

Digital Identity for University People

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1. ABSTRACT

Identity management is a set of technologies and processes supporting identity information. Its adoption in Public Administration, in particular in the domain of university, maintains organization autonomy giving at the same time students and staff support to access the services that are delivered. In this paper, we present a project lead by University of Camerino with the Italian Banking Group UBI. The project consists in the issue of Enjoy my UniCam card allowing users to have, on a single physical card, several functionalities about facilitated banking account, university services and digital signature certificate. First results about the testing phase are presented.

2. INTRODUCTION

Over the time, managing personal identity on-line has become a serious issue. It has become increasingly important in terms of personal security, partly because organizations are now highly networked when it comes to information. Digital Identity (ID) is spread among different organizations. Small amounts of information cannot reveal enough about people to impact on us in a negative way but, when using the internet extensively, we can find several more information than expected [1]. So, depending on the context, person may be represented by different “partial identities”. For example, a person may use one or more partial identities for work and others in spare time, e.g., with the family, doing sports, or dealing with companies like a bank, an Internet service provider, or a supermarket [2] [3] [5].

The project is based on a prepaid card named “Enjoy”, that made possible the creation of a project led by University of Camerino (UniCam) in collaboration with the Italian Banking Group UBI and the Namirial Certification Authority. This initiative has also made possible the creation of a digital scenario “Enjoy Ecosystem”, resulting from a collaboration of five Italian universities and many UBI local branches. Aim of the paper is to present the UniCam experience in digital identity management. The goal is to create a card for students, faculty and administrative staff that allow you to have, on a single physical card, several functionalities such as bank services, academic services and digital signature, letting the owners to save time and increase their satisfaction toward the university. The “all-in-one” solution has been chosen to guarantee safety, privacy and trust. [6]

In order to complete the project, several issues have been addressed and solved. From the political point of view, the project is a valuable means of bringing innovation in UniCam. About the legal point of view, it also allowed the adoption of the Italian Digital Administration Code. For what concerns the organizational issues, an agreement was signed among UniCam, Italian Banking Group UBI and Namirial Certification Authority; it regulates terms and conditions in order to achieve the whole project objective. Finally, about the technical aspects, a new system was implemented. It is integrated with all the other existing infrastructures in the university, supporting different technologies. For instance, to set data flows among stakeholders, some web services have been implemented and SFTP (Secure Shell File Transfer Protocol) server has been integrated. Finally, from the administrative point of view, the use of Enjoy My UniCam card allows a remarkable simplification of the paperwork.[10]

Section 3 discusses the whole Enjoy my UniCam card project, with a deep description of actors, system architecture and processes. Section 4 describes the services available with Enjoy my UniCam card. Finally, Section 5 concludes the paper.

3. ENJOY MY UNICAM

3.1. Overview

Even if the paper focuses on the role of Enjoy My UniCam card, it is important to have a wider point of view considering the whole Enjoy My UniCam card project in Fig. 1. Every UniCam user can be identified and authenticated by the Enjoy My UniCam card. In this way, it is possible to benefit of the various services making available directly by UniCam. The basic idea allows establishing a trust federation, respecting the SAML 2.0 standard, between UniCam Identity Provider and IdP of other organizations. The infrastructure is based on Shibboleth: an open-source project that provides Single Sign-On capabilities and allows sites to make informed authorization decisions for individual access of protected on-line resources in a privacy-preserving manner. The Shibboleth software implements widely used federated identity standards, principally OA- SIS' Security Assertion Markup Language, to provide a federated single sign-on and attribute exchange framework. By doing so, users of an organization can use the services offered by the new federated organization and vice versa. All data are managed in full compliance with current privacy policies. Some personal information are exchanged between different actors.

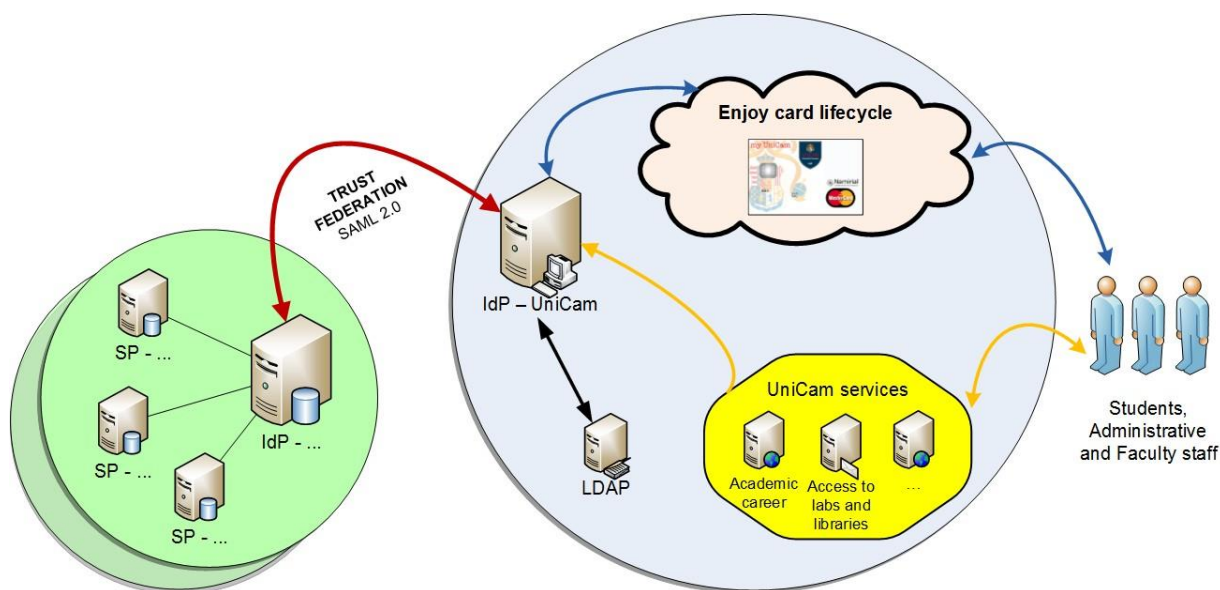


Figure 1 The whole Enjoy My UniCam card project.

3.2. Stakeholders

Following we sum up the main stakeholders involved in the project.

- University of Camerino is the services and cards provider, it manages control and data flow.
- UBI is a banking group which has a wide coverage, with about 1,800 branches,
- on the whole national territory. It assigns an International Bank Account Number (IBAN) to each person requesting Enjoy My UniCam card, offering its banking services. The group is also responsible for the emission of the card. About control and data flow management, UBI performs some operations in order to obtain and exchange data flows with UniCam and Oberthur.

- Oberthur is a company and it deals with the creation and issuance of personalized cards, according to the explicit applicant request and after obtaining the confirmation that the applicant has the right to get the card.
- Namirial Certification Authority is a computer company and web engineering that has found its own specific place in the field of IT and it is one of Certification Authority recognized by Italian Public Administration. In the project, Namirial is responsible for the issuance, management and termination of the digital signature certificates.

The stakeholders exchange information between their systems, according to the architecture represented in Fig. 2, where it is possible to see also the components diagram of the system.

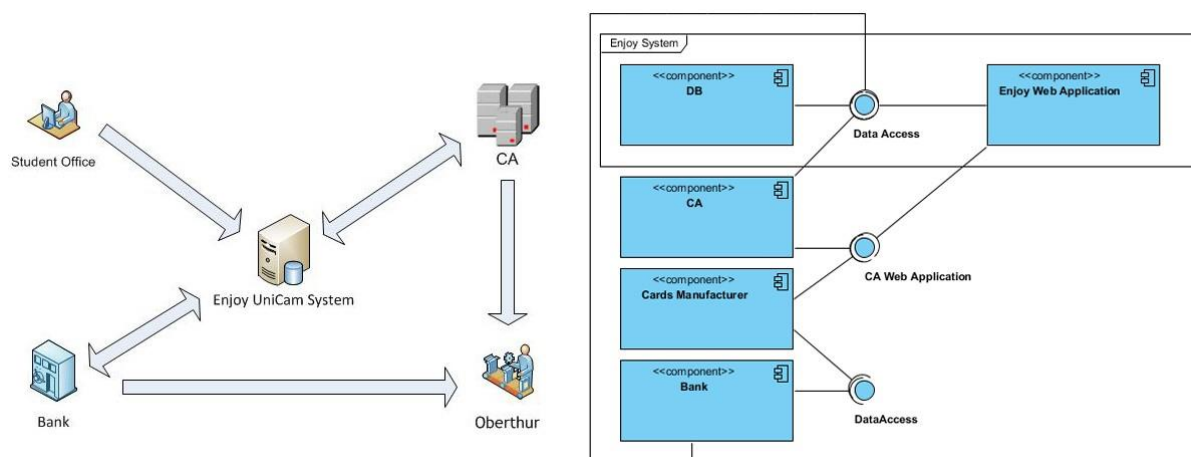


Figure 2 Enjoy My UniCam system architecture and component diagram

3.3. Implemented process

Following the main business process supported by Enjoy My UniCam, in Fig. 3 we provide the use cases diagram of every processes about the process to obtain the card.

Request of the card - Student Office. For the students interested in the Enjoy My UniCam initiative, Student Office collects the student data and their pictures to be used for the card production. During the registration phase, UniCam uses the Namirial web portal to insert the student data, which performs the necessary checks of formal correctness. Based on these data, Namirial produces digital signature certificates and makes them available to Oberthur. Finally, the Student Office issues a voucher to present to the bank, which proves to be eligible for the card request. UniCam and UBI recognize the voucher like an official document.

Request of the card - Bank branch. The student goes to a branch authorized to issue cards, presenting the voucher given to him/her by UniCam during request phase. The bank employee collects the voucher and performs the following tasks:

- Identification of the users and insertion his/her data in the system;
- Request of the card in the system;
- Ask the student to subscribe the necessary contracts;
- Notifies the student when approximately the card will be ready and that he/she will receive an envelope containing the Personal Identification Number (PIN) and the invitation to come to the branch to get the card.

Every day, via the SFTP server, UBI provides UniCam a file with a list of requests for cards issuance. UniCam acquires via SFTP the file, completes with the additional information and for each record includes a photograph to be printed on the card. According to UBI needs, UniCam adds in the photograph file properties the information about the fiscal code and the IBAN assigned to the holder.

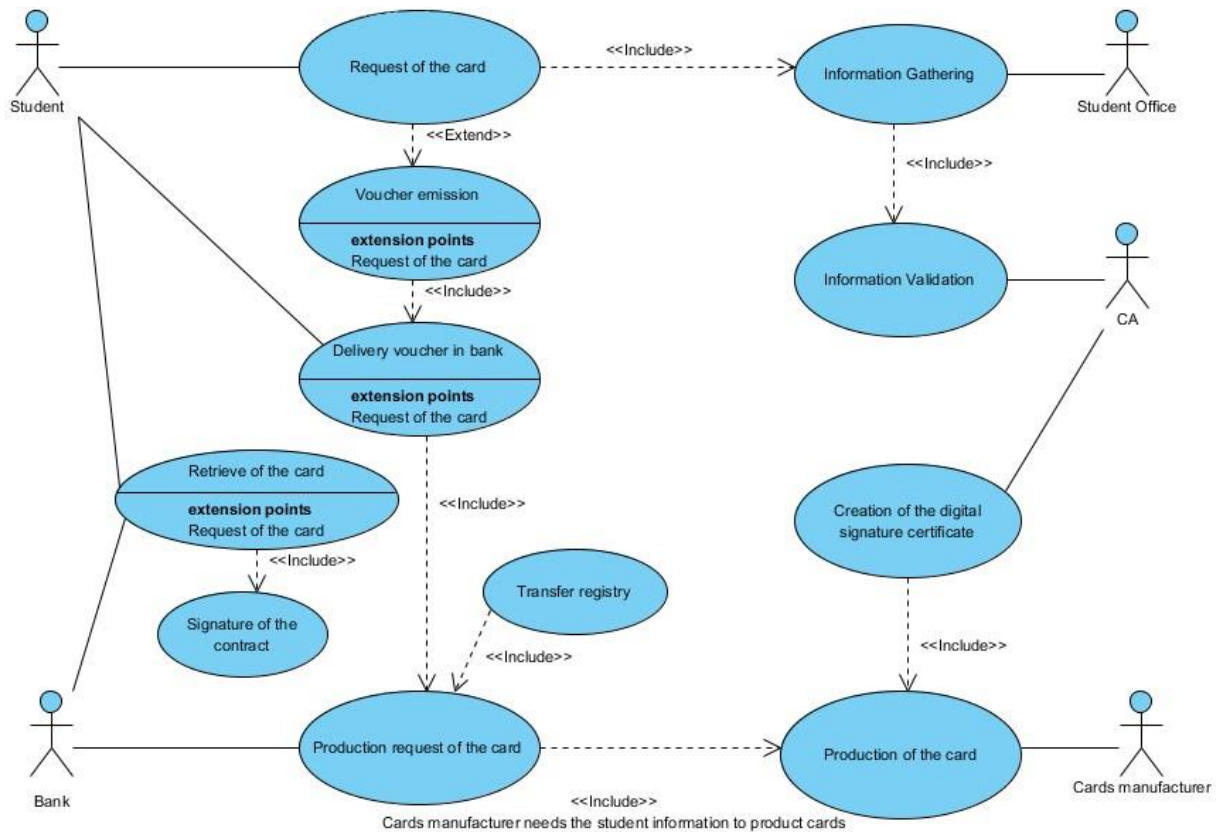


Figure 3 Use cases diagram about request, emission and delivery of the card.

Production of the card. UBI transmits the requests, the personal data necessary for the production of cards and photographs of the owners to Oberthur, which performs the following activities:

- Customization with UniCam logo, Namirial logo and photo of the owner;
- Insertion of digital signature certificates in the cards, which are available on the Namirial web portal.
- When the card is produced, on behalf of the UBI shipping office, Oberthur sends:
- The cards to the bank branches from which the request was made;
- The envelopes containing the PIN and the notification that the card is available in the bank, to the students' home address.

Activation of the digital signature certificate. The issuance process of digital signature certificates involves the following steps:

- Namirial concludes a LRA agreement (Local Registration Authority)¹ with UniCam for the issuance of signature devices;
- Namirial provides UniCam of its web portal, with which a UniCam application refers to validate the data of the applicant;

¹ An LRA (Local Registration Authority) is an agent of the Certifying Authority who collects the application forms for digital signature certificates and related documents, does the verification and approves or rejects the application based on the results of the verification process

- After the UniCam registration is complete and, data has been validated from Namirial web application, digital signature certificates are made available for Oberthur, without UBI participation;
- Oberthur loads the digital signature certificates on the cards, realizing the customization and sends them to the UBI branches.

Delivery of the card. When the card and PIN have been produced, the student receives at his/her home address the PIN and the invitation to go to the bank branch to receive the card. When the student is at the office, he/she was handed the envelope containing the card and the delivery device signature module. The student signs the module and UBI sends it via mail to Namirial. Every day Namirial will call a procedure to communicate to UniCam the information acquired. At this point Namirial sends directly to the students' home address PIN and Personal Unblocking Key (PUK) of the digital signature certificate.

Reissue of the card. In case of theft or loss of card, the student must:

- Request the freezing of money services in the way specified in the contract documents: that is calling the customer service or going directly to the bank branch;
- Request the freezing of digital signature certificate, as specified by Namirial in the documentation attached to the envelope containing PIN and PUK;
- Go to the Student office to request the release of a new voucher with which to present the replacement request of the card at the bank branch, in order to maintain the same IBAN;
- Go to the bank branch where the student originally requested the issuance of the first card, showing the new voucher. In this way, the replacement request is processed as a standard procedure for a new Enjoy My UniCam card.

The process then follows the normal process of issuing a card. The voucher is a prerequisite, without which the student cannot request the card. It's the only document obtained from the Student Office, certifying the students have the right to become cardholders.

Early extinction of the card. If a student loses the right to ownership of the card (e.g. in the case of drop-out), the Student office must inform the student that, before closing the relationship with the University, he must go to the bank branch to return the Enjoy My UniCam card, according to the usual banking regulations about the extinction of the cards.

4. SUPPORTED SERVICES

The card allows the students to have, in a single physical device, several functionalities, in different areas: bank and university services.

- **Bank services.** The card is technically a prepaid card with an associated IBAN. It is valid for 5 years and it has not fixed fee. It allows you to make the usual banking operations, with special facilitations, such as paying anywhere displaying the MasterCardTM symbol in Italy and abroad, making free withdrawals at every Bancomat cash machines in Italy, making and/or receiving transfers using home banking, paying bills and making RID payments and so on.
- **UniCam services.** The card allows the student to be recognized in UniCam facilities giving the possibility to access to laboratory and library, pay the meal at the canteen, register for exams, display and summary of the academic career, and require internships and thesis, enrollment to university sports center.
- As already mentioned, the card contains a digital signature certificate, with legal value, with which you can digitally sign documents. In order to use the UniCam services about the request of particular documents or, for example, to require thesis, it is possible to fill the document directly from your laptop and then, finally, sign it with digital signature certificate. In this way, the document will have official and legal value.

UniCam also participates in the IDEM Federation. So organizations in IDEM become Identity Provider: identities of own users can be exchanged, providing appropriate safeguards and always respecting the privacy of users [7][8][9]. With Enjoy my UniCam card, it will be possible, in every university or organization participating to IDEM, to access to any service available such as libraries, logging in in computer labs, connecting to universities Wi-Fi networks, which are often present in squares and public areas of faculties, and so on.

5. CONCLUSION

In this paper, we present the experience of the University of Camerino about the multi-services card. The adopted solution presents several advantages. On one hand, it avoids the possibility to have many and many cards to benefit different services. On the other, in term of identity federation it is part of community making advantages of related benefits.

Enjoy My UniCam card obtained good results during the testing phase, delivering over 2330 cards in the first 21 months. The waiting time between the request and the final delivery has been about 15 days, which is a nice result considering the processing. In the next future, UniCam is going to activate several more services such as paying photocopies, coffees or snacks at the vending machines and about public transport service aiming to build up a smart campus.

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