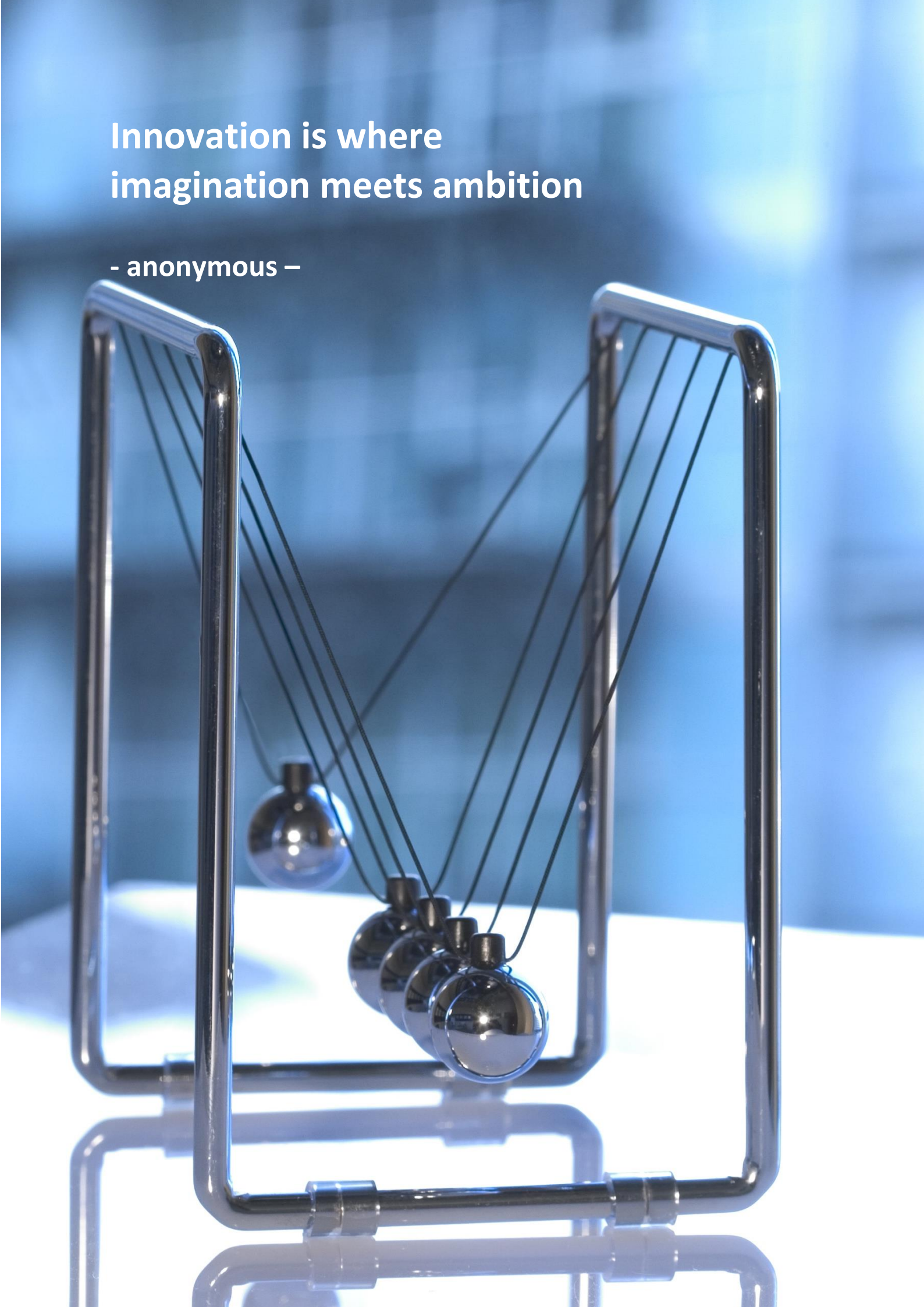
Position Paper
Centrale Bank van Aruba

Enabling Instant Payment Innovations in Aruba

FINAL VERSION


Innovation is where
imagination meets ambition
- anonymous –

Contents

1. Purpose

History

During the period 1994 - 2020, the Centrale Bank van Aruba (CBA) operated a clearing and settlement system. The system was launched as Goldnet Clearing System and later renamed OnNet Clearing system (ONCS). However, the need to switch to a new, faster, and more secure payment infrastructure was becoming more and more essential and pivotal to the financial stability and economic development of Aruba.

In 2016, the CBA published its strategic plan 'Bela Yen, Nos Plan Strategico'. This 5-year strategic plan aimed, among other things, to modernize the payment infrastructure in Aruba to enhance its efficiency, reliability, and security. The first step towards this goal was to conduct a Fact-Finding Mission together with De Nederlandsche Bank in November 2016. The mission resulted in a clear set of items to be improved in order to achieve the goals set in Bela Yen.

In November 2017, the CBA published its first position paper, "Roadmap towards a modern payment infrastructure in Aruba", describing the way to achieve the ambitions set forth in Bela Yen.

I-Pago – Instant payments in Aruba

As part of its roadmap, the CBA reached a significant milestone in January of 2020 with the implementation of the Instant Payment infrastructure named I-Pago. I-Pago is accessible to all commercial banks in Aruba. All interbank payments for account-to-account[1] transfers initiated in Aruban florin can now be processed instantly, 24/7/365. I-Pago is based on industry standards and has the potential to be used as a single solution for account-to-account transfers.

Further modernization

Having implemented I-Pago, the CBA is ready to embark on the next phase of this project and benefit optimally from the I-Pago infrastructure by building new use cases utilizing this infrastructure.

In the next phase of this project, we will define and implement the use cases that can bring the most benefits to Aruba and further improve the payment experience (fast, secure, cost-efficient, practical, and simple) in Aruban florins (Afl.) for both sides of the transaction, namely, the merchants and the end-customers. To this end, the CBA has produced this second Position Paper, "Enabling Instant Payment Innovation in Aruba", which combines the ambition and vision of the CBA to further modernize the domestic payments infrastructure, the merchant and end-customer requirements, and the successful payment systems and innovations implemented across the globe.

This Position Paper outlines the current state of the (instant) payments landscape in Aruba, the current challenges, and how these challenges are addressed in the defined potential use cases. It also presents a timeline for the implementation of the mentioned use cases and concludes with an outlook towards the future.

[1] Account-to-account (A2A) transfers are transfers from a bank account into another bank account. A2A transfers are commonly initiated through the consumer's Internet banking service, a biller's payment website, or telephone instruction from the consumer. Source: thefreelibrary.com


AÑO
1929

2. Vision and Ambitions of the Centrale Bank van Aruba

In its previous Position Paper titled "Roadmap towards a modern payment infrastructure in Aruba"[2] published in 2017, the CBA defined three high-level ambitions with the aim of improving the payment experience (see Table 1).

With the launch of I-Pago, the CBA has taken the first steps toward becoming a frontrunner in the Caribbean (ambition #1) by allowing all stakeholders to benefit from a modernized payment system (ambition #2).

This Position Paper "Enabling Instant Payment Innovations in Aruba" focuses on capitalizing on these developments and proposes valuable use cases that can be built on top of the I-Pago infrastructure. These new use cases will strengthen the position of the Aruban payment infrastructure as a leader in the Caribbean.

The third ambition of the CBA is related to the oversight role and not to the modernization project. Therefore, this ambition is not included in the scope of this document.

Table 1:

Three high-level ambitions of the CBA with respect to improving the payment experience

1	**Leapfrog the state of Aruba's payment infrastructure** The ambition set by the CBA is to upgrade the Aruban payment infrastructure and to leapfrog it into a Caribbean frontrunner.
2	**Beneficial to all stakeholders** All stakeholders/users of the Aruban payment infrastructure must benefit from the modernized payment system.
3	**CBA has an oversight role** The CBA plans to reduce its current operational responsibilities with regard to the clearing system and in exchange will take on an oversight role of the modernized payment system.

[2] https://www.cbaruba.org/cba/readBlob.do?id=4248

"The gales of creative disruption are upon us. And it is up to us, every single one of us, as captains, as a community, and as a country to rise to the occasion and seize the opportunities. Do not be riddled by the winds of ambiguity, but rather, ride the waves of digital transformation innovatively, and with integrity, I will add."

Jeanette R. Semeleer, President of the Central Bank of Aruba

Second annual CBA conference on Regulatory Technologies & The Future of Digital Transformation
Aruba, November 3, 2017

3. Current State of Payments in Aruba

In general, payments can be divided into different categories of use cases based on the profile of the sender and the receiver (person, business, or government), and the place of the transaction (proximity versus remote[3]) (see Table 2).

Table 2

Payment Use Cases

		Receiver		
		Person	Business	Government
Sender	Person	Proximity 1. Person-to-Person payments Remote 1. Person-to-Person payments	Proximity 2. In-Store payments Remote 3. E-Commerce payments 4. Bill payments 5. Recurring payments	Proximity 6. Taxes/Fines payments Remote 6. Taxes/Fines payments
	Business	Proximity 7. Store Refunds Remote 8. Salary/Pension payments	Proximity 2. In-Store payments Remote 4. Bill payments 5. Recurring payments	Proximity 6. Taxes/Fines payments Remote 6. Taxes/Fines payments
	Government	Remote 8. Salary/Pension payments Welfare, Government incentive or Tax returns	Remote 4. Bill payments 5. Recurring payments 8. Government incentive or Tax returns	Remote 9. Internal payments

Table 2 identifies 9 main use cases: 1. Person-to-Person payments, 2. In-Store payments, 3. E-Commerce payments, 4. Bill payments, 5. Recurring payments, 6. Taxes/fines payments, 7. Store refund, 8. Salary/Pension payments, Welfare, Government incentive or Tax returns, and 9. Internal payments. All of these use cases are currently available in Aruba and are facilitated by the current payment infrastructure, including I-Pago. However, not all are executed in the most effective and efficient way possible. Please note that use case 9 is not included in the scope of this document because it relates to internal government payments.

The I-Pago infrastructure already has improved the speed, reliability, and security of several of the use cases mentioned in Table 2. Furthermore, it also has made it easier to manage funds and reduce the number of late payments. The following sections will elaborate on the current payment methods used for each of the use cases already available in Aruba.

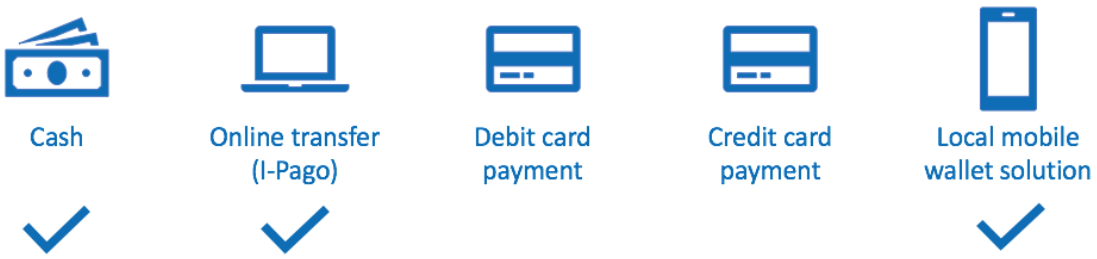
[3] Proximity payments are payments for which the sender and receiver are in close contact, for example, card and cash payments in a store. Remote payments are payments where a physical distance exists between the sender and receiver, for example, when paying a bill or making an online purchase.

3.1 Use Case 1: Person-to-Person payment

Sharing a restaurant bill, giving your kids pocket money, and paying the babysitter are examples of Person-to-Person payments**.** The traditional payment method for the Person-to-Person use case is the delivery of goods and services in exchange for cash (use case 1).

However, the increased acceptance of online and mobile banking has paved the way for greater use of the Person-to-Person use case. With the introduction of Instant Payments in Aruba, every account holder is able to send and receive a transfer of funds (in Aruban florins) within a few seconds, which is comparable to the speed and ease of using cash.

Alternatively, in Aruba, Person-to-Person payments also are possible with a local mobile wallet solution, which enables mobile payments between registered customers. Users have to maintain a balance on the wallet (maximum Afl. 350) from which they can make and receive payments to/from other users, through the use of Quick Response (QR) codes.



3.2 Use Case 2: In-Store payments

In Aruba, the most common payment methods for In-Store payments are the use of a card (credit/debit) and cash. All commercial banks issue debit and credit cards and distribute their own Point of Sale (PoS) terminals. In the current state, usage of a bank card with another bank's terminal may result in additional fees for the merchants and/or customers.

In addition, PoS terminals often are not integrated into cashiers' systems, resulting in reconciliation issues. Reconciliation of the payment received with the corresponding amount due has to be done manually by the cashier clerk, which is time consuming and can lead to human errors.

Furthermore, since the funds are not instantly available on the bank accounts of the merchants when using PoS terminals, these merchants may experience cashflow difficulties.

With I-Pago it currently is possible to pay for purchases In-Store, albeit a somewhat cumbersome process, by initiating an account-to-account transfer. The payment experience can be improved by making it easier, for example, by alleviating the need for the customer to type in the payment details of the merchant by using Near Field Communication (NFC) or QR codes.

The local mobile wallet solution is an additional payment method for In-Store payments, as several stores in Aruba are affiliated with the local mobile wallet solution. The same limitations for the Person-to-Person use case described above apply here as well. In addition, because of the limit of the wallet, only relatively small purchases can be made using this method of payment.

3.3 Use Case 3: E-Commerce payments

Buying a product on a website or mobile app is an example of web/E-Commerce payments. Payment methods used for those purchases in Aruba are, among others, cash-on-delivery, card payments (credit and debit) upon delivery, and web payments with credit cards and/or online transfers. Similar to the In-Store payment, an instant account-to-account transfer (online transfer) can be used to pay for goods or services online, but this online transfer is not very consumer friendly as users currently have to type in the payment details of the merchant to initiate the transfer.

3.4 Use Case 4: Bill payment and Use Case 6: Taxes/fines payment

The Bill payment and Taxes/Fines payment use case can be found in several quadrants of the use case table (Table 2), specifically in the Person-to-Business, Person-to-Government, Business-to-Business, and Business-to-Government quadrants. Considering that the payment methods used for these use cases are the same we will elaborate further on these use cases simultaneously.

The most commonly used payment methods for these use cases are cash, credit cards, debit cards, and account-to-account transfers (in Afl.).

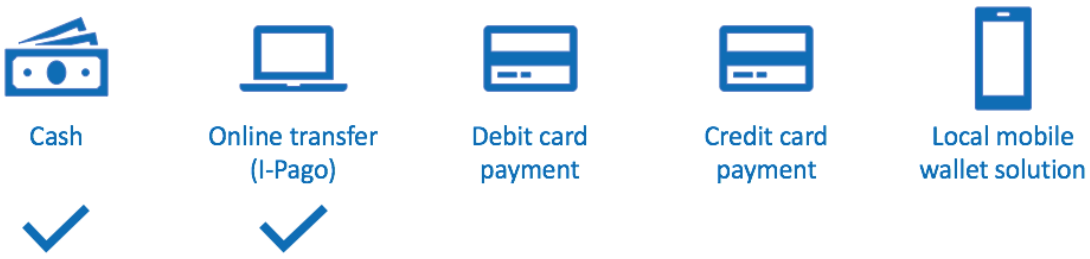
Stakeholders have indicated that the increased speed of the account-to-account transfer via I-Pago has been noticed and is appreciated. However, stakeholders have not indicated an improvement in reconciliation rates, despite moving to the industry messaging standard ISO20022. To fully benefit from the move to the industry standard, further standardization of process should be pursued, for example, the use of transaction codes or error messages.

3.5 Use Case 5: Recurring payments

The Recurring Payments use case is utilized for frequent transactions, such as payments of rent, subscriptions, energy and (mobile) telephone bills. Currently in Aruba, this use case is done via a regular account-to-account transfer, Direct Debit, or with cash.

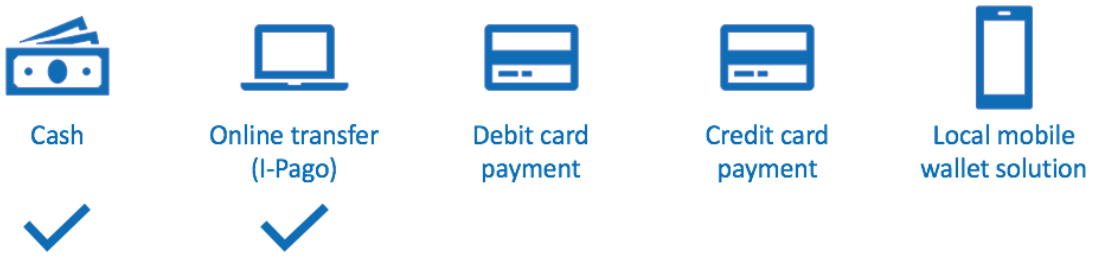
The introduction of I-Pago has improved the speed of the account-to-account transfer, but not the payment experience, as the Originator still needs to fill in the payment details of the merchant in the case of a regular transfer, set up a standing order or give consent in the form of a Power of Attorney.

Similar to the Bill Payment and Taxes/Fines Payment use case, the I-Pago infrastructure can be used to enhance the Recurring Payments use case. The Request-to-Pay functionality, for example, increases the control the Originator has over his/her bank account by actively providing approval for the recurring payments through the online/mobile banking environment.



3.6 Use Case 7: Store refund

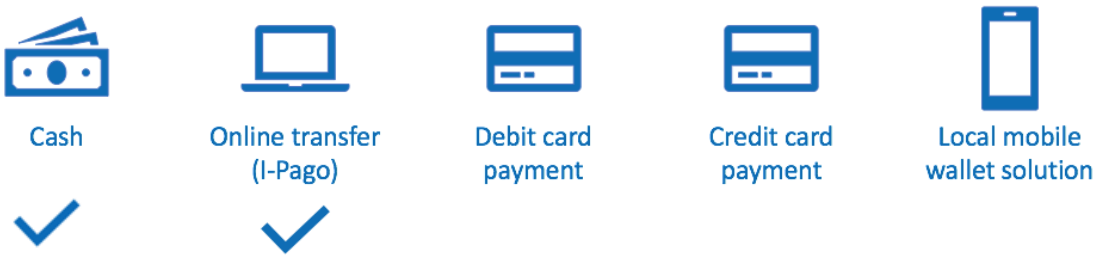
The Store refund is a use case where an original transaction needs to be reversed. If no reference to the original transaction is required, the regular bank transfer method can be used or via cash. However, if a link to the original payment is required, the I-Pago infrastructure can be enhanced to support the initiation of refunds, where the (original) Beneficiary uses the reference of the original transaction to initiate a refund, which will effectively reverse the original transaction.



3.7 Use Case 8: Salary/pension payments, welfare, government incentive, or tax returns

Government incentive payouts, tax returns, and salary & pension payments also were improved with the introduction of I-Pago. Funds are now instantly on the account of the recipient.

Currently, I-Pago also supports an instant batch payment scheme (BPA). The BPA is used, for example, by businesses and government entities for salary, pension, welfare payments, and tax refunds. However, some people still get their salary/payments in cash. The I-Pago infrastructure can be enhanced to include a more effective and efficient solution for this use case.



4. Ideal State

While all the use cases presented in Chapter 3 are already available in Aruba, we are certainly not benefitting optimally from all the possibilities and technological opportunities available to enhance the payment experience for both the merchant and end-customer (fast, secure, cost-efficient, practical, and simple).

The market feedback received from the respondents (as described in 4.1), the ambition and vision of the CBA (as described in 4.2), the merchant and end-customer requirements (as described in, respectively, 4.3 and 4.4) and the successful payment systems and innovations implemented across the globe (as described in 4.5) have been taken into consideration to determine the ideal payment state for Aruba. The use cases having the most benefits are identified and explored further in Chapter 6.

4.1 Market feedback

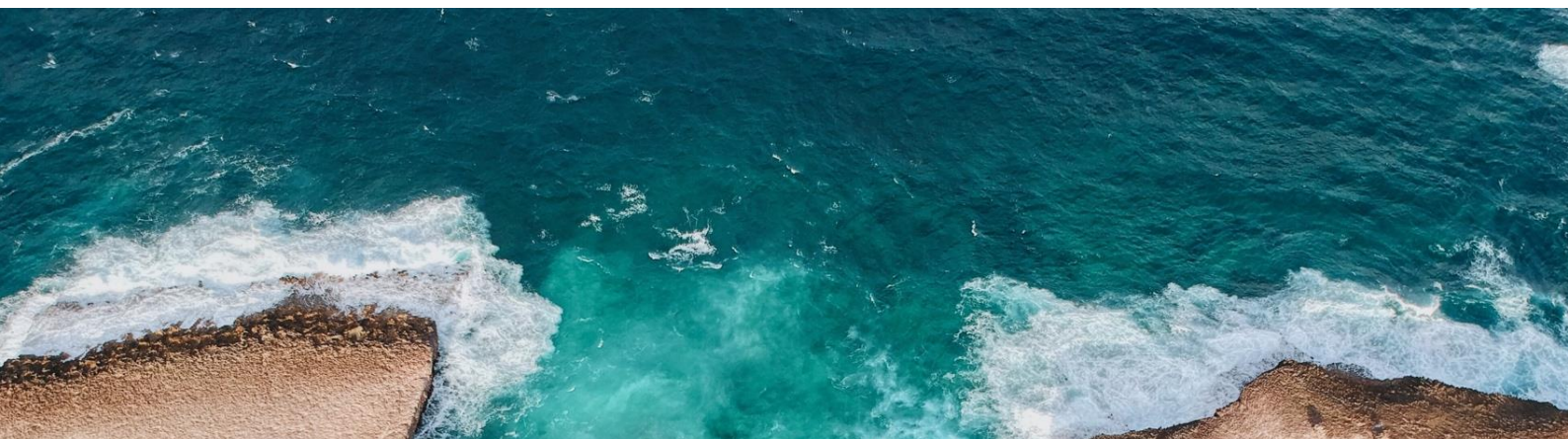
In 2016, the CBA interviewed several stakeholders (e.g. government entities, umbrella organizations representing the retail sector etc.) to assess their needs and requirements with regard to the domestic payment infrastructure. Subsequently, in 2020, the CBA conducted a follow-up survey to assess the interviewees' experience with the implementation of I-Pago and their needs and requirements for the further modernization of the payment landscape. The overall opinion of the respondents was that the move to Instant Payments via I-Pago is a significant improvement of the payment experience and a solid foundation for additional use cases, such as E-Commerce payments and In-Store payments.

Additionally, the CBA also conducted a survey among the commercial banks in 2020 with regard to the cards' infrastructure. The respondents indicated that efficient In-Store and E-Commerce payments are needed in Aruba. NFC technology and the sharing of a payment link were identified as potential technologies to improve the exchange of information between the Originator and the Beneficiary.

The general sentiment of the respondents was that the payment infrastructure is fragmented and inefficient. These observations were particularly cited in two use cases: the In-Store use case and the E-Commerce use case. In addition, the respondents strongly encouraged settlement in the local currency because settlement in foreign currencies invokes additional costs.

4.2 Ambition and vision of the CBA

The first ambition set by the CBA was to upgrade the domestic payment infrastructure, which was accomplished with the implementation of I-Pago. CBA will focus next on the second ambition, and that is to ensure that all stakeholders/users of the Aruban payment infrastructure will benefit from the modernized payment system. Therefore, implementing new use cases on top of the I-Pago infrastructure, increasing the awareness of new technologies available, and promoting the adoption of the use cases is now one of the several priorities of the CBA. These new use cases will promote Aruba's payment infrastructure as leading in the Caribbean.



4.3 Merchant requirements

Studies[4] show that merchants typically have 4 main requirements for accepting payment methods.

1. Payment Guarantee

The merchant's priority, especially at the point of sale, is to ensure the payment is guaranteed. With I-Pago, for example, the funds are transferred instantly and are irrevocable.

2. Checkout Time

Accelerating check-out time is a key goal for many merchants. Debit card payments have one of the shortest check-out times of all payment types, and with the recent addition of NFC and "tap-and-go" payments, this method has become even faster.

3. Cost

The current cost-effectiveness of the card infrastructure in Aruba needs upgrading, as indicated by the stakeholders in the survey.

4. Availability of Funds

The prompt availability of funds is an important factor for merchants, and one in which Instant Payments (e.g., I-Pago) obviously has an advantage over cards.[5]

4.4 Customer requirements

The customer selects a payment method based on a different set of requirements from the merchant's. The customer generally chooses the most convenient channel (e.g., card, mobile, NFC, QR code) to initiate and complete the transaction. In general, customers have three priorities.

1. Trust and Security

Customers always use a payment method that they can trust and feel is secure. According to a study carried out by the Baymard Institute, almost one-fifth of all abandoned online checkouts are a result of customers not trusting a website with payment information.[6]

2. Cost and Transparency

The payment method needs to be low cost, and the costs associated with the method of payment need to be known up-front and should be transparent.

3. Convenience

Initiating a card transaction should be a quick and convenient process that is generally known and familiar. Initiating an Instant Payment In-Store is not yet as familiar as cards and/or cash payments. In most cases, the merchants accept cash and cards (debit/credit). Until all merchants accept methods of Instant Payments, customers will still need to resort to cash and/or a card (debit/credit) on occasion.

[4] https://www.oliverwyman.com/content/dam/oliver-wyman/v2/publications/2018/july/making-payments-work-for-you-2018.pdf

[5] https://www.paymentscardsandmobile.com/instant-payments-at-pos-overcoming-customer-and-merchant-barriers/

[6] https://baymard.com/checkout-usability

4.5 Payment trends across the globe

Fifty-six countries now have a live real-time payments scheme, compared to 14 just six years ago. In one year, six countries more than doubled their real-time payments volume, and four others more than doubled the value transacted on their real-time payment systems.[7]

Payment speed has increased, as well as the payment use cases onboarded onto the Instant Payments rails. The use cases have expanded beyond Person-to-Person payments and are now increasingly covering more complex use cases, such as bill payments, E-Commerce payments, and In-Store payments. Leading the innovation in Instant Payments are the implementations of Swish in Sweden, MobilePay in Denmark, and Paym in the UK.

swish

Swish is the leading digital payment solution in Sweden, with over 6.9 million people using the service, facilitating mobile transactions between both individuals and businesses through a cooperation between some of the largest banks operating within the country.

Bankgirot is supplying the infrastructure for Swish in the form of BiR, the instant payment rails in Sweden. The solution supports various use cases and overlay services, such as Request to Pay, an alias service, and real-time payments at the PoS.

MobilePay

MobilePay is a payments app that makes transferring money easier. With 5.7 million users, it supports a variety of situations, such as gift giving, arranging joint gifts, sharing dinner and splitting the bill, as well as bill payments.

The instant payment rails in Denmark (Straksclearingen) is the underlying rails for MobilePay and has been live since 2014. It covers P2P, P2B, B2B, & e-wallet through online and mobile banking channels, as well as various overlay services, such as an alias service (phone number or email), mandate management (approve on behalf of debtor), request to pay, with built-in detection of fraud patterns and anti-money laundering screening.

Paym

Paym is the leading payments app in the UK with over 4 million registered users. Paym is available for person-to-person payments, as well as for payments towards businesses.

Paym is developed on top of Faster Payments (live since 2008). Faster Payments supports multiple use cases (P2P, P2B, B2B, B2P, G2B, and G2P through mobile or online) as well as various overlay services, such as a request-to-pay service, account alias (mobile number), Confirmation of Payee, third-party beneficiary payments, standing order payments, forward dated payments, return payments, direct corporate access (bulk payments, just-in-time payments, emergency payouts, insurance, payday loans, etc.)

[7] Flavors of Fast, FIS, https://www.fisglobal.com/en/flavors-of-fast

4.6 The Ideal State for the Current Use Cases/Gap analysis

Based on the market feedback, the ambition and vision of the CBA, the merchant and end-customer requirements, and the payment trends across the globe, the ideal state of the payments landscape in Aruba should include the following enhancements to the use cases mentioned earlier.

1.Person-to-Person payments

The Person-to-Person use case is a particularly important use case, because it impacts each user and has proven a catalyst for the other use cases. Trust, security, cost, transparency, and convenience are essential to improve the payment experience of this use case. In addition, the availability of an easy, user friendly, cheap, and safe solution for Person-to-Person payments in Aruba will drive the adoption of further use cases.

2.In-Store and E-Commerce payments

According to the market feedback received, In-Store and E-Commerce payments are prominent use cases in need of further improvement. In-Store payments based on the Instant Payment infrastructure can improve the payment experience, for both the merchant and the end-customer. Important aspects to take into consideration are checkout time, trust, security, cost, transparency, and convenience. In addition, the most convenient channel to initiate and complete the transaction should be implemented.

3.Bill payments

Although bill payments have already benefitted from the increased speed and standardization with the introduction of I-Pago, the reconciliation rates have not improved, according to the stakeholders. Further standardization of the message formats, transaction codes, and error messages would bring additional benefits. However, the stakeholders in Aruba have not indicated this as one of the most pressing challenges.

4.Recurring payments

Recurring payments have benefitted from the move to Instant Payments in Denmark and the UK with the introduction of Request-to-Pay. However, these overlay services were not introduced at the launch of Instant Payments in the UK and Denmark, but at a later stage (i.e., several years later). The development and introduction of a Request-to-Pay scheme enables the recurring payment use case on I-Pago. However, the stakeholders in Aruba have not indicated this as one of the most pressing challenges.

5.Store refunds

With the introduction of Instant Payments in the In-Store use case, an efficient method for Store refunds is a logical next step. However, the stakeholders in Aruba have not indicated this as one of the most pressing challenges.

Implementing all the mentioned use cases at once would increase the risk of a failed implementation due to the complexity thereof and limited resources available. Splitting the modernization project into smaller components will make the project more manageable and successful. Based on the above findings, the Person-to-Person, In-Store, and E-Commerce payments use cases would offer the most immediate benefits for the stakeholders and end-customers. Therefore, implementing these use cases is essential.

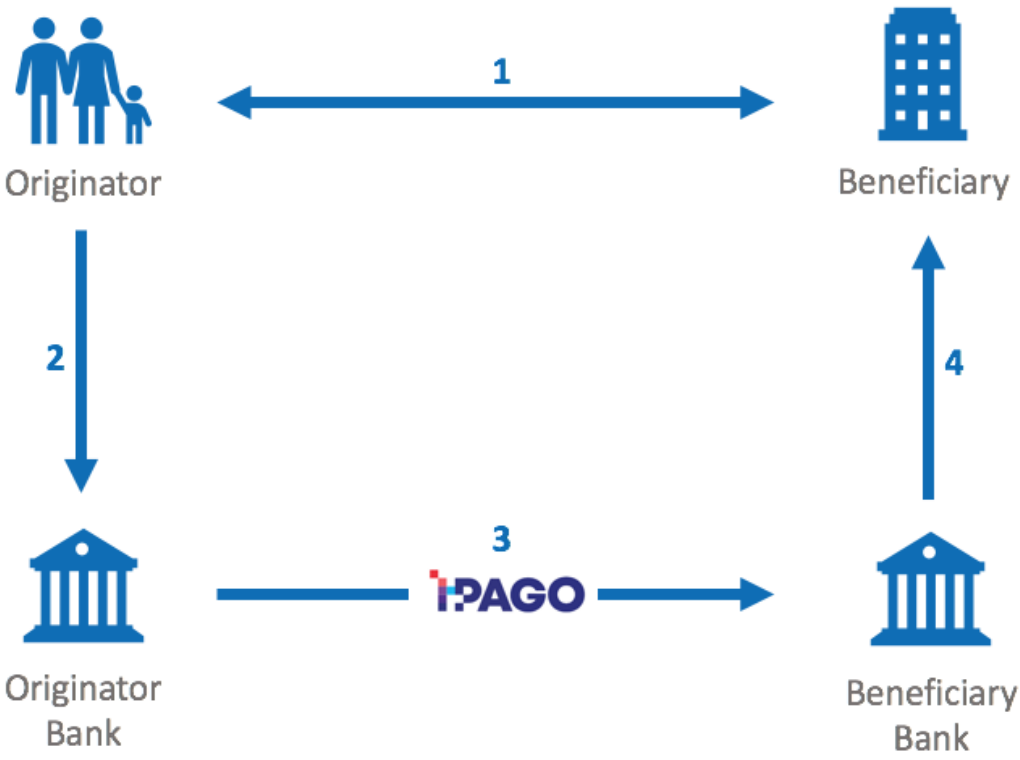
Taking this into account, the recommendation of this Position Paper is to start first with the implementation of the enhancements to the Person-to-Person, In-Store, and E-Commerce payments use cases. These will be referred to as the 'potential use cases'. The enhancements to the other use cases (Bill payments, Recurring payments, and Store refunds) could be explored further and implemented at a later stage.

In the following three chapters of this Position Paper, we focus solely on the potential use cases. Chapter 5 discusses the different steps in the flow of payment transactions and the four main actors therein. Chapter 6 describes the requirements of the potential use cases and the payment trends across the globe.

The Position Paper concludes with an outlook into the future, where continuous innovation plays a crucial role (Chapter 7).

5. Transaction Flow

To position the ideal state described in the previous chapter in the context of the Instant Payment infrastructure of Aruba, we are using the 4-corner model[8]. This model consists of the 4 main actors in a payment transaction, namely, the Originator (the "sender" or "payer"), the Originator Bank, the Beneficiary Bank, and the Beneficiary (the "receiver" or "payee").



To facilitate innovation on top of the I-Pago infrastructure, the flows 1, 2, and 4 need to be improved. This improvement will ensure a secure and efficient payment system and, consequently, an improved payment experience for both the Originator and Beneficiary.

5.1 Step 1: Beneficiary – Originator

The first information exchange happens between the Beneficiary and the Originator. This exchange contains essential transaction details, such as account numbers, transaction amount, and remittance information. Two possible scenarios exist for sharing these payment details:

a. Instant Pull Payment

In the pull scenario, the Beneficiary initiates the transaction. The Beneficiary shares the payment details with the Originator (for example, through QR Code, NFC, or Payment Link), which includes the bank details, the amount, remittance information, and (optionally) additional information in the form of an attachment. The attachment functionality can be used for a variety of scenarios, ranging from simple things like a photograph of the bar bill to more sophisticated scenarios, such as an e-invoice.

[8] https://www.treasuryalliance.com/assets/publications/payments/Fundamentals_of_Payment_Systems.pdf

Figure 1: Transaction Flow

b. Instant Push Payment

In the push scenario, the Originator initiates the transaction. The Originator enters the payment details and confirms the transaction for processing.

5.2 Step 2: Originator – Originator Bank

In the second step (2) in the transaction flow, the Originator needs to authorize the payment. This authorization can be facilitated through the use of a mobile banking app of the commercial banks or an I-Pago app.

5.3 Step 3: Originator Bank – Beneficiary Bank

The transaction is cleared and settled between the banks using I-Pago in the third (3) step of the transaction flow. This transaction is cleared and settled instantly, 24 hours a day, 7 days a week, 365 days a year. I-Pago forms the foundation of the Instant Payment developments proposed in this Position Paper.

5.4 Step 4: Beneficiary Bank – Beneficiary

In the fourth (4) step, the Beneficiary can see the status of the transaction in its mobile/online banking and/or receives the notification of the successful or unsuccessful completion of the transaction and the credit to the account of the Beneficiary.

A mobile banking app can support the instant notification required for the optimization of the fourth (4) step in the transaction flow. This functionality can be integrated in the current mobile banking apps of the commercial banks in Aruba (as is the case for example for PayM in the UK), or this can be a stand-alone 'I-Pago' app (as is the case for Swish in Sweden). The notification also can be facilitated through APIs,[9] depending on the use case.

Standards should be defined to ensure interoperability between the different banking applications, as well as the different actors in the full payment flow. These standards enable that a QR code, Payment Link (URL), or NFC generated by one bank can be scanned with the mobile banking app of another bank.

[9] An application programming interface (API) is a computing interface that defines interactions between multiple software intermediaries.

6. The Potential Use Cases

A wide range of use cases on top of I-Pago infrastructure is necessary to modernize the payments landscape and fulfill the needs of the stakeholders and other users of the system, including merchants, end-customers, thereby improving the payment experience of all users. In this chapter, we focus on the potential use cases of the modernization project presented in no particular order of priority. These use cases would offer the most immediate benefits for the stakeholders and end-customers, compared to the other use cases. Therefore, implementing these use cases is essential. The successful implementation of these use cases in other countries, such as the UK, The Netherlands, Belgium, Denmark, and Sweden will be considered benchmarks to design the ideal situation in Aruba.[10]

6.1 Use Case 1: Person-to-Person payments

Successful implementations in Sweden and Denmark have shown the Person-to-Person use case to be the catalyst for the adoption of other use cases. In other words, the introduction of Instant Payments, which are an easy method for Person-to-Person payments that works both in a proximity as well as a remote scenario, often enables the acceleration of the adoption of other use cases.[11] [12]

Payments around the globe

A very successful implementation of person-to-person payments is Tikkie in the Netherlands. Leveraging the Dutch iDEAL e-payment scheme and messaging platform WhatsApp, Tikkie was able to grow to 6 million users in 3 years.

Currently, Tikkie supports sharing payment requests through a payment link (URL), as well as through QR codes.

How does it work?

A Person-to-Person payment follows the same steps as the transaction flow described in Chapter 5. As it builds upon the I-Pago infrastructure, the safety and security of the transactions are guaranteed. However, to ensure an optimal payment experience, sharing the payment details between the beneficiary and the originator needs to be seamless and as efficient as possible. Various solutions for this include the use of NFC technology, sharing QR Codes or an URL, and Request-to-Pay.

[10] https://www.bis.org/publ/qtrpdf/r_qt2003x.htm
[11] https://play.google.com/store/apps/details?id=se.bankgirot.swish&hl=en&gl=US&showAllReviews=true
[12] http://pubdocs.worldbank.org/en/219031465585757849/WBG-Electronic-Payments-Small-Retailing.pdf

The requirements

To improve the first step (1) in the transaction flow of sharing the payment information (such as beneficiary account number, amount, and remittance information) from the Beneficiary to the Originator, the I-Pago infrastructure needs to facilitate this exchange efficiently by using one or more of the methods described in Table 3.

Table 3

Methods for exchanging payment information

NFC	Near Field Communication (NFC) functionality (cell phones, smartwatches, etc.) can be used for sharing information by tapping two devices together or tapping a device to an NFC reader.
QR-Code	"Quick Response" code, generated by the Beneficiary, which can be scanned by the Originator.
Payment Link (URL)	A payment link that can be shared through a messaging platform (such as SMS, Facebook Messenger, or WhatsApp) or email. The Originator can retrieve the payment details by viewing the link.
Request to Pay	The Beneficiary initiates a Request to Pay (via mobile, web, or API). This request will be sent by the Beneficiary bank to the bank of the Originator; subsequently, the payment request will be visible in the online/mobile banking environment of the Originator. The moment the Originator approves the payment request, an Instant Payment is triggered.

To optimize the second (2) step of the transaction flow, a mobile banking app that allows for instant authorization of the payment is a prerequisite. In the fourth (4) step, a real-time notification of the payment completion is required.

6.2 Use Case 2: In-Store payments

Using I-Pago for In-Store payments would greatly enhance the payment experience for both the customers as well as the merchant, i.e., it will eliminate the risk for merchants of not getting paid, and the risk for customers of delayed delivery of goods. Eliminating these risks is made possible because the release of goods and services can easily be synchronized with the payment.

The stakeholders identified the In-Store use case as one of the prominent use cases for Instant Payments, since the current card infrastructure for In-Store payments poses challenges.

As mentioned in Chapter 3, the current infrastructure is inefficient and cumbersome. The use of In-Store payments via I-Pago could alleviate these challenges by offering a user-friendly, cost-effective, and secure alternative.

Payments around the globe

NFC is recognized worldwide as a valid, trusted, and efficient payment method.

QR Codes are the dominant payment method in Asia, while they have not reached significant traction in Europe. QR codes are an effective payment method, with significant benefits over a traditional card payment.

The sharing of a payment link as a method of paying has long been the standard in schemes worldwide, such as for example, iDEAL in the Netherlands, and has recently seen success in the Person-to-Person use case as well. However, the sharing of a payment link has not made the transition to the In-Store use case yet.

How does it work?

The payment flow for In-Store payments encompasses the same steps as described in the 4-corner model (Chapter 5). However, several challenges exist in the process to enable In-Store payments.

1. The merchant has to generate a payment request based on the purchases registered in the cashiers' system. This payment request must be shared with the buyer. Various methods can facilitate this, e.g., NFC, QR Code, and/or Payment link.

2. The buyer has to authorize the payment. If done using a mobile app, the buyer needs an internet connection (either through the store's WiFi or via a mobile data subscription). Alternatively, an offline 'I-Pago' payment card via NFC can be used.

3. The merchant needs confirmation of the payment. If the payment is credited to the account, or the process hereto is unsuccessful, the merchant must be notified immediately, or in some scenarios, notification must be given to the specific cashier handling the request (if the merchant has multiple cashiers, for example, as currently in a supermarket, a restaurant, or a bar with multiple PoS devices).

The requirements

Instant Payments can be enabled in several ways in the In-Store use case. In addition, similar to the use cases described above (use cases 1 and 2), the payment steps 1, 2, and 4 in the 4-corner model need to be optimized.

To facilitate the first step (1) in the payment flows, various technology possibilities exist, as presented in Table 3 of Chapter 5, i.e., NFC, QR code, and URL.

In Table 4 below, the technology possibilities for the In-Store payments are presented. How each one of these methods works, and the merchant, customer, and CBA requirements for each one of the methods outlined below are considered.

Table 4

The technology possibilities and the requirements

	NFC	QR Code	Payment Link (URL)
How would this work In-Store?	Instant Payments at the PoS through NFC can be used in two ways. The mobile phone can be used to retrieve the transaction details and authorize the payment, by tapping the phone to an NFC device. This can be a regular PoS device, or any generic NFC reader. A second option is an NFC capable "I-Pago" card, which allow the Point-of-Sale/NFC reader to identify the bank account of the card holder. This in turn will allow the PoS to initiate a direct transfer from the card holder's bank account, and bypassing the international card schemes.	QR Codes can be used to efficiently transmit the payment details to the Originator. This can be done through a static QR (where the customer scans the QR code which identifies the merchant, fills in the amount and optionally a description, and authorizes the payment) or a dynamic QR (where the merchant will generate a specific QR Code, containing the merchant id, the amount, remittance and optionally even a link to a cashier's receipt, and the customer scans the QR code and authorizes the payment). After the receipt of the funds, the Beneficiary bank or the	Instead of using QR codes to communicate payment details, a payment link (URL) can also be used. Although this method is more applicable to online, it can potentially also be used in-store. In this method, the link contains the payment details and is shared with the customer, either via e-mail, message platform (WhatsApp, Facebook Messenger) or SMS. By clicking on the link, the customer retrieves the details and can then authorize the payment.
Merchant Requirements	As the payment is processed as a regular bank transfer through I-Pago, payments are guaranteed and quick to complete. The payment is settled in local currency and funds are instantly available. The merchant does need to have a bank account at one of the participating banks. The merchant also needs to incorporate one or more of the methods (NFC, QR Code, Payment Link) into his or her internal checkout process.		
Customer Requirements	Customers will need to gain trust with using a new payment method. A central brand, such as I-Pago, can help with this adoption. In addition, there is the potential to include a receipt as part of the payment message to increases the convenience for the customer, as well as the possibility for additional value added services, such as integrated loyalty cards. As the payment is processed as a regular bank transfer in local currency, the payment can be more cost-efficient.		
CBA Requirements	All the various payment methods include a secure authentication and authorization step, thus ensuring the safety and security of the payment. Since these payment methods use the regular bank transfer method, risk management and settlement risk are covered. The new payment methods available should be promoted to ensure the use by all stakeholders and end-customers.		

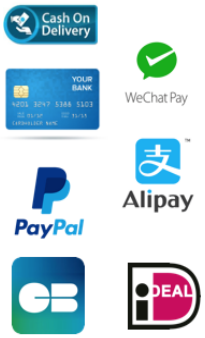
6.3 Use Case 3: E-Commerce payments

The E-Commerce use case has also been identified as one of the potential use cases that needs improvement. The transaction flow of this use case is similar to the previously described flow for the In-Store payments. The main difference between the E-Commerce and In-Store transactions is that all E-Commerce payments occur in principle remotely (i.e., on-line).

Currently, Aruba does not have a dominant solution to facilitate E-Commerce transactions in local currency as already mentioned in section 3.3.

Payments around the globe

Online shoppers in the US predominantly use credit cards. In France, Cartes Bancaires (the local card scheme) is the most popular, while PayPal is not far behind. In China, WeChat Pay or Alipay are the leaders. Cash is still the go-to payment method in Latin America, and the Netherlands favors iDEAL.



How does it work?

To initiate the payment (step 1 in the payment flow), three options are available.

1. In the first option, the web shop (Beneficiary) displays a QR code, which contains the details of the payment. The Originator scans the QR code and authorizes the payment. The Beneficiary receives an instant notification of the arrival of the funds through an API or via his/her mobile app.

2. In the second option, the web shop (Beneficiary) displays a Link. The Originator has to authorize the payment in his/her banking environment through the link, and the instant notification of the arrival of the funds is sent to the Beneficiary through his/her bank.

3. In the third option, the web shop (Beneficiary) sends a Request-to-Pay directly to the Originator Bank. The Originator Bank sends a push notification to the Originator to notify him/her of the pending request. Upon authorization of the Request-to-Pay, the Originator Bank initiates an Instant Payment. The Beneficiary receives the notification upon arrival of the funds through an API or via his/her mobile app.

In this potential use case, steps 2 and 4 are the same as the steps described in the transaction flow chart in Chapter 5, where the Originator authorizes the transaction in the banking environment, and the Beneficiary is notified via the Beneficiary Bank or payment service provider.

The requirements

For E-Commerce payments to benefit from Instant Payments, the first (1) step and the fourth (4) step in the 4-corner model of the transaction flow chart should be optimized.

To improve the first step (1) in the transaction flow chart, for the sharing of the payment information from the web shop to the customer, a QR Code or an URL should be implemented.

The fourth (4) step has to ensure a timely confirmation of payment to the web shop. This can be done via an API integration or via a mobile app, as described in Chapter 5.

Innovation distinguishes between a leader and a follower.

Steve Jobs –

7. Continuous Innovation

The payments landscape is constantly evolving and becoming more and more sophisticated. Innovative technologies, such as NFC, blockchain, and Bluetooth beacon payments, continuously challenge the existing payment systems. Customer demand also changes, and constant improvements emerge, as the innovative technologies become part of everyday life. The CBA intends to act both as an accelerator of innovation as well as a supervisor of the payment system itself, ensuring that new payment-related solutions and developments continue to be cost-effective, efficient, reliable, and secure, and that they benefit all stakeholders.

Trends around the globe

Corona-free payments are here to stay. The rise of contactless payments is irreversible. 67% of US retailers now accept some type of no-touch payment, and in Europe, Visa reports that 75% of in-store payments are now contactless. [13]

A second consequence of the pandemic is the rising importance of a true omnichannel experience. As curbside pickup has normalized, consumers no longer see a separation between online and physical presence, and the payment process should support this.

On the technology side, artificial intelligence is starting to prove its value in fraud detection. This will evolve and become an important part in the safeguarding of payments.

In Europe, the European Payment Initiative (EPI) aims to break the hegemony of the established international card brands, with an integrated (virtual and physical) card and mobile payments proposition.

In Asia and China, the integration of payments with social networks has been a leading example. This is now evolving from a platform that provides inclusive financial services to an open digital ecosystem that offers users a gateway into a comprehensive digital lifestyle.

In countries and continents with lagging financial inclusion, there is a renewed drive to bring the estimated 2 billion adults worldwide without bank accounts into the formal economic fold, which, for example, in Africa will be driven mostly through innovation in mobile money services such as M-Pesa and WeChat Pay.

[13] https://www.forrester.com/report/The+State+Of+Retail+Payments+In+2020/-/E-RES162235

Looking at the trends around the globe, the CBA sees innovation happening in a variety of areas and traversing all continents. Innovation is also spanning all aspects of the payments value chain, from initiating the payment with the trend towards contactless in the United States and Europe and the use of mobile wallets in Africa and Asia, to processing and safeguarding the payments with the advent of Artificial Intelligence in fraud detection.

With this Position Paper, the CBA maps out important steps towards further modernization of the Aruban payments landscape. I-Pago offers a solid foundation for the development of innovative enhancements for (new) use cases. To improve the payments experience for merchants, customers, and all other users of the payment infrastructure in the short to medium term, the CBA sees great benefit in implementing the Person-to-Person, In-Store, and E-Commerce payment use cases. However, to enable these use cases, additional assets need to be developed. In 2022, the CBA will explore how to and to what extent the potential use cases can be implemented to improve the payments experience in Aruba.

Facilitating payments for stakeholders who do not have a bank account at a commercial bank, is an area that also will be explored further to foster financial inclusion. Another example is facilitating the participation of residents with fluctuating income, tourists, and travelers. Allowing these groups also to utilize the I-Pago infrastructure could bring significant value to the system, as well as potentially massive cost savings in transaction and currency conversion fees.

As Heraclitus, a Greek philosopher, once said: “Change is the only constant in life.” The CBA will continue to promote the enhancement of payments to ensure that the payment infrastructure in Aruba maintains its leading position in the Caribbean and embraces all potential users.