Faster processing of service requests

Deutsche Telekom Service saves millions in costs thanks to automated email processing supported by AI

“T-Systems supplied the complete AI stack for our business idea: We are now able to process a large percentage of customer emails in the Service unit in a fully automated manner, saving us around 2 million euros annually – and the trend is rising.”

Marco Einacker, Lead Automation & DevOps Excellence, Deutsche Telekom Service

Over 69 million mobile customers, 25 million fixed-network lines, and 22 million broadband customers – Deutsche Telekom is one of the world’s leading telecommunications companies. Companies serving millions of customers require efficient services and communication channels. The Deutsche Telekom service team is responsible for the service business and offers Deutsche Telekom’s customers a wide range of different contact options: these include AI-based apps such as MeinMagenta or Frag Magenta, that provide a high self-service solution rate, as well as social media channels, chat, web forms, and the conventional email and telephone options.

“In recent years, we have been able to take service to a new level – thanks in part to the use of artificial intelligence,” explains Marco Einacker, Lead Automation & DevOps Excellence at Deutsche Telekom Service. However, the team wants to continuously develop its processes to optimize service even further – for customers and the employees in the service team, who can then concentrate on more complex tasks.

To achieve this, Deutsche Telekom Service relies on extensive automation. For example, customers who fill out a web form with their requests directly trigger an automated workflow that ensures fast processing. Smooth automatic processes are guaranteed by the Oreo process orchestration platform, which runs constantly in the background. “Automation using structured data from web forms is relatively easy to implement. But we ask ourselves: can customer issues be automated without structured data, for example from emails?”

At a glance

- Despite a high degree of automation and comprehensive self-service offers, Deutsche Telekom wants to further increase the efficiency of its service.
- In focus: high manual workload associated with emails sent to the service
- Managers want to reduce employee workload
- Faster processing of customer requests for improved customer satisfaction
- Integration into existing automation (Oreo)
- Use of GenAI (GPT) and Python workflow (Langgraph)
- Contextual information for LLM by accurately describing customer issues and service categories
- Creation of a test dataset (annotation) with real data from ongoing operation
- Operation of the new AI service: Extraction of data from emails, form completion, and start of automation
- High quality in determining customer issues (80 percent) to correctly map the case to 60 service categories
- Reducing service employees’ workload in terms of email processing, freeing time for other tasks
- Increase in the automation rate achieves savings of 2 million euros per year
- Increased customer satisfaction thanks to the faster processing of requests

T Systems

Reference in detail

Customer pain points

The Automation & DevOps Excellence unit at Deutsche Telekom Service decided to take on this challenge and continuously automate the tricky parts of the service processes. The objective was to ease the workload of the service staff by reducing their manual tasks and increasing the efficiency of the service staff. To achieve this objective, the team looked at one of the main service channels for "unstructured" requests: incoming emails to addresses such as those handling fixed-line network orders. Telekom Service receives around 5,000 emails every week via this address. The approach was for artificial intelligence to automatically record the issue contained in the email, categorize the process, extract relevant data, and transfer it to Oreo to trigger an automated process flow. The managers approached the AI experts from T-Systems for assistance in designing the artificial intelligence (AI) solution.

How T-Systems solved it

This is a typical task for a Large Language Model (LLM) that can understand and analyze language. "We decided on a Python workflow based on Langgraph," explains Sebastian Wagner, AI Engineer and Data Scientist at T-Systems. The service uses GPT as an LLM deployed from Azure. The LLM also determines whether the mail contains attachments such as photos or PDFs and extracts the information from these attachments.

But that was far from the end of the solution. Just because the words in the email are understood does not mean that the AI understands the customer's intention correctly and assigns it to the correct processes. For example, there are 20 primary categories and 40 minor categories for service requests within the service unit. "We had to describe these precisely for the LLM in order to provide it with the relevant contextual information." This can only be achieved in cooperation with the technical experts. They translate customers' concerns from the customer language into the internal nomenclature and assign them to the right processes. "Without this technical know-how, the AI would be useless."

At the end of development, a non-agentic AI was created that sequentially performs the following tasks: analyzes the email for attachments, extracts relevant data, categorizes the email, and clarifies whether it contains multiple requests. With the help of the categorization and the extracted data, the request is imported into the existing automation paths in Oreo or is marked as "not automatable" and handed over to an employee.

And how is the AI doing? Over several weeks, service employees annotated incoming emails, generating a test dataset against which the AI service was tested. The result: the AI recognized the issue in 80 percent of cases, automatically generating structured output from unstructured input. To ensure long-term quality, random spot checks are carried out by specially trained employees. This monitoring creates a quality dashboard that provides insight into anomalies and performance metrics. In addition, an alert system via MS Teams issues warnings if important metrics are not achieved.

Why choose T-Systems?

With top positions in benchmarks including Intelligent Automation (ISG), Advanced Analytics & AI (ISG), and AI-related Services (PAC), T-Systems demonstrates extraordinary expertise in AI services.

Business impact

With the new AI service, Deutsche Telekom Service further automated its processes. 80 percent of all incoming emails are automatically categorized and imported into existing automation. This significantly reduces employee workload and allows them to focus on other tasks. In addition, this approach achieves annual cost savings of over two million euros. "In the next few years, we expect even more potential once the service has been optimized." For customers, this means faster processing – and ultimately, a significantly higher quality of service.

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