

WHITE PAPER

waylay

Optimizing Service Management

in the specialty
vehicle market and
keeping up with the
changing demands





introduction

EFFICIENT SERVICE MANAGEMENT is a challenge and the backbone of maximizing uptime and reducing costs for specialty vehicles in heavy industries. By harnessing the power of cloud technology and implementing condition-based and predictive maintenance strategies, industrial businesses, in particular, can ensure optimal performance, minimize downtime, and drive significant savings.

In this use case, service support challenges in the connected vehicle market will be explored and how condition-based and predictive maintenance can significantly reduce service costs and prevent downtime for end customers on specialty vehicles such as cranes, tractors, commercial trucks, diggers, and more. More specifically, cloud-connected industrial machines with wheels used in heavy industrial industries like mining, construction, agriculture, and ports. A key solution? The Waylay Digital Service Twin, which is ideally suited to help roll out proactive service delivery for these specialty vehicle types and reduce the cost for service management.

market overview

THE SPECIALTY VEHICLES MARKET is not trivial due to various has a history dating back to the early 20th century and consists of multiple multinational players, including Daimler, GM Group, Volvo AB, and other manufacturers, resulting in a fragmented market. It originated with the need for specialized transportation solutions and has evolved over time to cater to various industries and purposes, experiencing significant growth and innovation along the way. Recent advancements in technology, such as electric and autonomous driving, have further shaped the ever-evolving market along with collaborations in the form of acquisitions and joint ventures paving new directions.

The specialty vehicles market¹ was valued at around USD 96.81 billion in 2021, and it is likely to reach USD 116.8 billion by 2027, registering a CAGR of 3.16% during the forecast period (2022–2027). The Asia-Pacific region is expected to have the highest growth rate in the specialty vehicles market, followed by Europe and North America, driven by the increasing usage of these vehicles by small businesses in the United States for various purposes and the rising demand for travel and healthcare response vehicles. This growth is also fueled by the global expansion of businesses and operations that require specialty vehicles, such as mobile clinics and airport terminal expansions.

Additionally, manufacturers of specialty vehicles are prioritizing cost reduction, adapting to new service model demands, offering attractive services (such as service management) in response to evolving platforms, and addressing the challenges of increasing material and production costs. The purchasing behaviors of customers in the specialty vehicle industry are also undergoing significant changes, especially in terms of product customization. With the increasing demand for customization, original equipment manufacturers (OEMs) encounter a greater range of options and complexities.

1. "Specialty Vehicle Market - Growth, Trends, COVID-19 Impact, and Forecast (2022–2027)". Mordor Intelligence LLP. https://www.reportlinker.com/p06221882/Specialty-Vehicle-Market-Growth-Trends-COVID-19-Impact-and-Forecast.html?utm_source=GNW

challenges

SERVICING SPECIALTY VEHICLES is not trivial due to various factors. Often, assets are highly geographically dispersed, sometimes located in hard to access remote areas thus making it difficult to dispatch field service engineers onsite. When under these circumstances, you want to make sure that personnel are not sent on-site in vain by making certain that the right spare parts are brought along thus avoiding repeat visits and wasted time.

Most specialty vehicle OEMs work with a complex ecosystem of local dealerships and country regulations. Creating a consistent and effective service experience across the different partners is often a challenge. Willingness to change the way of working with these partners is often met with resistance if the value for the dealer or maintenance partner is not clear.

The specialty vehicle market is known for its continuous mergers and acquisitions. This means that service organizations have to deal with a multitude of vehicle models from multiple vendors. This can significantly increase the time it takes to remotely diagnose and troubleshoot a machine problem in the front line help desk. The time visibility on the vehicle performance in the service tools (e.g. Salesforce Service Cloud) is often limited or non-existent. This causes service personnel to log in to and navigate many different specialized IT tools, increasing the time to train new team members and preventing a consistent customer support experience across different machine models and types.

Given the highly demanding environments where these vehicles are operating in, end-users have high expectations on the remote support experience. The specialty vehicles often come with a thick operating manual and lengthy manual steps to diagnose a machine issue. As is the case in many other markets, the willingness to consult these manuals before calling the help desk is waning. End customers are expecting a higher level of automation with clear instructions and recommendations.

Waylay often sees specialty vehicles sending data and diagnostic code messages where naive data processing rules would cause actions on false positive issue detections. There tends to be a mismatch in expectations by the domain experts who design the rules and the short-staffed IT who have to implement them. Waylay solves this problem in a different way.

the benefits of proactive monitoring

MORE AND MORE, OEMs include cloud connectivity and remote monitoring as a mandatory feature of their asset service support contract. It fits into a general cross-industry trend of having “peace of mind” as a differentiator where otherwise products might be similar. In addition, new business models are being introduced that include uptime guarantees in the contract.

- The IDC2 analysts predict that by 2026, digital products, services, and experiences will generate 40% of total revenue for G2000 organizations.
- Big OEMs of specialty vehicles are making more profit on subscription-based value added digital services than on the pure hardware sell. In the Volvo Group’s Annual and Sustainability Report 20213, the Swedish company states “more than 50% of Group revenues should come from services and solutions by 2030”. Volvo reconfirmed this goal stating they are already hitting these numbers at Hannover Messe4 in 2023.

You can discover a deeper dive on the financial benefits of a machine OEM when applying condition-based and predictive maintenance rules here in this customer business case.

The agricultural industry is a prime example of the benefits that proactive maintenance can bring. No matter the size of the farmland, the ideal window for a farmer to get all his seeds planted is about 10 days. If the farmer misses that 10-day window due to a broken down machine, then his yield potential drops off steeply. The farmer is losing money every day when he misses that window. The farmer’s machine must be up and running, working, and very precisely giving each seed the best opportunity to turn into a plant and yield food. The farmer’s revenue can be guaranteed when remote proactive machine monitoring and taking preventive maintenance actions that take into account the vehicle’s past history are in place with the conditions in which it is planned to be used. This example shows that both the end customer benefits from the proactive monitoring service as well as the dealership and OEMs can save on service operations costs and avoid unplanned downtime.



1. "Virtual Power Plant: How to Network Distributed Energy Resources". Next Kraftwerke.
2. "IDC FutureScape: Worldwide Digital Business Strategies 2023 Predictions. IDC <https://www.idc.com/research/viewtoc.jsp?containerId=CA49743822>
3. "Leading the Transformation" Volvo Group Annual & Sustainability Report 2021. <https://www.volvogroup.com/content/dam/volvo-group/markets/-master/investors/reports-and-presentations/annual-reports/annual-and-sustainability-report-2021.pdf>
4. Hannover Messe. <https://www.hannovermesse.de/en/hannover-messe-2023/>

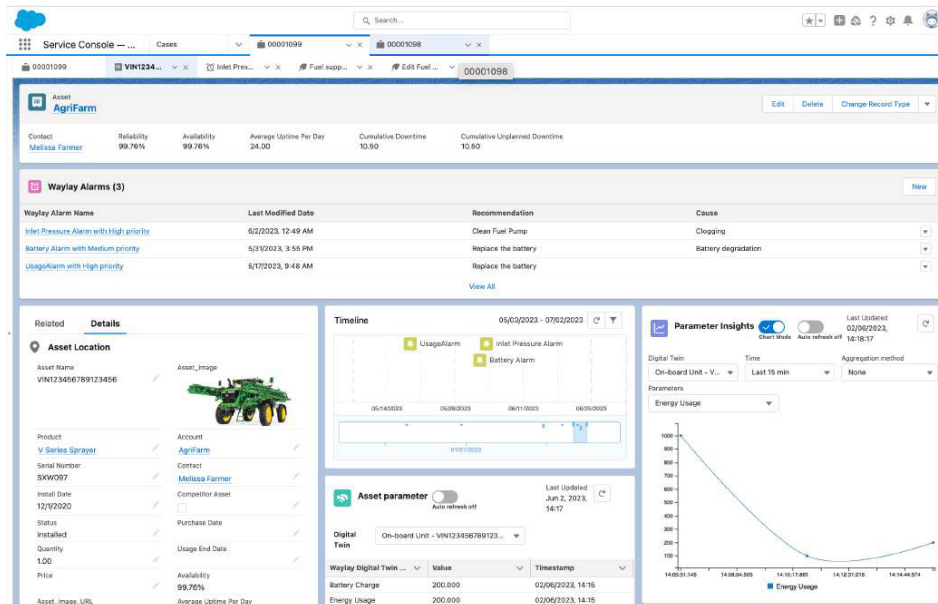


Figure 1: Waylay Digital Twin for Salesforce showing the remote service agent proactive alerts for a sprayer vehicle.

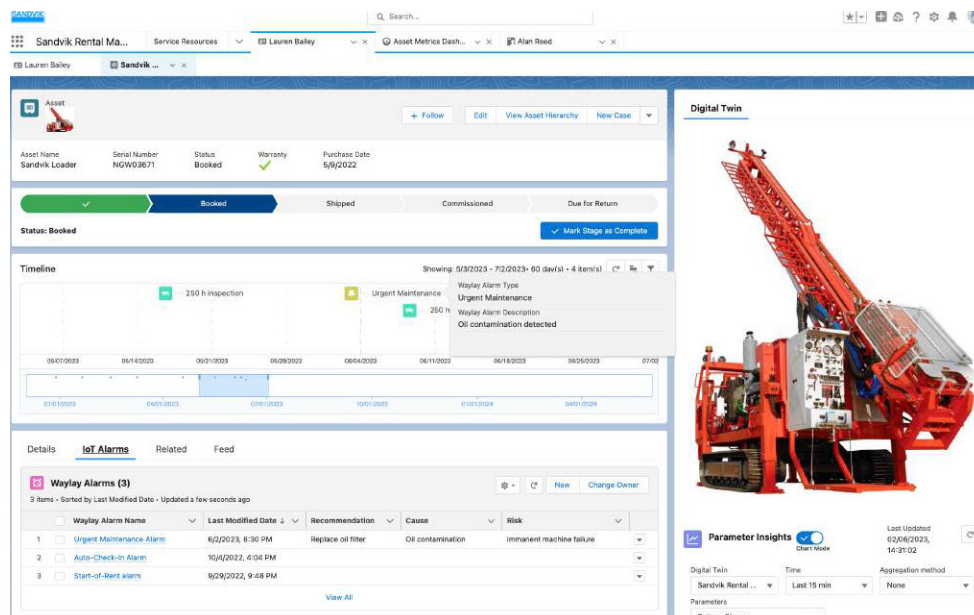


Figure 2: Waylay Digital Twin for Salesforce producing a specialty alarm from a specialty rule for a rental specialty vehicle.

specialty vehicles need specialty rules

THE SPECIALTY VEHICLE INDUSTRY is starting to adopt condition-based and predictive monitoring to optimize after sales service support. But where do these proactive monitoring rules come from? Who builds them? Who maintains and updates them? Who validates them?

- There are no rule standards to rely on, because the machines are often very bespoke for the market they are meant to serve. Sometimes even purpose built for one particular end customer.
- Telematics tools that have traditionally been developed for the consumer market do not have the necessary rule builder flexibility to serve the needs of a specialty vehicle OEM manufacturer, nor have AI/ML support.
- Specialty vehicle monitoring rules often require settings that are depending on the commercial contract, service level agreement (e.g. outcome based service level agreements), and planned maintenance schedules, which is information typically only available in the service operations business and CRM applications.
- A proactive service delivery strategy mandates real-time specialty vehicle data processing to reduce the time between issue detection, issue diagnosis, issue notification, and issue resolution. Creating these rules using SQL commands on a SQL database simply will not cut it. The reaction time for these types of batch processes is too slow and they are very hard to maintain, update, and validate.
- The specialty vehicle domain expert is typically the person who knows exactly how these rules should be configured, but is not a developer or a cloud expert. We cannot expect this person to understand and log in to five different applications to be able to debug why a certain rule is causing false positive proactive maintenance tickets to be sent to the help desk or the dealership.

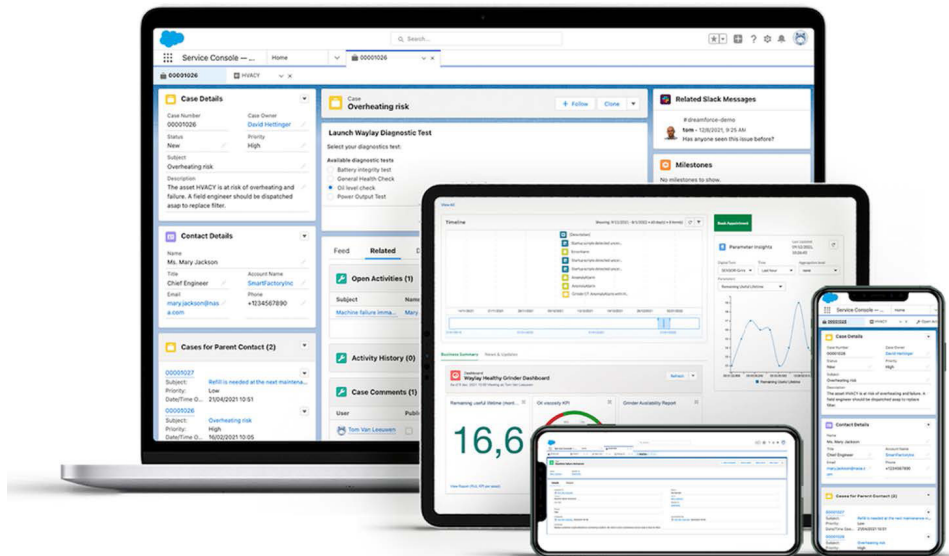


Specialty vehicles also means specialty fault codes and diagnostic codes that are unique to the manufacturer. They are not standardized. What is more is that often these error codes are being sent constantly. In order not to overwhelm the support organization, specialty rules are needed to filter out these false positive 'nuisance' alarms.

- Introducing proactive service support has an impact on all end customer touch points: dealerships, service desk, field engineers, self service portals, etc. The need is to provide consistent information, recommendations, configurability, and status updates on proactive rules across these different support channels. Often, some of these stakeholders need the ability to deploy, start, stop, and configure the rules. Last but not least, it is important these stakeholders have a means to provide feedback on the effectiveness of the monitoring rules such that there is a better understanding, acceptance, and ability to finetune the proactive monitoring rules. No one gets it correct the first time.
- Specialty vehicle monitoring rules often require settings that are depending on the commercial contract, service level agreement (e.g. outcome based service level agreements), and planned maintenance schedules, which is information typically only available in the service operations business and CRM applications.
- New rules need to be introduced all the time. There can be new firmware updates, new types of introduced machines, or regulation changes (e.g. ESG regulation). Companies that can act agile and fast to introduce new rules (or retract outdated rules) will be the winners of tomorrow.
- Proactive monitoring rules are not only about checking for patterns in the data. Each rule must contain a strategy to visualize the detected problem across the different support channels and to act on the detected pattern. Some actions involve creating tickets to technical teams, or tickets for dealerships that are geographically closest to the asset, other rules require end-user notifications via email or text. With Waylay Digital Twin, we provide one single interface through which proactive rule strategies can be created being able to send only once in a while the error, reduces the avalanche of alerts that would otherwise simply overwhelm the support system.

why Waylay & why Waylay digital twin

WAYLAY PROVIDES A FLEXIBLE vehicle telematics and diagnostic code processing middleware that allows the service operations team to manage their ambitious growth projections, even if there is only a small IT team available. The Waylay Digital Twin for Salesforce allows business users and domain experts to create and deploy specialty rules with clicks and no-code. The turnaround for new use cases (creation, testing and putting them live in production) is, therefore, extremely fast.



Neither telematics providers nor service operations business applications provide the necessary capabilities to handle the required rule volume and event correlations. For example, if you have 10 to 20 rules per asset and 40K assets in the field, you will need a platform that can handle in the order of 100K real-time rules with the existing service operations team that you have. If you also take into account that many OEM manufacturers have various brands, models, and machine types, it is easy to see that the sheer volume of monitoring rules cannot be handled by simple scripting and slapping together a set of disparate AWS or Azure microservices. This is the raison d'être of Waylay's Digital Twin solution.

Waylay digital twin in action

CLICK FIGURE 3 BELOW for a short recording of Waylay Digital Twin in combination with Salesforce Automotive Cloud.

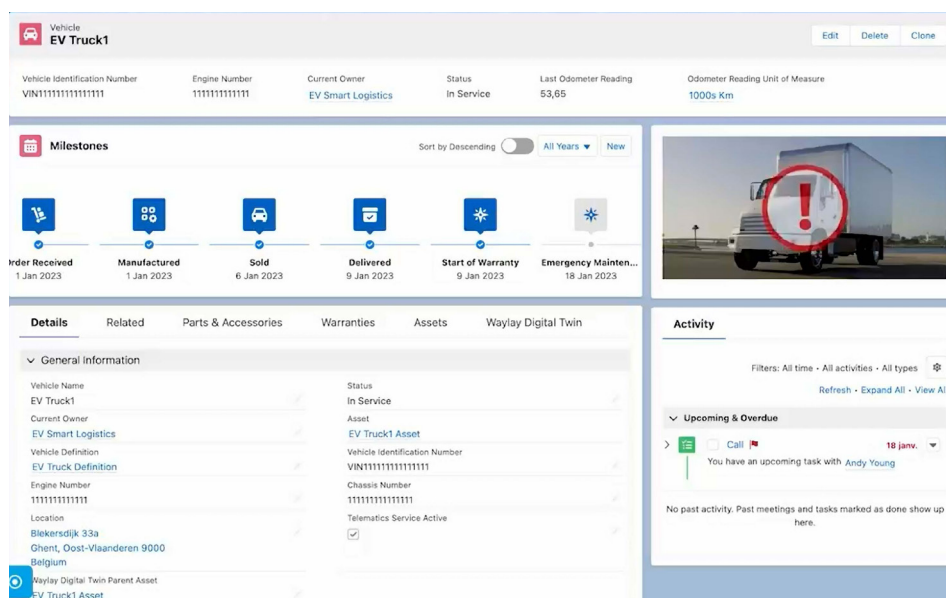


Figure 3: Waylay Digital Twin and Salesforce AutomotiveCloud

What you see is a specialty electric refrigerated delivery truck that is monitored by Waylay and where we are running:

- Condition-based monitoring rule that analyzes fault codes to detect mechanical damage and the automatic scheduling of a maintenance appointment.
- Driver behavior monitoring to see if the driver operates the vehicle appropriately, e.g. not keeping the door open for too long.
- Predictive monitoring rules that indicate that the battery has degraded and that it needs to be replaced to prevent vehicle shut down.

Visit the Waylay website to learn more how a Salesforce user can drill down into the vehicle telemetry and see the live status of the truck door and how easy it is for a fleet manager to set up the monitoring rules from within Salesforce.



summary

MORE AND MORE, specialty vehicles are getting cloud connectivity as a mandatory feature coupled to the machine's service contract. This provides remote visibility into the machine's data and diagnostic codes. Being able to have real-time visibility and proactive real-time machine data analysis available in-service support can significantly reduce operational costs, while at the same time offer new value-added services to the end-customer. That sounds fantastic, but the less glamorous side is the challenge related to how to effectively scale this up for a fleet of 1000s of specialty vehicles, with their many versions and models. With Waylay Digital Twin, we address this problem. Waylay provides you with a full stack solution to proactive condition based and predictive monitoring that allows you to roll out these monitoring rules at a fast pace with a small team, without heavy IT implementation costs.

ABOUT WAYLAY

Waylay is a Belgium-based technology company providing progressive orchestration and hyperautomation platforms for businesses to easily and quickly automate anything and everything. Waylay's low-code-based solution is a fundamentally new way to rapidly build automation, workflows, and complex rules to integrate into an existing, complex ecosystem of diverse software applications while putting the human at the heart of business rules logic. The company has a suite of financial services solutions that cover all facets of the banking, payment, debt, broking, and insurance markets.

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