partium

Case Study:

DB Cargo Goes AI - Leveraging AI in Train Maintenance

About Deutsche Bahn Cargo

DB Cargo is the biggest rail freight transport company in Europe.

DB Cargo AG ("German Railways Cargo") is a global logistics service provider and the only rail freight transport company that operates throughout Europe.

The company has more than 30,000 employees and its fleet of over 82,000 freight cars and some 2,700 locomotives is the largest on the continent.

DB Cargo transports more than 213 million tons of freight a year, covering over 78 million transport kilometers.

Every week, the company moves around 20,000 trains through Europe and Asia.

DB Cargo
Deutsche Bahn Gruppe

The Challenge

DB Cargo operates a variety of different vehicles. Its fleet consists of various vehicles built in widely different years – from older locomotives dating back to the post-war era and vehicles taken on from former East Germany all the way to state-of-the-art engines and freight cars purchased in recent years.

This fleet's complexity and lack of uniformity make correct and accurate documentation of the vehicles difficult. Older locomotives are especially challenging to maintain, as their documentation is missing in some cases and for many of them is incomplete, purchased separately, or recorded by hand in books and binders.

This makes the service and maintenance of locomotives and freight cars a unique challenge for the maintenance engineers at DB Cargo.

Searching for spare parts takes between 10 and 20 minutes – per part, per search. But in many cases, it takes much longer.

The reasons include the long distances that need to be traversed between the shop, offices, and warehouse.

Environmental factors that affect spare parts – such as wear, dirt, and deformation – often make the search even harder.

Unfortunately, these challenges turn many part searches into a long and drawn-out process.

The long way to find the right part

DB Cargo is dealing with a multitude of trains - and a highly complext part search process.

In a challenging environment with time-critical maintenance, even experienced technicians may struggle to figure out the correct material number of the part they are looking for.

01 Technicians start the search

Maintenance engineers begin the search on their own by checking the name plate on the locomotive & train car,

02 Technicians check documentation

going to the filing shelves and combing through documents and binders,

03 Technicians involve experts

involving a group leader or foreman if they have any trouble, and then continuing the search as a team.

04 The search continues

In case of doubt, additional experts – such as staff in the warehouse – are brought in to help rifle through the ERP system.

05 Things go wrong

The team struggles to find the part in the documentation and reaches out to the manufacturer.

06 When everything else fails

Finally, the part is identified, now the part can be requested from the Warehouse or OEM.

Making a difference in reliability

Maintenance is probably the #1 driver to increase asset availability.

Vehicle maintenance is labor-intensive, requires substantial maintenance infrastructure, and is extremely time-critical.

Technicians may have a rough idea of what part it is, but they need the exact material number to have the part delivered from the warehouse.

The impact all this has on vehicle maintenance, and fleet operation is substantial.

Repairs are delayed when parts are unavailable or take time to find. Trains and cars occupy the tracks in the maintenance facilities longer than planned and delay repairs on vehicles that arrive subsequently.

All this causes delays that are nearly impossible to make up for in operations.

The Goal

DB Cargo has set itself the goal of becoming the largest rail logistics company in Europe and is consequently on a growth course.

This is in line with the trend toward the railways: the freight transport market in Europe is on track to grow 30% by 2030.

Increase rail freight transport services performance

Increase Customer Satisfaction

Improve on-time service in operations

One lever for improving on-time service in operations and in turn increasing the performance of services is optimized maintenance processes.

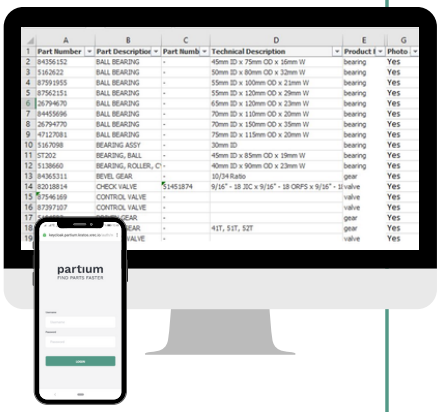
Against this backdrop, DB Cargo has introduced Partium to speed up part searches. The company's decision to go with Partium hinged chiefly on the solution's technical maturity.

The Solution

DB Cargo started its Partium project in 2021. The team went ahead and added approx. 12,000 parts, 50 vehicles, and six maintenance facilities. DB Cargo is now adding additional parts, and vehicles and continues the rollout to all 15 maintenance plants.

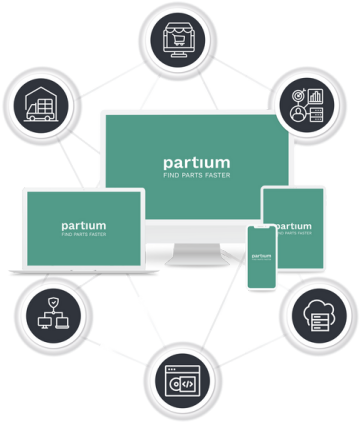
Search, built for the industry

In the freight environment, spare parts are large and cannot always be captured adequately in photos. They are often dirty, worn, and have few visual identification features that are meaningful. Accordingly, it was important to DB Cargo to roll out a solution that would accommodate these challenges.



Quick Setup

Another benefit in Partium's favor is its flexibility in terms of the setup: Partium can use a huge range of different data for each search. Because of its non-uniform vehicle fleet, DB Cargo has vastly different degrees of maturity and quality in the documentation of the individual locomotives and freight cars. Partium accommodates this situation by drawing on virtually all of DB Cargo's available data for the search. This includes: material management lists, material descriptions, substitutes, attributes, SAP numbers, inventory levels, inventory locations, production series, material, standard parts, drawing number, manufacturer, item number, and other information.



Connected to the Warehouse

In addition to the requirements of the part searches, the engineers needed direct access to the inventory locations and inventory levels after identification. The aim of this was to cut the time spent running around and searching in the warehouse.

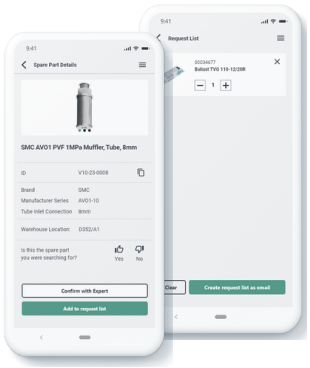
Implementation

With Partium, DB Cargo streamlined their part search process significantly.

DB Cargo initially rolled out Partium at six maintenance facilities where between 35 and 100 engineers work in maintenance.

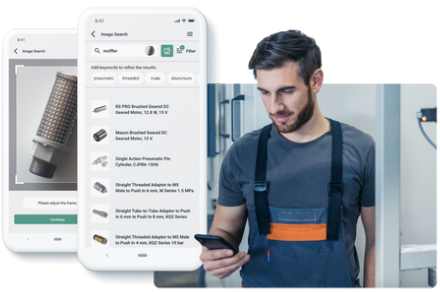
Find Parts on the Spot

Using Partium, they can search through images, semantic search, and leverage additional search features. Technicians can now reliably identify the part on the spot and access comparable substitute parts.



Access the Inventory

Once they identified the right part, Technicians can access the inventory stock and location of the part in the warehouse.



Digital Parts Requests

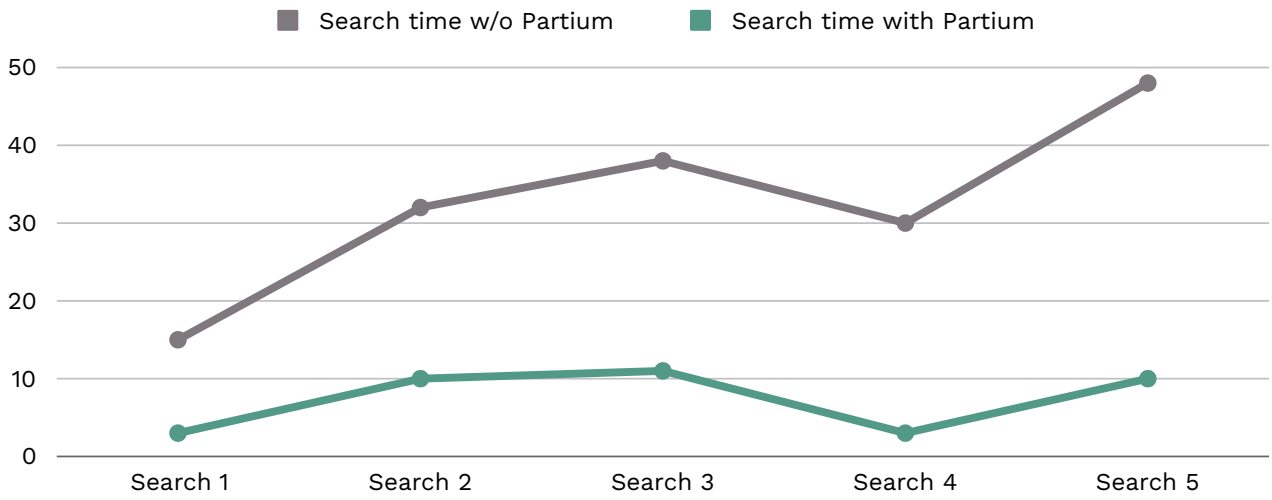
Engineers and Technicians can contact the warehouse staff and file the work order to request the part they need from the warehouse.

The Impact

After the implementation of Partium into DB Cargo's spare part search process,the team observed a significant drop in search times for technicians. They also realized that engineers and technicians saved a lot of transit times that were spent going back and forth between trains, offices, warehouses, and experts.

Reducing Search Times

With Partium, DB Cargo's Technicians identify and locate Spare Parts much faster



Search times are reduced for every single part search. With Partium, Technicians can reliably identify spare parts in a couple of minutes rather than spending 30 minutes searching for them - no matter the condition of the part of the complexity of the search.

Other Benefits DB Cargo observed:

– With Partium, Senior Techicians are faster, Junior Technicians are better supported
– Parts-related processes like parts requests are accelerated as well
– Technicians adopt Partium very well - usage increases dramatically over time

100 % Every single part search that was supported by Partium was faster than comparable part searches without Partium. Period.

Contact

Because, we're here to help

Do you want to optimize your maintenance & warehouse processes? We are here to help you explore the many ways our Partium Enterprise Part Search can help to find parts faster.

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