

**CASE STUDY****Bankgirot: Delivering Mobile Phone Payments in Real-Time**

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**Gunnar Ölundh**  
Vice President and Director of  
Infrastructure, Bankgirot

**( THE FUTURE OF  
FINANCE IS OPEN**



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## Products

- Fusion Global PAYplus



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Vice President and Director of Infrastructure, Bankgirot

Sweden is proud of its long history of innovation. Safety matches, pacemakers and car seatbelts are just some of its many inventions. Sweden was the first country in Europe to introduce banknotes in 1661. Now it has taken another pioneering step—this time towards eliminating cash from daily life. A new electronic payment system allows people to transfer money to each other’s bank accounts in an instant using their mobile phones.

The mobile phone payment system, called Swish, is operated by Bankgirot and owned by six of Sweden’s largest banks. Introduced in December 2012, the system runs 24 hours a day, 365 days-a-year and is already hugely popular for person-to-person transactions.

The payment fundamental to its operation is an innovative real-time clearing and settlement platform called PRT (Payment in Realtime) developed by Bankgirot, the country’s mass payment clearing house.

Founded in 1959, Bankgirot is owned by a consortium of leading local banks, and has a long-standing working relationship with Riksbanken, Sweden’s central bank. Although Bankgirot’s original overnight batch processing technology served it well, by 2009 there was a growing demand in Sweden for a faster personal payment mechanism. With countries in Europe and elsewhere moving towards intra-day payments, Bankgirot set out to create an ambitious real-time payments infrastructure for its bank members that they in turn could use to offer high performance services to their end user customers.

In collaboration with its bank members, Bankgirot drew up a blueprint for the new infrastructure, PRT. The use of technological standards, a high performance architecture and flexibility of functionality were crucial to the design. Specifically, the blueprint called for the use of the international financial messaging standard ISO 20022, and compatibility with the existing communication infrastructure between Bankgirot and its member banks. The architecture had to support real-time processing of transactions and 24/7, 365 days-a-year operation. Furthermore, the infrastructure had to handle any payment channel and currency with no amount limits. Last but not least, the system had to operate in such a way as to ensure that there would be no credit or settlement risk between participants, and that settlement would be irrevocable.

To provide a core processing engine that would meet these demanding requirements, Bankgirot chose Fusion Global PAYplus, which is used by close to 40 leading global and regional banks around the world. The most recent version of the solution offered an adaptable service-oriented architecture with full ISO 20022 compliance. The customization of the system for the PRT had already started when a further challenge emerged in 2011.



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Bankgirot decided that the first service to be implemented on the platform should be mobile phone payments. This appeared something of a gamble because of the high public exposure of a mobile service compared with piloting the technology on a lower profile service such as inter-bank transactions. However, at that time two other organizations in Sweden announced their intention to launch mobile phone payments services, which influenced the change in direction.

“Given the competitive pressure, our member banks realized that they would have to be more aggressive in time-to-market for their mobile phone payments service, as well as the extent to which they marketed it before the launch,” says Gunnar Ölundh, Vice President and Director Infrastructure at Bankgirot. The banks began an extensive campaign to promote the service and the pressure was on to bring the project in on a tight deadline.

While the customization efforts of Fusion Global PAYplus intensified, Bankgirot worked on creating what Ölundh calls ‘the ecosystem’ around PRT that would allow it to operate mobile phone and other payment services in near real-time. The problem it faced was that member banks required the Swish service to run 24/7, 365 days-a-year; in other words, beyond the business hours of the real-time gross settlement (RTGS) system of the Riksbank. In addition, the banks had to avoid any credit or settlement risk in operating the service.

The solution Bankgirot came up with in consultation with the Riksbank and its members was for the banks to guarantee their out-of-hours payments activities by depositing covering funds into Riksbank before the central bank’s end-of-day, weekend or holiday closing. The level of funds would be set in agreement with the central bank, with limits for exposure for each out-of-hours period. The PRT system would monitor the limits and block transactions from any bank that attempted to make payments beyond the limits of its covering funds.

To use Swish, individuals must have a personal bank account at one of the participating banks and must download the Swish app to their mobile phone. By registering for the service, the user links their mobile phone number to their bank account, which then becomes the only identifier that the system requires for the user to initiate a transaction. (One of the custom functions that was specifically created for the PRT, was the ability to create an alias—in this case, the mobile phone number—for an IBAN bank account number.) To make a payment, the user simply keys the amount into the Swish app, along with the payee’s mobile phone number. In the background, the PRT system checks that the payer has the required funds in their account, and that its bank is within its authorized limits; it then carries out the transaction. This all happens in an instant; the payee typically gets confirmation of the receipt of the payment within 1 to 2 seconds.

Swedes have taken enthusiastically to the new service, with 850,000 users adopting it and transacting payments to the value of SEK 1.3 billion by October 2013.

Popular uses are for private purchases, such as buying a bicycle or pair of skis from another person, or for sharing the bill at restaurants—friends can instantly transfer an amount equivalent to their portion of the cost to whoever pays the bill. Parents can also use Swish to quickly transfer funds to their children’s accounts if they find themselves short of money.

The launch of Swish has been a very public test of the PRT platform in terms of robustness, reliability and scalability, and it has passed with flying colors. PRT was designed from the start to support multiple channels and services, and further exploitation of the platform will follow. Bankgirot and its member banks have agreed to a roadmap for the future and are working on the development of further services, says Ölundh.

The real-time PRT system with its tailored Fusion Global PAYplus processing engine is at the heart of the service, but the surrounding ecosystem is also important, says Ölundh. The buy-in of the central bank, as well as the participating banks, to the overall design of the infrastructure and mechanisms for managing credit and settlement risk, is essential for enabling instant payment services such as Swish, he says.

The service is available 24/7 all year round, and there is no credit or settlement risk for any party. That is as close to cash as you can get.



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The development of PRT has been very important for Bankgirot, as well as its member institutions. Bankgirot has provided a unique infrastructure for its partner banks and cemented its role in Sweden’s financial sector. “PRT gives us all new opportunities. The banks are able to launch new products and services and Bankgirot can expand the role that it plays with its members,” says Ölundh. “We expect there will be significant new business generated based on this technology.”

Sweden has once again proved itself an innovator. Many countries around the world have implemented or are developing faster payment systems, but many are still relying on batch cycle processing or are limited to central bank business hours.

Also, there are many immediate payment systems round the world; but these are often based on credit cards and therefore carry credit risk. Swish, based on PRT, is distinguished by the fact that payments are instantaneous, the service is available 24/7 all year round, and there is no credit or settlement risk for any party. That is as close to cash as you can get.

[bankgirot.se](http://bankgirot.se)

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