Digital public administration with the Pega Infinity platform

Citizen developers in the state of Schleswig-Holstein demonstrate the potential of low-code development

“Our close collaboration with T-Systems identified a new, innovative way for us to ensure that even line managers without IT expertise can map complex processes digitally in just a few days.”

Jesko-Alexander Zychski, the state of Schleswig-Holstein

Digital transformation is a constant process that affects every part of our society. The public sector is no exception. As part of this trend, the Online Access Act (Onlinezugangsgesetz, OZG) was passed on August 14, 2017, to promote efficient digital public administration and improve services for citizens and residents. All government agencies were required to offer their administrative services online by December 31, 2022. This was a significant milestone for advancing digitalization of the public sector. Regrettably, the implementation of the OZG focused on the digitalization of applications and the provision of application portals. End-to-end digitalization – that is, communication between applicants and administration without media discontinuities, along with digital processing – was neglected.

So it’s no wonder that we see more of a digital patchwork in many places today. Following the OZG, the public sector faced the strategic challenge of integrating a heterogeneous portal and backend infrastructure and continuing its development, to implement end-to-end digitalization without media fragmentation and ultimately speed up administrative work.

These specific gaps in end-to-end digitalization were the focus of the state’s SH:digital hackathon, to test the potential of no-code/low-code applications.

Low-code technology represents an efficient alternative to traditional development methods and is a decisive factor for rapid digitalization. Low-code is an application development method that lets users create digital solutions quickly and efficiently, using graphical modeling instead of conventional programming work. A visual development environment is used here. Applications are built by putting together prefabricated components and modules that can be arranged using the drag-and-drop method. Graphical modeling not only simplifies the development processes, but also makes them available to people without deep knowledge of programming.

Low-code processes are primarily characterized by a high level of code abstraction and an intuitive, user-friendly interface. They enable agile, iterative development in which the persons involved can experiment, control, and see the effects of their decisions in real time. This demands an exploratory approach and allows better understanding and continuous optimization of the digitalized processes during their development.

For the SH:digital hackathon, T-Systems – together with the state’s capital city, Kiel – identified the processes that were implemented as prototypes of true end-to-end digitalization processes during the hackathon, using the Pega Infinity platform.

T Systems

At a glance

- Uninterrupted end-to-end digitalization through integration of input channels and interfaces
  - Creation of process templates for end-to-end digitalization
  - Modules with explicit connection to the public sector can be linked and reused
  - Creation of three POCs during the hackathon
- High degree of automation and optimization through central configuration of processes, business rules, and data objects
- High implementation speed, thanks to low-code and “building blocks” principle. Agile collaboration between IT and user departments
- High level of subsequent use and reduction of complexity through re-use and “inheritance” of process flows and business rules in federal and official organizational structures
- Sovereignty of government administration: Processes, flows, and rules can be created and adapted by “citizen developers”
  - Sovereign mapping of the digital solution in-house
- Efficiency gains in the public sector
  - Potential approach to solving the looming skills shortage
- Leveraged low-code development from Pegasystems for the hackathon
  - Rapid provisioning from T-Systems’ Open Telekom Cloud
  - Training and support for citizen developers and the digitalization of Kiel’s administrative department
  - Automation of complex municipal administration processes
  - Rapid realization of digital processes in just a few days
- Faster lead times for applications
- Reduced workload for staff

Reference in detail

Customer pain points

T-Systems International GmbH provided active support to the state capital of Kiel during the SH:digital hackathon. Thanks to their extensive expertise and the implementation of the Pega low-code platform, three administrative processes were successfully digitalized and presented as prototypes. Working together, the participants identified a variety of challenges and discussed the possibilities of an ecosystem consisting of different low-code platforms.

To do so, they had to clearly delineate which platform solutions were the most sensible for which challenges – along with the central functions needed to support the journey into the digital future as orchestrator and system integrator.

What were the success factors in this version? An overview:

- Uninterrupted end-to-end digitalization through integration of input channels and interfaces
- High degree of automation and optimization through central configuration of processes, business rules, and data objects
- High implementation speeds and flexibility through “factory and building blocks” approach, agile collaboration between IT and user departments
- High level of subsequent use and reduction of complexity through re-use of process flows and business rules in federal and official organizational structures
- High level of sovereignty in public sector administration: Processes, flows, and rules can be created and adapted by “citizen developers”

The presented low-code solutions made public-sector digitalization perceptible in a hands-on way. There is a variety of advantages to the partnership between T-Systems and the state capital Kiel. The participants all learned together and contributed towards boosting efficiency in the public sector. By using a low-code platform such as Pega, new methods were presented for testing and simulating end-to-end OZG processes quickly and clearly.

The training and counseling for citizen developers and the digitalization of the administrative department in Kiel helped to automate complex municipal administration processes. The rapid realization of digital processes within just a few days has improved lead times for applications and reduced workload for staff. The sovereign mapping of the digital solution in-house ensures that Kiel keeps control of the implementation.

The SH:digital hackathon had the clear objective of digitalizing and automating the entire administration process, above and beyond online applications. It focused, in particular, on the potential of no-code/low-code applications for implementing application procedures, administration processes, and interface processes without requiring profound programming knowledge. This approach not only enabled faster implementation, but also ensured the independence of municipal governments in implementing needs-based solutions.

The challenges of the hackathon were mastered successfully through the collaboration between T-Systems and employees of the state capital Kiel to tackle specific public sector challenges with no-code/low-code applications and process automation using the available information. The hackathon ultimately had twofold success: not only did it identify innovative solutions, but it also promoted the independence and flexibility of municipal public administration with regard to digitalization.

How T-Systems solved it

Kiel aimed to develop prototypes of solutions for three different departments – some of which had highly complex administration processes with different internal and external stakeholders. Prototypes of automation solutions were created for the education authority, the youth welfare office, and the public health office in just three days.

The three teams relied on the Infinity low-code platform from Pegasystems (Pega) and support from T-Systems. As a Pega partner, T-Systems was able to deliver a fast, simple installation of the development platform for testing purposes from the Open Telekom Cloud. At the same time, the experts at T-Systems offered training courses and advice, to enable the experts from the respective departments to implement process automation as "citizen developers".

The three examples that were developed during the hackathon focused on different challenges to automation. The education authority focused on large amounts of data, the youth welfare office targeted the complexity of the process flows and calculations, and the public health office addressed the involvement of different personas or players in the process.

School burden-sharing is relevant for schoolchildren who go to a school other than the one in their home municipality. It means that school funds have to be distributed between municipalities from the state budget – in agreement with the support model for the students. All-day schools are allocated different amounts than non-all-day schools, for example. A great deal of data is required for this burden-sharing. An automated procedure was used to import and process the Excel spreadsheets from the various persons involved. The calculations take place automatically in the background. As a result, the process was completely automated and became paperless.

The calculations in open child and youth work are even more complex. The institutions that submit funding applications can vary widely in nature. Some support or care for socially disadvantaged children, while others look after young refugees. Still others offer language courses, help with homework, or serve hot lunches. The applicants, data collected, and funding rates vary in each individual case. Here, as well, the experts replaced the former Excel-based process with Pega. A wizard now helps applicants to complete the forms, points out errors, and verifies compliance with the current regulations. As a result, the youth welfare office only receives correctly completed applications. All the data is provided digitally, while the complex calculations – based on the detailed descriptions – run automatically in the background.

For the public health office, an approval process for shipments of anesthetics that involved a variety of stakeholders was modeled. The challenge: when people who need to take powerful painkillers due to illness need to cross national borders (on vacation travel, for example), they require a certificate that states they are allowed to possess such drugs. Providing this certificate requires several stages of coordination between the doctor who prescribes the drug, the public health office that issues the certificate, and the public health officer who authenticates the document. The end result of the process is a printed certificate that is issued for a specific case (including time limitation). All preliminary steps in the process were mapped digitally. The different stakeholders were given their own online portals for their participation. With the exception of producing the final document and signing it with official seal, printing is no longer needed.

Business impact

"With these three examples, we have demonstrated how experts from their departments can develop and adapt digital processes independently – that is, internally – with a low-code platform," summarizes Marit Wagner from the digitalization administrative department. Her colleague Jesko-Alexander Zychski adds: "The key result: process owners were able to model even complex processes digitally in just a few days and even optimize these processes at the same time."

This gives the departments entirely new possibilities to create citizen-friendly processes and cut lead times significantly through optimization. In turn, this benefits applicants, citizens, organizations, and businesses. Last but not the least, administrative personnel benefit from a clear reduction in their workloads.

The successful collaboration during the hackathon not only underscored the innovative strength of the solutions, but also lasting support in the digitalization of municipal government administration. By identifying the potential of no-code/low-code solutions, T-Systems is helping to shorten lengthy projects and implement needs-based solutions effectively.

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