

Challenges and solutions of a citywide Student ID System for nine HEIs

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The Campuscard system is the result of a project of an alliance of nine colleges and universities in Berlin with the goal of replacing the local paper-based student ID of each institution with a modern, multifunctional standardized citywide card system. The system was introduced at the first universities in 2016 and has become with over 130 000 active cards one of the largest uniform student card systems in Europe.

This cooperation was established on the idea of creating an innovative and standardized solution for the HEIs in Berlin. An additional requirement was the cost effectiveness of the solution and the possibility to solve the card issuing with a minimal amount of workforce needed. This was achieved by creating a standardized card management system, which is built from ground up with compatibility and efficiency in mind. In addition, the workforce intensive card issuing was solved by using an innovative kiosk-based approach.

The main challenge remained however the integration and operation of a system of this scale in conjunction with the complex and vastly different business processes of the HEIs. The system is built around the first problem by making it possible to tailor it to the needs of the HEIs. This is aided by the use of an ETL based interface to the student information system and standardized REST interfaces between the devices and the card management. This method also makes it possible to extend the system and incorporate multiple card types, from student cards, which have been introduced, to employee and visitor cards. The security of the system is based on the compliance with ISO/IEC 14443 (NXP Semiconductors N.V., 2010) and the use of Mifare DESfire EV2 cards. This signifies that the security of the cards is on par with other comparable card based solutions. (Oswald & Paar, 2011)

A further challenge was the organization of the operation of a system of this scale. The system has not only 130 000 users but also is used at nine different institutions, each with their own business processes. The spatial distance between the HEIs poses an additional difficulty, which had to be taken into account for the management of the operation.

One of the major issues with large-scale citywide systems, which are used at multiple institutions, is the governance of the IT-processes. This large scope of the system had to be combined with a stable solution for the mission-critical implications of a system failure and the financial framework set out by the HEIs. (Kasulke, 2017)

This was solved with the establishment of a servicecenter as a staff position at the IT department of the Humboldt-Universität zu Berlin. This unit is responsible for the coordination, procurement, change management, incident management, software development and high-level support of the system for all HEIs. The low-level support is conducted by the institutions themselves, enabling a fast reaction time for support issues. This centralization however is only possible with high degree of

formalization of the processes. The seamless and efficient operation is enabled by the use of an IT-service management (ITSM) approach based on the ITIL v3 best practices. (van Bon, 2013). The main aspects of the ITSM which we use for the system operation is the service-level management, in particular the incident management and the change management. This is because of the structure of the Campuscard alliance and the frequent requirements of HEIs for modifications in the software components.

The change and incident management can be very challenging for such wide systems encompassing multiple units with vastly different business processes but using identical systems. The early problems with the management of the requested changes in the software was therefore the trigger to use an ITIL based practice.

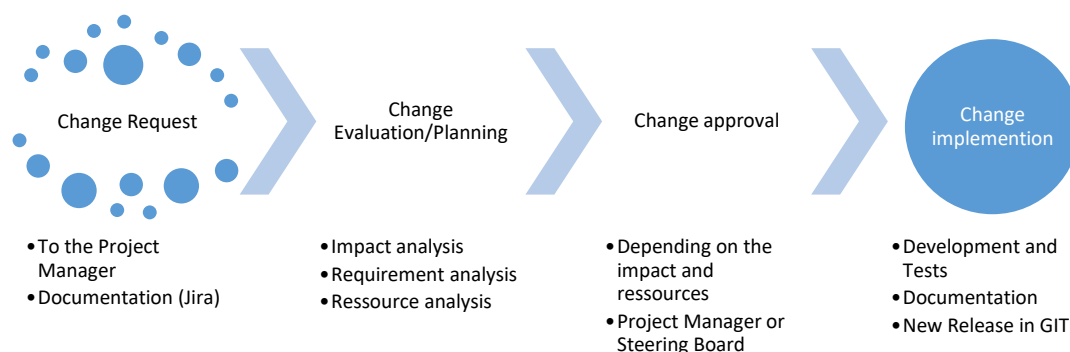


Figure 1: The change-management process

The processes are supported by the use of a software repository (GITLab) and a ticket system (Atlassian Jira) which enables the project managers of the HEIs to request changes and download the new releases. The ITSM-based processes have resulted in a relatively smooth governance of the system throughout the Campuscard network. Changes and improvements can be quickly introduced thereby adapting the system to changing requirements of the HEIs.

The integration of these best practices in addition to the innovative, kiosk-based card issuing process already in use created a highly advanced, effective and efficient card systems for over 130 000 users and nine universities and colleges in Berlin. (Molnar, 2016)

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