Tieto Open Payment Ecosystem

In-store mobile payments

Nordic report

Matti Timonen, Siirto In-store working group lead
Table of contents

● Objectives of the report
● Executive summary
● State of mobile in-store payment in the nordics and Finland
  ○ Sweden (Swish)
  ○ Norway
  ○ Denmark
● What’s going on in the rest of the world
● Technology options - summary
● Siirto ecosystem input
● Fit to Finnish Siirto ecosystem analysis
● Schedule estimates for Siirto
● Release schedule and adoption
Objectives of the report

The report aims to provide enough information on nordic in-store mobile payment solutions to draw initial conclusions on their applicability and potential of success in the Finnish eco-system to help in the roadmap definition for Siirto in-store experience.
Executive summary

A fairly clear pattern can be seen for mobile payments introduction to in-store context across Scandinavia.

NFC has been basically left for EMV based credit card schemes, and mobile device manufacturers to play in. There seem to be too many cross talk issues, and with the mobile platforms denying full use of the technology, they actively prevent reaching the full market with an NFC solution. BLE for payments is still relatively new and has some issues. It is clear though, that after initial market entry with QR, BLE remains the clear technology choice for regional/national Nordic payment providers.

There are schedule and interoperability benefits to be gained by learning and collaborating with other Nordic payments services and market stakeholders.
State of mobile in-store payment in the nordics and Finland

Finland is slightly behind other nordic countries in market penetration of in-store mobile payment methods.

MobilePay has a small amount of in-store locations with the payment terminal extensions. MobilePay QR code solution does not seem actively marketed, although it’s functional in Finland as well.

Siirto was released as a consumer-to-consumer mobile payment solution in March 2017. Siirto platform by Automatia has included the support for for the PSPs to start launching Siirto payment services in eCommerce since June 12th 2017 and eCommerce functionality is expected from Siirto service providers in second half of 2017.

Siirto in-store eco-system working group was started in Spring 2017, and it aims to promote and pilot scalable in-store solutions for Siirto in agreement and collaboration with market stakeholders.

The report will cover other nordic countries separately in the following pages.
Swish is a shared mobile payment solution for Swedish banks. A single Swish app and service supports direct real-time bank account transactions between participating banks.

Swish in-store payment is handled with QR codes read by the consumer mobile client, and payment is made by the user as a transfer. Swish supports dynamic and static QR codes.

Swish QR codes, released just before summer 2017, have been received well in small/micro businesses due to their simplicity and low cost of implementing it in stores, although it is too early to tell if those will be a full success.

Swish is currently in a prototyping phase of a multi-vendor BLE payment terminal solution. Initial pilots should begin early 2018.

The benefits of QR code integration for Swish have been an easy app implementation and no changes required in the service.
Norway

Norway has two primary mobile payment platforms:

1) MobilePay, which supports in-store payments via a QR and a bluetooth box the same way as in Denmark, and

2) Vipps which currently does not have an in-store solution in traditional sense. Vipps supports micro/small stores with their VippsGO pre-order menu application, which is a bit similar to for example Wolt/Foodora app without delivery. Vipps has announced additional in-store solutions to be released in 2017, but details are not yet available.

BITS (Betalingsformidling Interoperabilitet Teknologi Sikkerhet) is driving BLE standardisation for payments in Norway and has invited other nordic countries to contribute in their working groups. BITS’s BLE approach is payment method independent, and focuses only on the pairing and data exchange standards.

The complexity in BLE pairing to ensure repeatable secure functionality in all environments and between all devices with a solid user experience is non-trivial. Location, cross frequencies, device, ble chip, terminal, phone movement etc. all alter the radio functionality.
Denmark

Denmark is clearly ahead of other nordic countries in mobile payments. MobilePay is the clear market leader with 3.5 million users, and 55,000 shops accepting the payment method.

MobilePay has enabled in-store payments with an external payment terminal attached MobilePay Box, manufactured by Netclearance Systems. The box supports for BLE, wifi, NFC and QR.

Dankort is second in market-share from mobile payment providers. Dankort in-store payment system is developed by Nets, and requires a Spire Payments manufactured external terminal attachment upgrade (NFC, BLE, QR). Dankort is based on credit/debit card network and on Android the mobile payment is based EMVCo NFC specs. IOS payments function over BLE.

It should be noted that both prevalent mobile payments solutions in Denmark are based on credit/debit card infrastructure, which differentiates them somewhat from Siirto real-time account transfer based platform.

User experience

The consumer currently has to open the payment application for BLE payments, as lock screen integration is not easy to achieve reliably.

Conveniently this demonstration of ‘Intent to Pay’ is also a trust increasing factor.
What’s going on in the rest of the world

In China two thirds of smartphone users use mobile payments regularly, most commonly with QR code based solutions. With 5 trillion euros in mobile payment annually China is considered the most advanced country in mobile payments.

AliPay, and TenPay have 90% of the market with a combined ~1 billion users in Asia. AliPay is also already accepted in Finland in multiple locations catering to Asian tourists.

Chinese service providers have three types of QR products

- customer scans static QR code,
- customer scans dynamic barcode
- merchant scans customer’s wallet QR

In all cases it is required that the user’s mobile phone has an active data connection.

Security of QR codes has been an issue in China. Service providers have been forced to create solutions to address them.

- Time limited QR codes
- Verified merchant program

EMVCo has published an international QR code standard for payments.
https://www.emvco.com/emv-technologies/qrcodes/
Technology options summary

When looking at the progress of Nordic countries mobile payment systems, a common pattern of progression can be seen.

1. C2C payments are enabled
2. eCommerce services are released
3. Initial in-store services are released with QR code support for a ‘customer scans’ scenario.
4. Integrations between custom BLE devices, terminals and POS systems are developed and in-store solutions are released with limited partnerships.
5. QR code usage is partially replaced with BLE usage as installation base grows. Not entirely, as the markets do not overlap in all scenarios.
6. QR codes also provide a fallback payment method in case of BLE related problems.

QR codes can meet a different market

QR codes provide some additional ways to receive payments, which are not possible with a BLE only approach. For example, merchants can use QR codes to receive payments online, on a billboard, in a magazine next to an add, at a temporary location such as a festival, a farmers market or a local sports match where payment terminals are not available.
Technology options summary

Vendors and service providers in all Nordic countries speak openly about the problems with current NFC and BLE based solutions.

- No common standards (BITS is trying to solve this by bringing participants to the same table, but it will take time)
- Multiple app payment installations causing app and payment method selection and prioritization problems. No control over OS functionality or changes.
- BLE pairing issues are common. Terminal, location, radio interference, mobile device differences, headphones used at the same time, all affect the success rate.
- NFC credit cards commonly stored in phone cases cause problems.
- NFC is not really seen as an option unless the payment infrastructure is card based as well.
- Amount of compatible payment terminals in the marketplace can be a major barrier for merchant adoption rate.
- Time to Market, based on other Nordic experiences, with a payment terminal integrated BLE solution is between 18-24 months.

Things do get smaller.

NetClearance’s latest BLE 5.0 device is a payment terminal PSAM slot upgrade.
Siirto ecosystem input

The Siirto in-store ecosystem has brought up suggestions, concerns, and success metrics for Siirto payment method in a store context.

What context should Siirto in-store target first and why?

- Launch Siirto in-store first in places where it spreads fastest
- Viral effect important / people can share experiences
- Building from person to person payments towards ecommerce and into micro merchants, followed by pilots with real in store payments
- Fast food chains and lunch cafeterias one option for first “in-store environment”
- Regular use, high number of transactions important factors
- Focus on places where there’s an actual user problem to solve, e.g.
  - places where to avoid queuing
  - or places where cash presents problems (no cash on payer, limited cash (change) with seller, cash handling security issues)
  - or places where payment terminals are not viable (cost, availability, signup process)
- Music festivals trials
- People would like to try out a new payment method in places where there’s no hurry, e.g. restaurant
- In supermarket people need to be familiar with the payment method
- For big merchants it is hard to make bets before the user base is there
- Experience should be similar enough to existing card payments for people to find it familiar

What would Siirto instore success look like to you?

- “Siirto would replace cash.”
- “Convenient, fast, reliable, safe and inexpensive way for both customer and merchant.”
- “15-20% of users using Siirto then we can call it a success.”
- “Below 10% of payment volumes means expenses are too high.”
- “Solve the problem from consumer perspective: “I forgot my wallet.”
- “Paying with Siirto is faster than paying by cash – a quicker payment experience.”

Notes from Siirto in-store eco-system WS #1
Fit to Finnish Siirto ecosystem analysis

The Siirto ecosystem is young and operating models are shaping. It would be beneficial for the ecosystem to do something relatively simple together in the beginning to allow PSP/PISP’s and merchants to learn how to work together.

Multiple Siirto app developers and in-store payment service providers need to have a common understanding of the payment flow and acceptance criteria. Certification and interoperability of the solutions is critical for a successful shared solution.

In Finland contactless payments are rapidly becoming common. Using a smartphone takes roughly the same time as using a card. Advantages for Siirto could be realised faster in scenarios that allow payments away from physical point of sale or payment terminal.

A full payment terminal integration requires a roll-out of compatible software and hardware. Consideration to make this as simple and cheap as possible is recommended to ensure market penetration in a relatively rapid schedule. A technology platform allowing integration and competition of multiple providers would likely be of benefit over the long term.

Think further, and don’t just compete with ‘contactless’

“The mobile payments experience of the future will let consumers check out seamlessly while providing additional benefits that they could not get by using their credit or debit card,”

Brendan Miller, Forrester Research
Schedule estimations for Siirto

It's important to remember that clear roadmap decisions and project initiation is required for any work to proceed. Ambiguity in the roadmap and indecisiveness are the greatest risks for any estimated schedules.

QR code solution development is fairly simple. The technology is standardised and required specification work is minor. The implementation required by the application teams is straightforward and low effort. Most of the effort is likely to be in non-technical materials such as branding guidelines, visuals, support materials for merchants, and marketing. The development and roll-out is estimated to take 6-9 months.

BLE solution development and roll out is substantially more difficult and time consuming. At minimum the following needs to be thought of: BLE technology partner evaluation and RFP process, UX specification, interoperability testing, piloting, merchant partnerships, Point-of-sale integrations, payment terminal sw/hw upgrade roll-outs and the non-technical materials. From the start of the project it is estimated - based on experience from other nordic countries - to take 18-24 months.
Release schedule and adoption

<table>
<thead>
<tr>
<th>Adoption rate</th>
<th>Time</th>
</tr>
</thead>
<tbody>
<tr>
<td>6-8 months to release QR based in-store experience</td>
<td>18-24 months to release a BLE in-store experience</td>
</tr>
<tr>
<td>Combined market penetration</td>
<td></td>
</tr>
<tr>
<td>BLE payment terminals, medium &amp; large retailers</td>
<td></td>
</tr>
<tr>
<td>QR, small &amp; micro businesses</td>
<td></td>
</tr>
</tbody>
</table>
Contacts

In-store working group lead:
Matti Timonen
Principal Solution Consultant, Business Consulting & Implementation

Email format: firstname.lastname@tieto.com