



REFERENCES OF THE Q-SPACE APPLICATION PROJECT

– digitalization of functional tests for the client Škoda Auto a.s.



The Q-Space application is used to digitise functional tests, planning and vehicle testing processes in the test and analysis centres of Škoda Auto. The custom-developed algorithm for scheduling vehicles for functional tests takes into account the life cycle of pre-production vehicles and assigned vehicle tests. It also takes into account the current capacity of the test facilities and individual specialist groups, and takes into account other departmental activities – such as emissions testing and vehicle failure analysis.



Q-Space helps to use departmental capacity more efficiently and reduces the time required for functional testing. In addition, it transparently documents the complete vehicle testing process and other processes. It eliminates the need for paper documents including test reports, facilitates archiving and speeds up sharing between end users. Everything is done directly in the application environment.



The system is linked to other related applications, programs and processes in the company. Not only does it serve as a resource for further testing of pre-production vehicles, but there are plans to expand the amount of data used directly in Q-Space. Due to the large amount of data collected, comprehensive statistics are foreseen in the future, which will lead to further quality improvements and cost reductions with it.



Q-Space is a modern single-page web application created using REACT libraries on the front-end. The backend part uses .NET 6.0. Framework to improve performance. For higher availability, the application is hosted in Azure Kubernetes Service in Docker images, where it can automatically scale the cluster according to the application's workload needs. The infrastructure is described using IaC (Infrastructure as Code) and the deployment of resources and the application is managed in a CI/CD pipeline in a DevOps environment. The resources are created and deployed using best practices to ensure the security and operation of the application in private Škoda Auto network resources.



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at Škoda Auto says:

„The Q-Space web application from GEM System significantly helps in the processes of digitalisation of functional tests, planning and vehicle testing in the test and analysis centres of Škoda Auto. These are the departments GQG-3 (Mladá Boleslav) and GQK-1 (Kvasiny), where the application is used by more than 100 employees (5 or more departments are in practice data users), where the application has been in a production environment since 2024.“



THE MAIN OBJECTIVES OF THE Q-SPACE APPLICATION ARE:

- Eliminating manual scheduling of functional tests,
- eliminating human error,
- optimising the capacity of the Analysis Centre and efficient planning of functional tests,
- digitising the analysis of pre-production and production vehicles,
- digitisation of CoP (Conformity of Production) relevant tests,
- automatic import and export of car and test data,
- digitisation of expert group reports,
- a tool for transporting test cars between Mladá Boleslav and Kvasiny,
- management of emission cars (Emission Centre Česana) and linking with functional tests.



FURTHER PLANNED DEVELOPMENT OF THE Q-SPACE SOLUTION:

- Real-time tracking of cars via RFID technology + follow-up functions (automatic loading and scheduling of cars for testing when passing through a reader, etc.).
- Use of Q-Space for BigData purposes – statistics and reports.
- Interfacing with other VW Group systems (SQS, EZ-LOG, etc.) and other data sharing.
- Development of a dedicated application for mobile devices.
- Negotiations on expanding the application to other countries including other Group brands.

