

# Case Study

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T-COM – Digital & Agile – Billing Application



# The Client

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T-Com is the leading telecommunications operator in Croatia, known for its wide range of fixed, mobile, and internet services for private and business users.

The company continuously improves its digital solutions to provide users with fast and simple control over their bills and services, with a focus on mobile accessibility, intuitive user experience, and a high level of security.

The client recognized the need for a modern, user-oriented solution that would ensure timely notification of unpaid bills and enable an easy way for users to manage their obligations toward the company.



# Requirements

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The Billing Application project was conceived as a mobile-first web Single Page Application, developed using the Angular 7 framework, to enable users to review and manage their bills in an intuitive and fast way.

The user experience process begins with the very first unpaid bill: the user receives an SMS with a link to the application. After logging in via the Keycloak Single Sign-On solution, the user can clearly see which bills are unpaid, all relevant details, and the fastest way to make a payment.

The application also enables activation of a standing order, a digital version of the bill (E-bill), and quick service reactivation in case of suspension.

The goal of the project was not only to provide faster and clearer access to information, but also to increase user engagement, reduce payment delays, and deliver an intuitive solution optimized for mobile devices.

The application had to enable:

- timely user notification starting from the first unpaid bill
- an overview of all unpaid bills with details and the fastest payment method
- activation of a standing order and digital bills
- simple service reactivation in case of suspension



# Requirements

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In addition to functionality, a key requirement was to integrate the application into the existing T-Com ecosystem via the Harmonization Application Layer (HAL), ensuring compliance with Deutsche Telekom's international standards.

The Billing application provided T-Com users with transparency and control over their bills, along with timely notifications and fast payment options. Mobile accessibility and an intuitive interface reduce user frustration and increase engagement. Integration with the HAL layer ensures data accuracy and compliance, while Keycloak Single Sign-On improved security and ease of login.



# Solution

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Serengeti participated as a member of the billing squad within the D&A project, actively designing functionalities, the user interface, and testing the application with real users. Special attention was given to improving the login form using the Keycloak Single Sign-On solution and its JavaScript adapter within the Angular library, enabling secure, fast, and intuitive authentication.

The application was developed with a mobile-first user experience, while remaining fully functional on desktop interfaces. Each functionality - from bill overview to service reactivation - was designed so that users can understand the status of their bills and take the necessary actions in the shortest possible time. Integration with the HAL layer ensured proper data exchange within the T-Com ecosystem, in compliance with Deutsche Telekom standards.

# Technologies

The following technology stack was used to develop the Billing application:

- Front-end: Angular 7
- Back-end: Java (Backend For Frontend)
- Integration and communication: REST service between the BFF and T-Com systems via the Harmonization Application Layer (HAL)
- Login and authentication: Keycloak Single Sign-On with a JavaScript adapter within the Angular library

This technological approach enabled agile development of functionalities, rapid iterations, and user testing, while maintaining a high level of security and system scalability.

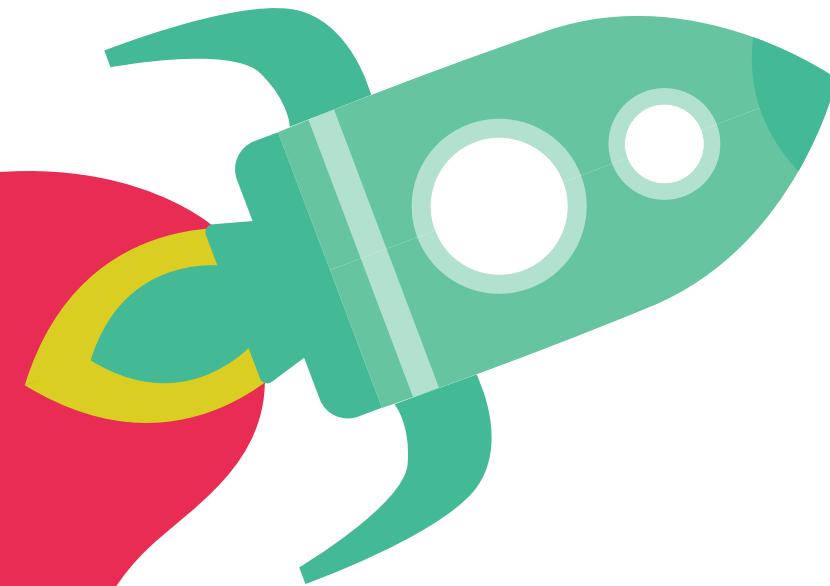


# Result

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## Top benefits for the Client:

1. Timely and transparent user information about unpaid bills
2. Simplified payment process and service management
3. Reliable and secure integration with the existing system and international standards



# Accelerating business transformation through innovative technology

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Serengeti is a software development nearshoring and consulting company. For the past 2 years, we have been partnering with our clients to reinvent their business models using innovative information technology. We work according to the principles of DevOps, implementing disruptive trends in our specializations. Our experience and business acumen comes from successfully working on over 30 projects.

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