SBYSOFT

AI-Driven Benchmarking Automation for Telecom Performance Insights

CASE STUDY: Automated Data Processing & Reporting Framework for Telecom Benchmarking

At A Glance:

A fully automated, secure, and scalable data processing and reporting system was developed for Techbros FZCO to handle large-scale telecom benchmarking projects across Europe. The solution included a SQL database, custom data aggregation software, and Tableau-based interactive reports.

Locations:

Client HQ: Germany
Project Scope: Pan-European (Multiple countries across Europe)

Sector:

Telecommunications / Data Engineering / Business Intelligence

Services Provided:

SQL database design & deployment, Custom software development for DR data processing, Tableau reporting dashboard creation, Data automation workflow implementation, On-site delivery and technical consulting

PROJECT OVERVIEW

Project Background & Challenges

Techbros FZCO needed a secure and scalable solution to manage the increasing volume and complexity of drive test (DR) data across European telecom benchmarking projects.

Our Solution / Approach

We developed a robust end-to-end framework comprising a secure SQL-based backend, a modular data aggregation tool, and Tableau dashboards to convert raw data into actionable insights. The entire pipeline was designed for automation, minimal manual intervention, and maximum reliability.

By the end of the project, multiple European telecom benchmarking operations were fully automated through a secure SQL-based backend and a custom-built data aggregation engine. The system processed thousands of drive test records with minimal manual intervention, delivering consistent and scalable performance across all regions.

To ensure high usability, a modular software platform with integrated Tableau dashboards was developed—enabling seamless report generation for CDR, voice, and scanner data. The entire framework is protected with enterprise-grade access controls and designed for future scalability and long-term maintainability.

Key steps Included

- SQL database development on a secure server
- Design of automated data aggregation software
- Integration with Tableau for real-time reporting
- Implementation of access control and data governance
- On-site project delivery and technical alignment with stakeholders in Germany

TECHNICAL OVERVIEW

Technical Highlights

Pipeline Architecture: The system follows a robust pipeline-based design, where each software module sequentially processes and validates outputs from the previous stage, ensuring high reliability and modularity.

Open-Source Flexibility: All tools are built entirely on open-source technologies, eliminating dependency on third-party software—ideal for operators with limited budgets or access restrictions.

AI-Driven Automation: Integrated data science and AI tools drastically reduce manual effort while maintaining high accuracy across planning and validation stages.

Secure Deployment: Auto-check mechanisms and rollback capabilities are built in to ensure safe, real-world application in live network environments.

Specialist Skills & Team Approach

Our engineers possess strong expertise in data science, statistics, software development, RF engineering, algorithm design, and 4G/5G system architecture, all supported by solid scientific backgrounds. Accurate predictions and optimizations were achieved thanks to deep knowledge of electromagnetics, RF planning, and mobile networks spanning 2G through 5G.

Proficiency in scripting and data analysis enabled efficient processing of large datasets and automation of complex tasks, while scientific rigor ensured robust statistical analysis and model tuning.

Projects are consistently delivered ahead of schedule through smart resource allocation, strategic AI-assisted workflows, and close collaboration with contracted partners. The last project was successfully completed with minimal manpower, thanks to these automated and optimized processes.

Deliverables include three highly detailed and clear reports: An executive summary focused on key results and insights. A two-part technical report for the engineering team, comprising visual presentation materials and comprehensive statistical test results with data analysis.

The expert core team combines RF engineering and data science skills and is supported by backup engineers to ensure scalability and project continuity.

CHALLENGES & RESULTS

CHALLENGES

Managing complex and high-volume drive test data in full automation

Eliminating inefficiencies in manual processing

Creating a user-friendly yet technically sound reporting environment

Ensuring secure data access within enterprise constraints.

RESULTS

80%+ reduction in manual workload

Real-time visibility into telecom KPIs via Tableau dashboards

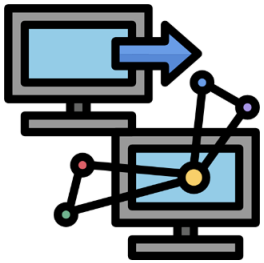
Scalable framework now used in multiple projects across Europe

Successful client handover through an in-person delivery phase in Germany

IDEAL SCENARIOS

Pan-European
Benchmarking Campaigns

Frequent Network Updates
and Vendor Comparisons



Distributed Teams with
Centralized Oversight

Compliance & Executive
Reporting for Regulatory
Bodies

REPORT DATA

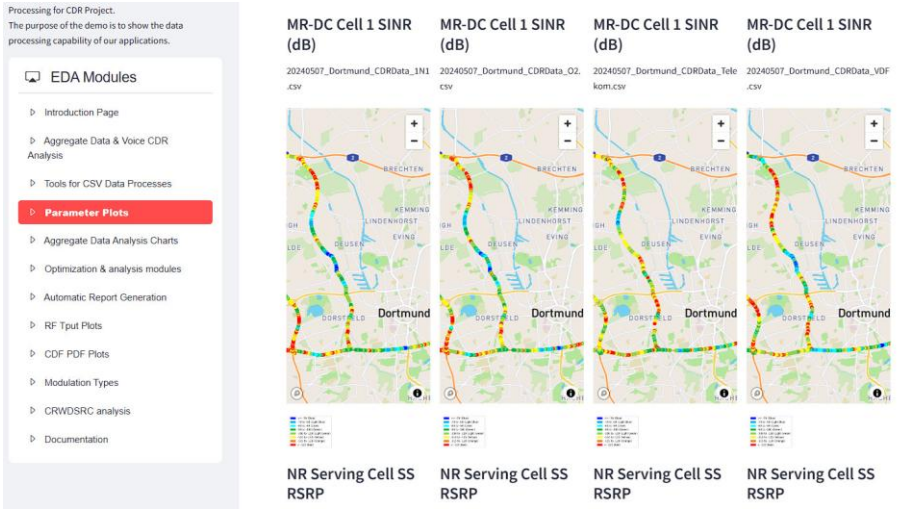


Figure 1: Multi-Operator Parameter Visualization from Drive Test Data. This screen displays a parameter comparison plot within the tool, showcasing multiple operator drive test results overlaid for visual benchmarking. Users can zoom in to specific segments for in-depth inspection of KPIs across operators.

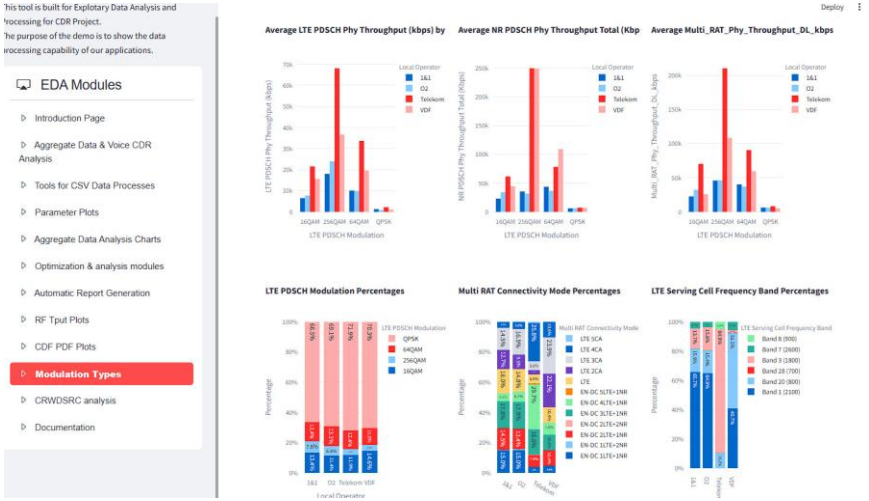


Figure 2: A high-level graphical representation of key performance indicators extracted from drive test reports. This visualization supports quick comparative analysis and helps identify trends, anomalies, or degradation across test scenarios.

REPORT DATA

Figure 3: Advanced Engineering Plot with Annotated Insights. This view provides a detailed, higher-order analytical plot tailored for senior RF and performance engineers. Integrated annotations explain critical data behaviors, enabling in-depth technical interpretations and decision-making.

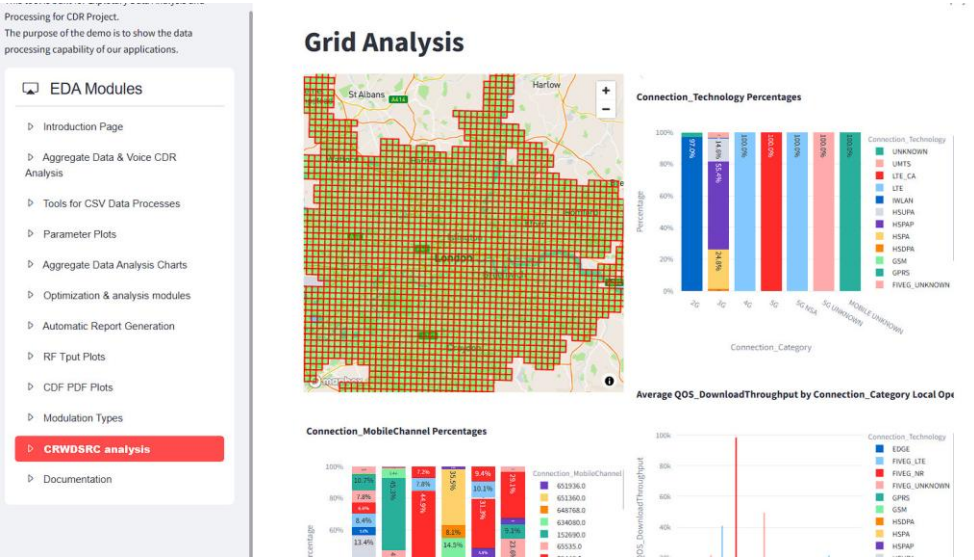


Figure 4: Crowdsourced Data Analysis & Interpretation Module. An essential module that processes large-scale crowdsourced datasets. Includes first and second-order analytics to support geo-based performance clustering, anomaly detection, and subscriber-experience correlation using scalable algorithms.

TESTIMONIALS

We went from manually processing benchmarking data over several weeks to generating accurate, interactive reports in just hours. The custom software and secure database gave us confidence, control, and speed—all in one solution.“

Director of Network Performance, Techbros FZCO

This project eliminated the most time-consuming part of our work. We finally have a scalable, automated way to handle benchmarking results—saving hundreds of engineer-hours per month

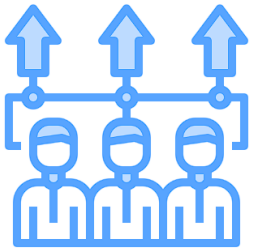
Senior Delivery Manager, Techbros FZCO

The final on-site integration and knowledge transfer exceeded our expectations. Not only was the solution technically sound, but it also set a new internal standard for how we manage data-driven telecom benchmarking.".

CTO, Partner Consultancy

WHY SBYSOFT ?

Access to highly specialized consultants with hands-on delivery experience.

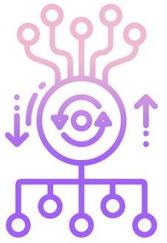


The ability to scale up teams quickly for regional or multi-country projects.

A practical, data led approach grounded in real-world network behaviors.

Fast, fully remote delivery with deep expertise and consistency

Smart, cost-effective RF solutions tailored to each project’s goals.



A data-driven approach that reduces costs, shortens timelines, and improves accuracy.

CONTACT

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