

Creating a predictive service definition assistant for global operations

Client

A Swedish industrial manufacturer of sustainable productivity solutions

Company Size

55,000+ employees

Location

Global

Featured Partners



A worldwide maintenance manufacturing organization needed a scalable system to better manage maintenance requirements for millions of machine configurations. Previously, defining and tracking requirements consumed significant administrative effort and led to inefficiencies, excessive downtime, and inaccuracies.

Marlabs developed an advanced service definition assistant that acts as a predictive maintenance planning engine. It generates optimized schedules, integrates with existing systems, and allows specialists to create accurate maintenance programs quickly and effectively. The solution streamlined operations and reduced waste across global sites.



Data
Management



Quality
Engineering &
Assurance



Web & App
Development



Project
Management
& Enablement

The Challenge: Inefficient maintenance planning processes



Objective: Create a new solution that would allow timely, optimized, and organized maintenance of a wide range of machines (millions of different machine configurations).



Existing Issues: Manual and repetitive administrative work to define requirements resulted in inaccuracies, waste, and machine downtime.



Solution Needed: A system that integrated with core maintenance platforms, generated multiple schedules per second, and reduced waste.



Outcome: A robust and scalable web application that combines advanced front-end capabilities, complex data models, and secure APIs.



Our client required a new solution that would enable timely, optimized, and well-organized maintenance for millions of machine configurations. Administrative inefficiencies and errors were leading to wasted resources and machine downtime.

The Solution: Creating a robust predictive maintenance planning web application

Our team delivered a scalable and secure web application using a phased approach. Each phase expanded features, improved integration, and optimized performance. The solution provided predictive maintenance capabilities, streamlined planning, and reduced dependency on manual administration.

Phase 1: Proof of Concept

We designed an MS Access prototype with VBA to validate core functionalities and demonstrate system value.

Workstreams:

- Design architecture
- Project management
- Business analysis
- Data management

Phase 2: Prototyping

The team developed .NET application screens, built a conceptual SQL model, and enabled simple plan generation.

Workstreams:

- Business analysis
- Project management
- Web & app development
- Quality engineering

Phase 3: Advanced Development

Marlabs enhanced the system with administration tools, advanced UI, approval flows, integrations, and logic for maintenance plan creation.

Workstreams:

- UI/UX design
- Project management
- Web & app development
- Quality engineering and testing

Services and Technologies Used:

Services:

- Data Management
- Quality Engineering & Assurance
- Web & App Development
- Project Management & Enablement

Technologies:

- Microsoft Azure Web Application
- SQL database model
- Hybrid Relays (for consuming internal services)
- .NET Core
- React

The Results: Impact on the client organization

The solution transformed how maintenance planning is performed across 94 country-level organizations. It empowered machine experts to directly input technical data, generated schedules tailored to each serial number, and reduced dependency on specialists. The client achieved greater accuracy, reduced costs, and streamlined global operations.



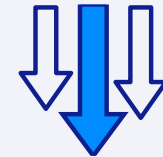
Faster Plan Generation: Machine experts directly created schedules, which reduced delays and errors.



Lower Quality Costs: Improved accuracy and fewer errors led to measurable cost savings.



Accurate Spare Part Management: The system eliminated challenges in identifying correct spare parts.



Decreased Scrap Rates: This initiative significantly reduced return and scrap parts.



Reduced Repeat Visits: Maintenance accuracy reduced unnecessary repeat service calls.



Improved Global Efficiency: The solution supported 94 organizations, enhancing consistency and collaboration.