

# Bridge the gap: adopt legally-binding digital signatures to achieve end-to-end digital banking.

A fully digital customer experience thanks to the Swiss and European Union compliant signing solution - making the digital agreement process seamless and user-friendly

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## About AdNovum IT Consulting

AdNovum has been designing, implementing and maintaining high-quality software solutions for companies and authorities for almost 25 years. We impart the knowledge and experience gained from our projects to our customers in the form of advice. We provide manufacturer-independent and product-independent support for complex IT projects. Our range of services includes all solution levels, from technical questions to process design to IT strategy consultation.

Mobile Computing is one of the core areas of IT consulting services provided by AdNovum.

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## About the author



Leo Bolshanin joined AdNovum in 2017 after leaving the Security company he founded. He offers 15 years of proven track record in Cybersecurity and possesses solid experience in security consultancy, technology leadership, team and project management.

## Highlights

In addition to conventional communication with their Relationship Manager, customers look for a fully digital experience from their bank. When using client facing digital apps, they remain very sensitive to information security, but at the same time, they expect ease of use and quick execution.

In daily business, receiving a client's signature digitally in an efficient and legally binding way is still a challenge for both parties. Handwritten signatures remain the reality in today's banking interactions.

Following the revision of the Ordinance on the Electronic Signature which entered into effect in 2017 in Switzerland, this situation is changing for Swiss banks: the combination of the latest digital tools with the existing legal frameworks, makes it possible to introduce legally binding signatures in digital banking processes, and therefore to master and integrate this crucial step in your processes.

By leveraging this solution, banks can significantly optimize operations, increase compliance rates and reduce fraud risks while at the same time providing an enhanced digital experience to their clients with a potential for differentiation.

## Legal basis

In a globalized world, agreements and transactions are continually made between individuals, governments and companies at the national and trans-national levels.

In order to validate agreements in the digital world, regulators in places like the US, Switzerland or the European Union have created a legal base containing guidelines for the implementation of the Qualified Electronic Signature (QES).

Approved into law already in 2003 in Switzerland, the Federal law ZertES regulates conditions under which certification services with electronic signatures should be used. Among others, it introduces the concept of a Qualified Signature Service Provider and defines three main types of signatures: Simple, Advanced and Qualified.

In 2014, the European Union introduced eIDAS, the regulation which repealed the EU 1999/93/EC directive on the use of electronic signatures. eIDAS and ZertES are fundamentally serving the same purpose.

ZertEs defines a Qualified Signature Service Provider (hereafter "Signature Service Provider") which delivers customer identity certificates as well as proposes three types of signatures:

**Simple:** allow to create a verifiable link between the signed document/object and the key/certificate used to sign. Verify the authenticity and integrity of the signed document/object. However, there is no identification for the signature owner.

- **Advanced:** in addition to authenticity and integrity verification, this type of signature allows to uniquely identify the owner.
- **Qualified:** In addition to the features of advanced signatures, this signature is based on a qualified certificate, emitted by a recognized Signature Service Provider. This type of signature is legally binding and allows transactions to be handled completely digitally, removing the need to sign documents by hand. It is therefore equivalent to a handwritten signature.

While Advanced Electronic Signature is admitted as evidence in legal proceedings, the Qualified Electronic Signature is recognized to have the equivalent legal effect of a handwritten signature.

## Market trends

Public sector and private companies across many industries are embracing digital transformation. Governments are introducing electronic identities and e-portals to improve operations, offer more comfort and increase the security of services they offer citizens.

The banking sector is not an exception – the concept of a digital bank, softening the line between physical and digital worlds is emerging.

Organizations are choosing it in different flavors: either as a full-scale digital transformation, with the potential for the bank to become part of an open banking ecosystem, that may possibly lead to the creation of new revenue streams; or with an objective of digital optimization, including improvement of operations and unified customer communication across multiple channels (ex. web and mobile).

On the other hand, customers are demanding to access the banking and wealth management services in the same way across multiple channels and the usage of mobile devices is exploding.

## Technology drivers

As mentioned above, following recent regulation changes and technology advancements, including the hardware authentication, the banking sector is undergoing a profound transformation including the digitization of internal processes and modernization of customer facing applications. As part of this process, regulators are straightening compliance standards, pushing for more competition and innovation by introducing initiatives such as Open Banking or Open APIs.

At the same time, growth in the usage of mobile devices is accelerating. The security stack of leading mobile platforms is maturing, helping software creators to comply with financial regulations.

The wide adoption of biometric security on mobile devices (ex. fingerprint) allows to uniquely identify users and therefore reliably provide them with tailored banking services.

## Customer needs

Today, a large part of the customer base is looking for a fully digital experience across multiple channels. They want to communicate with their Relationship Manager but are not anymore willing to visit bank offices physically.

Of course, this user population can be split into groups according to communication channel preferences such as the web browser or the mobile phone, but in order to be efficient, the bank's digital offering must cover all mainstream channels.

Regarding remote access to banking services, mobile phones provide multiple advantages. Besides being convenient for younger people, mobile devices can store access keys in a hardware-protected trust zone and provide secure access to customers at any time and from everywhere. Therefore, in conjunction with a personal PIN or biometric data, they provide a strong user authentication mechanism, based on multiple factors, which can be used to uniquely identify the user. As we explained earlier, this is one of key regulatory requirements for the advanced and qualified signatures standards.

While staying highly sensitive to the information security, e-banking users are looking for convenience. Until recently, this sensitivity to security, prevented the mass adoption of mobile banking. With high-quality mobile e-banking implementations from major banks, tech savvy users will accept to switch to mobile banking.

Customers of most banking institutions in Switzerland still need to be physically present or at least to provide a handwritten signature on a contract, for example, during on-boarding processes as well as to confirm important agreements (ex. MiFID). The competitive advantage of digital on-boarding coupled with attractive currency exchange rates is currently exploited by Fintech digital-only banks to divert the clientele from well-established retail organizations.

It has become technologically possible for any organization to implement digital only experiences if customers are requesting them: no more physical presence nor handwritten signatures (for already on-boarded persons) required.

And, as consequence for the end-customer:

- Faster operations (on-boarding, agreement validation, multi-party agreements, etc.)
- Prefilled customer information in contracts.
- Increased transparency, better understanding and proper consent management (because the customer needs to scroll, read and acknowledge the contract on their digital device)
- Increased security as the signed document cannot be manipulated

## Bank needs

Digitalization in the banking sector could be a full-scale transformation of the business. Banking could fully pass into digital space with new revenue models, customer-centric approaches, leveraging of data analytics and other technologies. In its more moderate form, digital transformation in banking helps to optimize operations, reduce expenses and decorelate the revenue growth from the headcount.

However, in digitalization of the customer journey there is still a missing piece – handwritten signatures. Handling this process requires laborious manual work, customer physical presence and sometimes slow postal mailings.

By leveraging the solutions providing Qualified Digital Signatures available today, it is possible to unlock the following benefits:

- Reduce cost of operations
- Decorelate revenue growth from headcount
- Digitalize processes end-to-end
- Reduce the risk of fraud
- Stay compliant with legislation/regulation
- Differentiation through a fully digital banking experience
- KYC process handled by the bank (no third-party)
- On-premise solution allowing to the bank to manage their customer identity internally (no identity disclosure to third parties)
- White label solutions, fully integrable to the bank branded software

## How can AdNovum support you?

User acceptance determines the rate and speed of adoption of any technological solution. At AdNovum we are combining the latest mobile authentication technology with the Qualified Electronic Signature service from a Signature Service Provider (ex. All-in Signing Service from Swisscom), to achieve the optimal user experience.

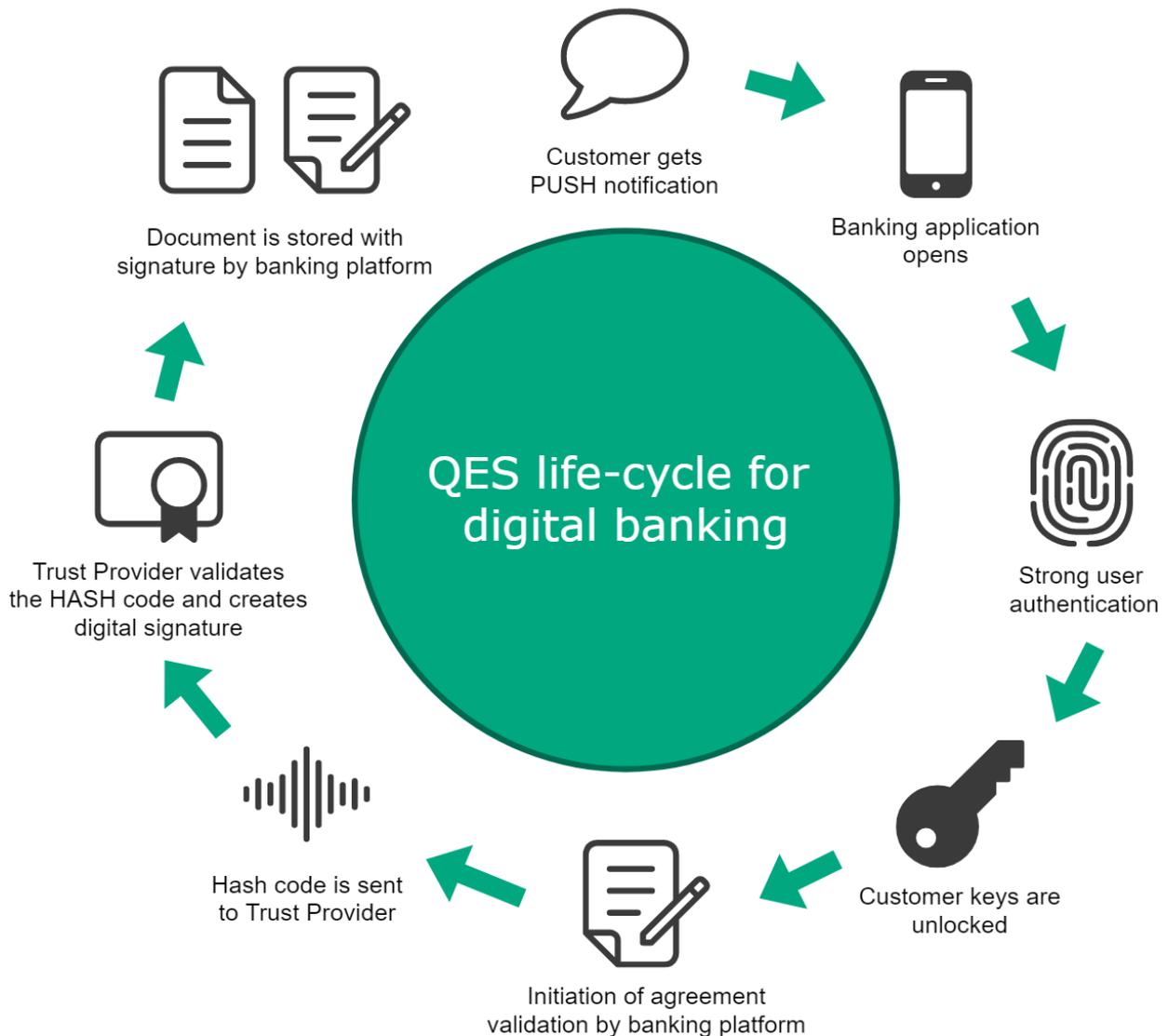
An important factor is that the solution can be seamlessly integrated into a bank's infrastructure including mobile and server applications. Moreover, it is deployed on-premise and therefore the KYC and onboarding process are held by your staff, without disclosing customer identities to cloud solution providers or other third-parties.

How it works in the case of a mobile user (it also works for the case of a web browser ebanking user, where the mobile app is used as a 2nd secure communication channel for agreement confirmation). As an example, the following use-cases may require a legally binding customer's agreement:

- a) New contract with the bank (loan agreement, mortgage documents, subscription to investment products)
- b) Confirmation of a large transaction to a new account
- c) Sign-up to additional banking services

For an already onboarded customer, the workflow of a digital agreement can be as follows:

1. The user receives a PUSH notification on his/her mobile phone.
2. By clicking on the notification, the user opens the bank's mobile application.
3. The application asks the user to confirm his agreement using his fingerprint or another strong authentication factor.
4. Using the customer's biometric information (ex. fingerprint), the mobile phone unlocks the user identity, stored on the phone and confirms the agreement (user's fingerprint is not stored on the phone, only its minutiae).
5. The banking platform receives the user agreement and initiates the legal signature validation process with the Signature Service Provider.
6. The banking platform produces and sends the HASH code of the agreement object (ex. contract, transaction) representing the agreement to the Signature Service Provider (without disclosing the content of the agreement itself).
7. The Signature Service Provider validates the HASH code by signing it with a certificate, generated on-the-fly using the provider CA and returns it to the banking platform.
8. The agreement object (ex. contract, transaction) is stored jointly with the certified HASH code and related timestamp at the bank to prove customer validation. It is equivalent to a handwritten signature by the customer.



The digital identity of the customer is defined using the internal bank procedure during the onboarding and is not disclosed to any third party. Same for the agreement object receiving the signature, only its HASH code is disclosed to the Signature Service Provider.

AdNovum's mobile authentication solution is already used by major Swiss financial institutions and proven to comply with Swiss financial sector regulations. The solution can be tailored to any bank's needs and includes the following modules that could be used independently:

SDK to be integrated into any bank's mobile applications

Mobile Access app with the bank's branding or a custom mobile application designed according to the bank's requirements

NEVIS Security Suite including the customer identity and access management and web security software

## Conclusions

By automating the agreement process, the technology of Qualified Electronic Signature allows the bank to complete the end-to-end digitalization cycle. In addition to bring clear operational,

compliance and risk management advantages, it makes the agreement process simple and fast from the end-customer's perspective.

It presents the following key advantages:

- Legally binding solution for Switzerland/EU
- Seamless integration into banking software
- Optimization of operations compared to handwritten signature
- Reduced risk of fraud
- Excellent customer experience (including FIDO support)
- High level of security, proven on multiple major deployments in the financial sector

**End-to-end digitalization is finally possible!**

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