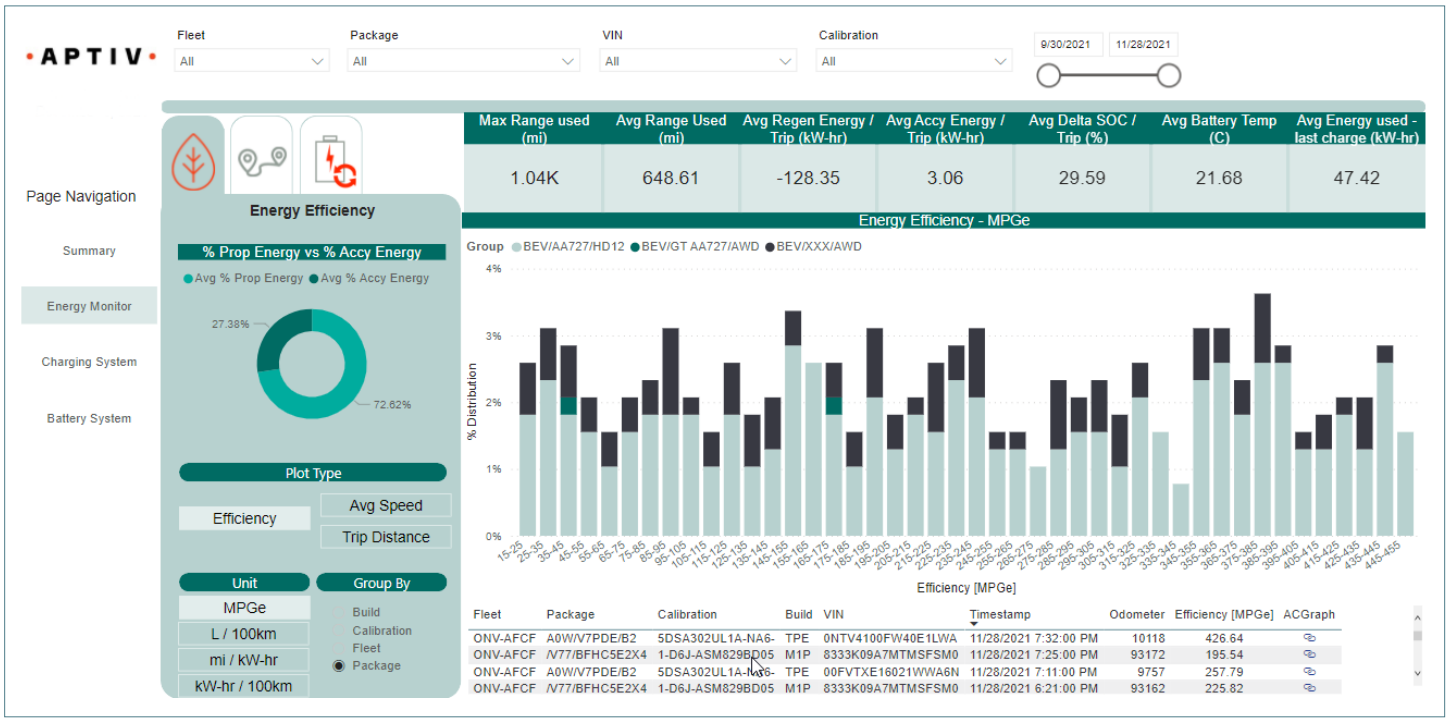
Unlike generic analytics software that was not designed for vehicle validation, Qualifier Analytics is part of an integrated solution with edge compute capabilities. That allows you to tailor your data acquisition so that you collect, transmit, and store only the relevant data, which keeps costs low. It also streamlines the process so that you get access to KPIs more quickly.

And the Analytics reports are designed to be understoond at a glance. They provide a high-level visualization of key metrics, and allow you to drill down into the details.

The best way to see how Qualifier Analytics works is to try it out for yourself. Qualifier subscribers have access to demo dashboards on the Analytics page that use anonymous data. If you'd like to start the process of setting up a standard or custom dashboard for your organization, contact your Aptiv representative or submit a ticket through the Aptiv Support Desk in Qualifier.

APIs allow you to incorporate external data, including weather data from Environment Insights.





This custom electric vehicle report tracks energy efficiency, charging, and battery performance.

You can create dashboards that take advantage of Aptiv's **data science capabilities** to organize data in new ways. In this example, Aptiv created an algorithm that could characterize test routes as urban, highway, mountain, etc., based on features that were important to the customer. The customer then used Qualifier Analytics to make sure they were reaching their goals for different kinds of test drives.



Qualifier Analytics Benefits

Category	Feature	Benefit
Visualizations	Multiple dashboard widget options	See data in the format that makes it most understandable, such bar graphs, dials, pie charts, line graphs, scatterplots, and more
	Integrated maps	Monitor locations of vehicles, test drives, charging stations, events, and more
	Word clouds (with voice-to-text available)	Find key words and phrases frequently included in audio or written comments
	Data tables	Quickly access the raw data used to create dashboards
	Thresholds	Immediately spot when you have reached or exceeded targets
	Statistical analysis	Track KPIs, including averages, totals, maximum and minimum values, and more
Interactivity	Filtering	Slice your data so that you see only the relevant information
	Drill-down capability	Click individual data points to learn more details and speed up troubleshooting
Speed	Near-immediate KPIs	Learn about potential problems right away instead of waiting for manual data uploads
	Tabbed reports with multiple dashboards	Easily access all the information you need in one location
Integrations	Import external data via APIs	Incorporate data that resides in Excel or other databases in reports
	Edge analytics	Tailor your vehicle data acquisition and perform some compute work at the edge for greater efficiency
	AC-Graph links	View parameter data in more detail within AC-Graph
	Environmental Insights (optional)	Examine how weather and other external conditions affected your testing
Flexibility	Standard reports	Take advantage of Aptiv's knowledge of best practices to speed up your time to insights
	Custom reports	Work with Aptiv's experienced staff to create unique reports that help your team save time

What can you do with Analytics dashboards?

- **Fleet management and monitoring** — see what your testing fleets have accomplished during recent shifts and track progress toward goals
- **Troubleshooting specific systems and subsystems** — quickly identify and analyze issues related to ADAS, batteries, transmission, emissions, or other systems
- **Test coverage** — make sure you are reaching your targets for distance or hours driven under various conditions
- **Trend analysis** — track key performance indicators and find outliers that could require warranty repairs if not addressed
- **System robustness** — ensure that all systems are meeting quality standards before vehicle enters production

Standard or Custom?

All the Qualifier Analytics dashboards require some customization. So what's the difference between the standard and custom dashboards?

Aptiv's **standard dashboards** are based on industry best practices that we've developed by working with 70% of the world's leading automotive manufacturers. Because the templates already exist and usually require very little customization, we can get them working for you relatively quickly.

By contrast, **custom dashboards** require more work to set up. They may involve proprietary or complex data that isn't governed by any industry standards or regulatory requirements. Or they may incorporate a large volume of data. They often answer very specific questions and may be useful for only one organization. Naturally, we will need a little more lead time to get these dashboards up and running, but when we do, our customers often tell us that they save them a tremendous amount of time and effort compared to other analysis processes they have used in the past.

Our library of standard dashboards is always growing. So even if you don't see a report you need, feel free to ask! We might have something very similar to what you need that we can customize quickly.

Standard Dashboard Examples

Fleet Management	Monitor progress towards test distance targets
Fuel Economy	Automatically classify trips as highway, urban, etc. based on driving conditions and calculate fuel efficiency for each
Low-Voltage Battery	Reduce warranty costs related to faulty batteries
High-Voltage Battery	Understand battery reliability and reduce warranty costs
DTC and Event Metrics	See all your current issues at a glance and drill down into details
Aftertreatment	Reduce incidents and reduce warranty costs related to DPF and related components
IUMPR	Easily access and visualize in-use data for regulatory reporting
Work Shift Metrics	Ensure that drivers on each shift are completing the desired routes
Data Statistics	Track DTCs, distance traveled, and core features for each fleet
Voice-to-Text Analytics	Quickly identify meaningful trends in driver verbal comments

Custom Dashboard Examples

ADAS	Speed up troubleshooting for complex ADAS features, ensuring vehicles will meet customer expectations
EV	Quickly identify and troubleshoot electric vehicle issues while standardizing teams on consistent KPIs
Advanced Vehicle Health	Aggregate system and subsystem health data into one production readiness report
Advanced Transmission Health	Quickly identify and troubleshoot issues related to transmission performance and reliability
Calibration Robustness	Measure calibration performance against pre-determined thresholds
Module Software	Compare vehicle and subsystem performance across software calibrations
NOx and GHG Tracking	Ensure that you are meeting regulatory requirements for emissions
Feature Tracking	Monitor feature activation time to ensure appropriate levels of testing
Drive Characterization	Segment test drives by vocation to ensure production readiness
Off-Road	Assess vehicle performance under specific testing conditions

Qualifier Analytics Pricing Tiers

	Select	Premier	Pro
Standard dashboards	2	5	10
Custom dashboards	1	10	20
Users	20	50	Unlimited
API access	Additional fee	Additional fee	Additional fee
Typical Savings			
Initial dashboard creation	$40,000 320 hrs	$250,000 2,000 hrs	$500,000 4,000 hrs
Recuring monthly savings	$40,000 320 hrs	$100,000 800 hrs	$200,000 1,600 hrs
Annual savings	**up to $520,000**	**up to $1,450,000**	**up to $2,900,000**

A Real-World Case Study

The numbers to the left are based on very conservative estimates about the time involved in creating and maintaining reports. Actual savings are often much higher.

In one real-world example, a vehicle manufacturer estimated it would take their team around 700 hours to create just one report like those included in Qualifier Analytics. And each week, they it expected it would take another 4 to 6 hours to prepare the data and run the report. At $125 per hour that's a total of $120,000 for just one report that would be updated only once per week.

With Qualifier Analytics, they didn't have to spend any time creating and maintaining the report. The initial report was ready in a month, and updated data was available any time with a simple mouse click.

Dashboard Creation Savings

Standard dashboard requires minimum 80 hours.

80 hours
x $125 per hour
$10,000

Custom dashboard requires minimum 160 hours.

160 hours
x $125 per hour
$20,000

Recurring Monthly Savings

On average, engineers spend

- 3 hrs/week searching for data
- 2 hrs/week downloading and uploading data
- 2 hrs/week aggregating data
- 1 hr/week re-creating data

That's 32 hours per month wasted on reporting hassles. Qualifier Analytics saves an estimated 16 hours per month per engineer, providing a 50% improvement in decision-making and throughoughput.

Total Annual Savings

Recurring monthly savings
x 12
Annual recurring savings
+ Initial dashboard savings
Total annual savings

Savings estimate for unlimited users is based on 100 users.

If your needs don't align with one of the pricing tiers, contact Aptiv to set up a custom plan.

About Aptiv

Aptiv is a global technology leader with more than 160,000 people across more than 125 manufacturing facilities and 15 major technical centers worldwide. With a presence in 44 countries, we address mobility's toughest challenges through our deep software and systems integration expertise, delivering market-relevant solutions for our customers.

Our mission is to make the world safer, greener, and more connected than ever before. As these trends converge and the world of mobility changes, we will lead this change.

Mobility has the power to change the world, and we have the power to change mobility.