

# VIEWS ON SOFTPOS

The latest insights from potential users



Aevi

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# What is SoftPOS?

SoftPOS (Software Point of Sale) is the name given to the latest generation of payment applications. It is utterly unique in that it was built as a software only application that has no reliance on the underlying hardware unlike its predecessors. It is primarily used today for contactless (NFC) enabled mobile devices like phones and tablets.

For in-person commerce this is nothing less of a revolution, as it pushes this more traditional side of commerce closer into eCommerce territory. Up until recently payment providers would have to build customised and expensive ultra-secure payment apps that were tied to purpose-built hardware with their own manufacturer specific OS's, firmware and its contained hardware components including a secure element. This new generation of a secure self-contained hardware agnostic software app, provides in-person commerce with a digital overhaul, allowing businesses of all sizes to turn any android device (and soon Apple) into a contactless tap & PIN payment terminal.

Simply by downloading the app from either the app store or a managed device marketplace, businesses can begin accepting card and mobile wallet payments through their existing NFC capable hardware in minutes with no need to buy or lease additional specialist equipment like the POS terminals of old.

Merchants can enter the sale amount and customers then simply tap their card to the mobile device like they would for any normal contactless payment. The unique PIN (Personal Identification Number) is asked for when required and a sale is made. Equally, the SoftPOS can be integrated with other apps like till systems, loyalty and digital receipts to name a few.

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# 71%

of merchants surveyed think that SoftPOS will replace traditional payment terminals in the future.

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# Brief history of SoftPOS

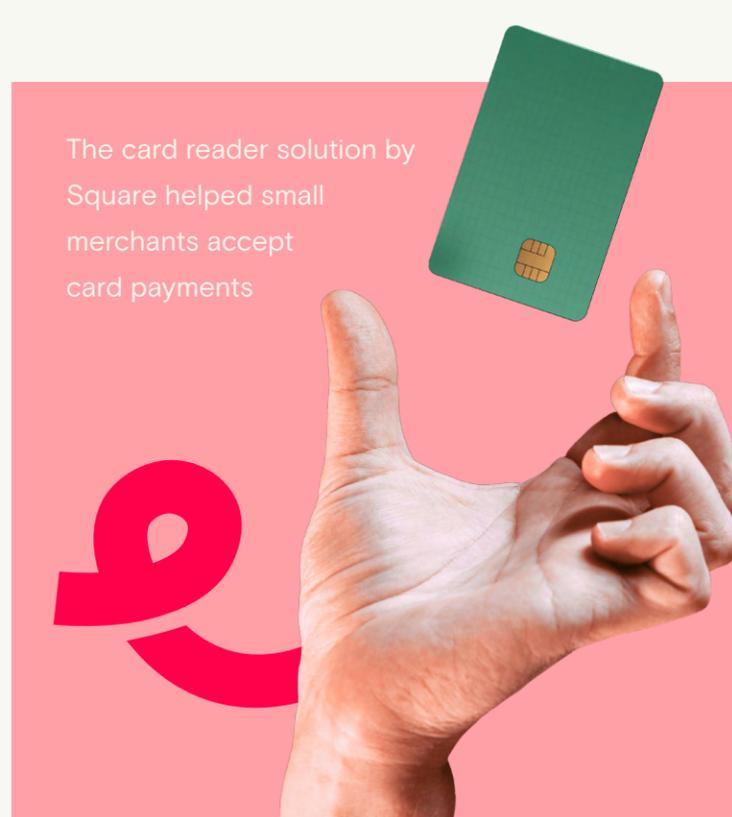
Ever since the introduction of the first electronic payment terminal in the 1980's, innovation in the retail payments space has been incremental for a long time.

Nevertheless, the last 10 years brought a seismic shift for physical retailers, traditional acquirers, terminal manufacturers, and independent sales organizations.

eCommerce with its clear focus on efficiency and integrations, the rise of mobile devices and OS's and cloud-based "as a service" business models (from infrastructure to software) not only democratized innovation in payment acceptance technology, but also dramatically reduced the need for fixed physical point of sale devices.

In 2009, Square were the first to combine the underwriting flexibility delivered via the card scheme's PayFac model with the introduction of a simple magnetic stripe card reader. This plugged into the headphone jack of a mobile COTS (consumer-off-the-shelf) device, enabling small phys-

ical merchants to finally accept card payments. This was not only a technical but also a business model revolution. The Square dongle cost just a fraction of the price of a traditional payment acceptance device and was available at various retail outlets. Small merchants could start accepting payments within minutes and without any long-term commitment, something that was unknown in the industry before.



The card reader solution by Square helped small merchants accept card payments

While Square became the dominant player in the US market (which was back then still a “swipe & sign” market), Europe saw the advent of innovative SMB players like iZettle or SumUp, which based their solutions on small EMV pin pads that were connected to a merchant’s COTS device either by cable or Bluetooth.

The combination of a phone or tablet being attached to a pin pad was not only appealing to micro merchants, but bigger retailers as well. This allowed them to introduce new services like end-less aisle, queue busting, and personal shopping.

With POS and payments being two sides of the same coin, it was a matter of time until they were merged into one device, the SmartPOS. A Smart-POS combines the support for business solution apps around the POS with all forms of electronic payments. Nevertheless, while Android is the main operating system driving SmartPOS solutions, the device itself is still regarded as a payment terminal. Therefore the “PIN on Glass” solution needs to adhere to the same strict regulations that traditional EFT (Electronic Funds Transfer) devic-

es need to adhere to. This means that SmartPOS devices are still not affordable, especially for smaller merchants. To push card payment acceptance among SMBs the industry was accordingly looking for ways to reduce cost, especially since security concepts around COTS devices became continuously more sophisticated.

**84%**

of payment providers thought that SoftPOS would be most use to micro merchants.

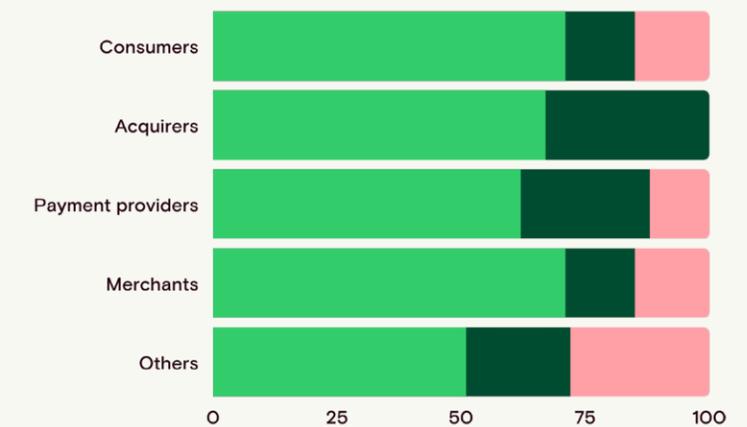
The initial solution to counter the cost challenge resulted in the physical pin pad being removed from the secure card reader (SCRIP) to become a CVM app (customer verification method) on the merchant’s COTS device. The solution is known as software-based PIN entry on COTS (SPoC). Approved by PCI in 2019 and regulated under

“PCI SpOC”, SPoC relies on the concept of using two separate security keys, one for the PIN (encrypted on the phones) and one for the card data (encrypted on the card reader). With both being stored securely and separately from another and a monitoring and attestation backend system performing additional risk management in real-time,

As of today, only contactless payments without PIN entry are approved by the PCI council, limiting its useability to low-value transactions that fall under the contactless limit (though transactions initiated via a mobile wallet such as Apple Pay or Google Pay can be for any amount as the user authenticates him-/ herself via biometric scan).

The most important benefits of SoftPOS according to our respondents.

- Easy payments
- Lower costs
- Solving hardware issues



payment security is maintained. In 2020 CPoC (Contactless Payment on COTS) was officially approved by PCI, allowing for an even more streamlined payment process. CPoC removes also the need for a separate, physically secure hardware card reader, relying on the COTS device’s NFC chip to securely process payments data.

CPoC adheres to the same concept as SPoC combining security mechanisms to be deployed via a contactless payment acceptance app, as well as a back-end driven monitoring and attestation system, that surveils the payment process.

While the first pilots of an encompassing Soft-POS solution, including PIN entry on the COTS device) already started under the card schemes pilot waiver program already in 2018, it was the pandemic that really pushed the roll-out of Soft-POS pilots across the globe. Nevertheless, while SoftPOS has been one of the payment industry's most used buzz words over the last 2 years, the

official PCI standard for MPoC (mobile Payments on COTS) is only expected to be released towards the end of 2022.



Micro merchants see softPOS as a cheaper and more viable alternative to the SumUp and Square readers

## Current status

SoftPOS has entered its early adopter phase after spending 8 years in development. While many doubt it, products do not spend 8 years getting built to disappear, so it is here to stay. The question is will it take over or just take its place in a world of fragmented payment products?

The biggest public news recently in regards to SoftPOS has been the [new Apple announcement](#), while in the industry the real focus has been on the release of the new PCI MPOC standards.

MPOC is the first draft publication of the PCI council and its working groups tireless efforts to create a new set of standards to support the next generation of payments technology, which combine the old SPOC and CPOC standards. While it will only be officially released to the public towards the end of the year, insights we have been given talk about support for offline transactions, external card readers and an openness to a more modular based approach than previous standards.

Apple meanwhile have officially announced that businesses will soon be able to accept contactless payments through a “Tap to Pay”-system on their iPhones. This is being built into Apple Pay, citing Stripe and Shopify as their initial launch partners. The solution will work with contactless credit and debit cards from many of the biggest payment networks, such as Mastercard, Visa, American Express, and others.

This has been a particularly big step in the global recognition and validation of SoftPOS technology, and as a result, many businesses are looking to the success of Apple's SoftPOS before deciding to jump in and use it themselves. Many other FinTech businesses have also recently announced new SoftPOS systems, so it will be interesting to see what the future holds for the technology. Currently there are now around 80+ SoftPOS companies globally, although we urge caution as functionality, USP's and scheme support varies wildly.

# SoftPOS journey

- Legacy world
- Digital world

**1980**  
Dedicated payment terminal with swipe, PIN & sign functionality



**1994**  
Dedicated payment terminal with chip & pin capabilities



**2007**  
Dedicated payment device that takes contactless payments



**2009**  
Payment dongle for small merchants to accept (contactless) payments



**2015**  
Smart dedicated payment terminal with "PIN on Glass" technology that runs business apps



**2019**  
Dedicated secure card reader (SCRP) with PIN entry on a regular mobile device (COTS)  
  
SpoC (Software PIN on COTS)



**2020**  
Contactless payments acceptance via COTS within contactless limit (no PIN entry)  
  
CpoC/SoftPOS (Contactless payment on COTS)



**2022**  
Contactless payment acceptance via COTS with PIN entry under PCI rules



# What are the benefits of SoftPOS?

There are many advantageous factors to SoftPOS that bring immense value to both payment providers and merchants when it comes to accepting payments, just a few are listed below.

## Cost

The first most obvious is cost. Instead of merchants and payment providers needing to purchase expensive specialist certified devices, they will now be able to mix up their estates with cheaper off the shelf solutions for some use cases. This reduces the capital expenditure required to run the payment estate in their business. It also means that micro merchants will see this as a cheaper and more viable alternative to the SumUp and Square readers they would have historically bought.

## Scalability

The second is scalability. A single SoftPOS app can be certified once and deployed across multiple devices, which makes it easier than ever for bigger merchants and especially platform providers (i.e. courier/taxi/service network operators), to

expand their fleet of payment devices using existing hardware they and their staff already own.

## Flexibility

The third is flexibility. Thanks to the ground-up designing of this new payment application by schemes, providers and even PCI, it has been built with flexibility in mind. It is deployable on both consumer and managed devices implementations, while also allow connection of external secure PIN readers for when tapping PIN on Glass is not ideal like in unattended and outdoor.

## Speed to market

An additional benefit is speed to market. You can remove the need to certify every new classic payment terminal, which takes months. If you had a broken terminal you could, in theory, order a SoftPOS compatible Android device on Amazon to be delivered same day if in a major city. You could be back up and running simply by downloading an app and logging in, with no lengthy wait for a new device. This is in contrast to operations teams needing to build the replacement device, load keys, ship and even in some cases arrange for install.

# The bad: what to watch out for

As you would expect, the technology is in its infancy. For that reason there is a need to approach with caution. Below are a few of our key findings from the survey and interview we conducted with both consumers and providers.

## NFC

The first thing to consider is NFC. On many phones the NFC readers are weak and generally on the back of devices, which can create a somewhat cumbersome user experience, so test and test again.

## Transaction times

Next, you should consider transaction times. In general most SoftPOS today take far longer than a traditional payment device to process a payment and while a lot has been done to reduce latency, you are still looking at 4-6 seconds and up to 30 seconds depending on network to process one transaction.

## Offline PIN

Third, let's call out the elephant in the room: offline PIN. There are still a number of countries that use

offline PIN, notably the UK. This means that tap & PIN is not actually an option. While some providers have created workarounds, they are far from seamless and there will be a need for the schemes and regulators to step in and solve this.

## Trust

Lastly, we should consider the human element in this software roll out. Would everyone trust a market trader holding his personal phone up for you to pay? How do you know it is legit and not a skimmer? How do you know that entering your PIN is being done on a secure app from a legitimate provider, and not one made by the person you are paying? Consumers are becoming more and more wary due to the exponential growth in scams.

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# 100%

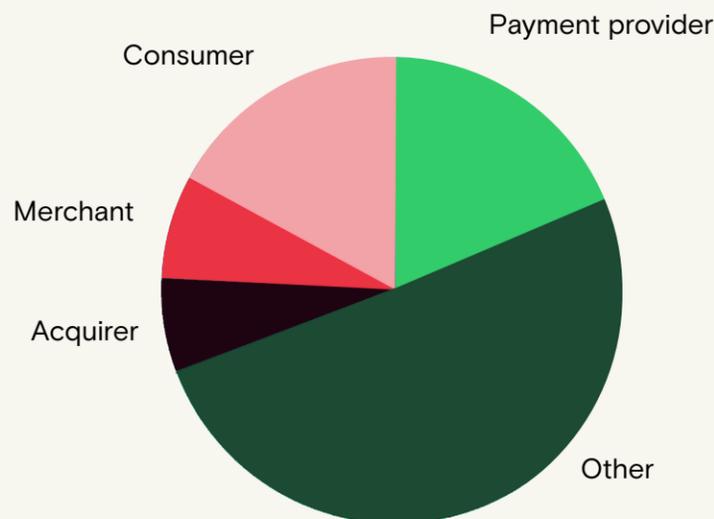
of merchants and consumers felt that 'major western card schemes' would need to be supported.

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# Summary of key findings

To dive further into what the future holds for SoftPOS, we conducted a survey to understand what individuals thought. The survey consisted of 140 participants who are experts in the payment industry. These were separated into five distinct groups:

1. Payment providers
2. Merchants
3. Acquirers
4. Consumers
5. Others



Noticeable trends emerged from the 12 questions that were asked. Although, we'll go through it in detail shortly, here are the key findings that we found.

One of the biggest agreements across all groups was that they love the idea of paying via phone, rather than a payment terminal. Therefore, the likelihood of the technology being adopted is high.

This also makes sense when looking at the results of another question we asked: 'do you think traditional payment terminals will be replaced in the future?'

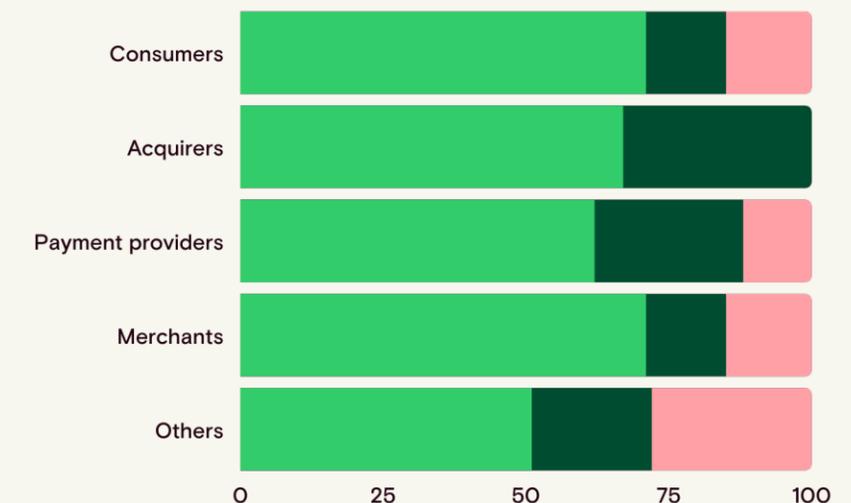
**80%**  
of merchants would like an ePOS app integrated with the SoftPOS device.

The outcome showed that every group believed it to some extent. After following up with some of those that did not believe this however, generally they had seemed to misunderstand that SoftPOS would not kill the payment terminal in terms of having managed devices but would actually just replace the current software app used on those devices in favour of a "certify once and deploy anywhere"-app like SoftPOS.

Another interesting find was that most groups agreed that contactless and tap & PIN must be standard if SoftPOS is going to be successful. This means that this feature must be a top priority for

developers that want to offer SoftPOS, otherwise, merchants will look towards other options. It also shows a weakness for offline PIN countries for the UK and highlights that a solution must be found so that external card readers are not required.

Most respondents think SoftPOS will replace traditional POS solutions in the future

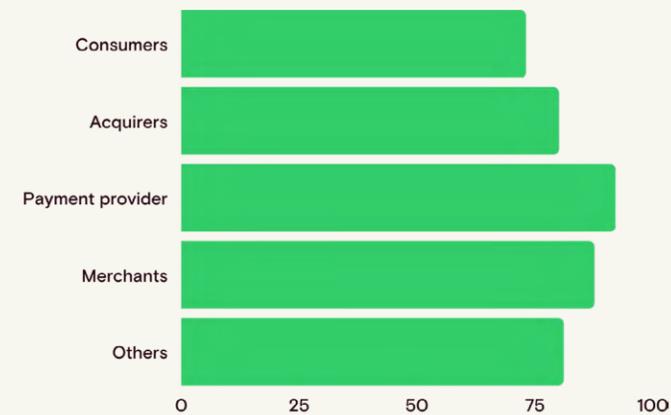


# RESULTS & CONCLUSIONS

## 1 How do people feel about paying on a phone rather than on a payment terminal?

It was found that overall, there was an overwhelmingly **positive** outlook by all parties when it came to the excitement of paying via a phone rather than a pay terminal.

This shows that there are currently not many barriers when it comes to all parties using and interacting with SoftPOS systems. So, understanding the needs of the few that are unsure is key in encouraging more groups to eventually adopt this



Most respondents were excited about paying on a phone

## 2 Will SoftPOS replace traditional payment terminals?

**Yes!** All groups believe SoftPOS will replace traditional payment terminals in the future, with merchants and consumers leading this demand. Some comments expressed that the sector would play a significant role in the adoption rates of SoftPOS.

It's recommended to gain more information from the others (who voted 51% in favour) and payment provider groups (who voted 62% in favour) to understand more clearly why some think that it will not replace traditional payment systems in the future.

## 3 Business types that will be using SoftPOS

The groups could see **micro merchants** benefiting from SoftPOS the most. A high percentage of merchants, payment providers, and others thought it would be common to see SoftPOS in restaurants. Acquirers believed delivery services could also use the technology.

Here, it can be seen that it has many uses for different businesses. However, as micro businesses were seen as the type that would benefit the most, it would be beneficial to advertise and push SoftPOS to this company type first.

## 4 Preferred ways of using a payment app?

Consumers, acquirers, others, and payment providers prefer to **download from trusted app stores**. In comparison, merchants were split 50/50 between downloading from trusted app stores and it integrating into trusted apps.

Here, it shows that when any SoftPOS app is created, it should always be made available on trusted app stores such as Google Play and the Apple App Store. This is important for helping increase trust in the payment system. Although, enterprise merchants will likely still prefer if possible to use closed loop MDM solutions for enhanced security on their managed devices.

## 5 Importance of payment schemes

The most essential payment methods across the board are **major western schemes**. Others felt local schemes and major eastern schemes may need to be included. Merchants believe QR payments are important. A comment backed up that local schemes were important - it depends on the region. For example, in the US: FSA, HSA, EBT, and WIC are necessary local schemes (from others).

All SoftPOS systems should integrate major western schemes for groups to consider the system usable in day-to-day transactions. However, integrating local schemes, QR payments and major eastern schemes would also be beneficial to reach a larger group.

## 6 Preferred features

**Contactless and tap & PIN was** the clear winner between all groups minus merchants. Therefore, showing how vital it is for POS systems to succeed.

As mentioned in our key points, consumers would like the option to pay through a SoftPOS system using contactless and tap & PIN. If not, the paying process may be slowed, causing a bottleneck.

## 7 The most important transaction features

All groups overwhelmingly agreed that the top feature should be **Sale / Reversal / Refund**. Therefore, POS systems need to include this.

It seems obvious, but it still has to be mentioned. The main feature that a SoftPOS must include is the ability to process a sale, make a reversal, or refund when needed. Failure to provide this will negatively affect the customer and merchant.

## 8 Preferred apps

**ePOS** was highly seen as a value-adding solution, apart from acquirers, payment providers, and others that saw more benefit in **gift cards** and **loyalty programs**. Payment providers and others mentioned that having dynamic currency conversions (DCC) would be an essential solution. Others were also interested in added features such as being able to split a bill.

A focus for those developing SoftPOS should be to integrate with the ePOS app and with businesses' loyalty programs. These added benefits will enhance the customer experience providing more value to merchants that adopt SoftPOS systems.

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# 80%

of payment providers felt that 'Sale' was the most important transaction feature.

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## 9 Needed certifications

PCI and scheme certifications were viewed as the crucial supportive standard/certification needed. Especially for acquirers and payment providers who felt strongly about PCI.

To launch a successful SoftPOS service, PCI and scheme certifications must be acquired to ensure peace of mind. Other standards may also be necessary depending on geographical requirements.

## 10 When to start?

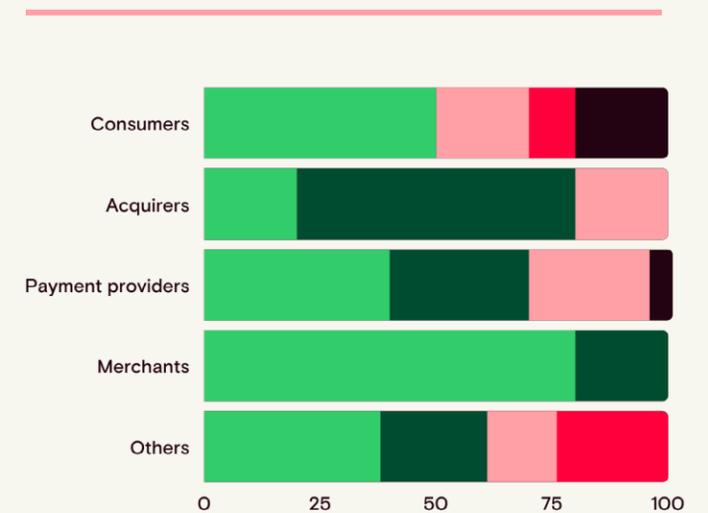
The majority favoured using SoftPOS solutions sooner rather than later, especially in the next three years. The consumers, acquirers, others, and merchants were the most willing target groups to adopt this solution.

This highlights how crucial speed is for relevant parties to use the SoftPOS systems. The sooner it's released the quicker the market will benefit from its multitude of advantages.

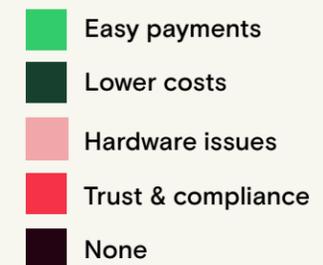
## 11 What are the advantages?

The respondents believe that the most significant advantage to SoftPOS is the ease of use of these payment systems and the lower costs involved compared to more traditional payment solutions. Some respondents also mentioned fewer hardware issues and better trust and compliance as some of the biggest problems that SoftPOS will solve.

Comments specifically stated speed to market and faster payment times as big advantages. A few respondents stated that they would prefer to see how Apple's new SoftPOS solution takes off before committing to using this payment solution.



The various advantages of using SoftPOS over traditional POS devices according to our respondents



ePOS and loyalty programs were the most chosen value added solutions for SoftPOS.

# AEVI & SOFTPOS

## Our vision of the future



At Aevi, we believe that SoftPOS is both overhyped and undervalued. It was long overhyped as most industry players reduced it to its potential in the micro merchant sector, disregarding that it is just an enabling technology that needs a solid business foundation. In that sense it can be compared to the Square dongle in its early days.

While the now iconic dongle was a huge technological advancement, it needed a proper business value that Square, now Block, unlocked by enriching it with supporting business functionalities via apps, that embedded the payments aspect in a wider business context. Most SoftPOS solutions are too focussed on the technology aspect, that they do not offer a compelling reason for merchants to embrace it.

At the same time, the mPOS incumbents seem hesitant to embrace SoftPOS, as their payments dongle still act as a visual reminder of who the merchant partner is. All of this results in a fairly

low adoption rate of SoftPOS. What is not yet fully comprehended is the disruptive impact that this technology might have for the whole payments industry. This technology can break free of phones and micro merchants and has the potential to shake off the physical limitations of the traditional payment terminals. It could be the next evolutionary step from smartPOS, powering new business cases for merchants in the connected world of Internet of Things (IoT).

In this view it becomes more relevant for bigger merchants, who are often stuck with legacy systems, limiting their ability to manoeuvre in a digital world. For example, energy companies could leverage SoftPOS for private households to monetize their wallboxes, powering the shared economy. In order to do so, nevertheless, SoftPOS has to not only outgrow its growing pains, but also its current limitations regarding supported OS system, i.e. Android and associated mobile devices.

We see a far bigger and wider impact for the industry looking at SoftPOS being ported from “just” regular phones to ruggedized industry de-

vices being powered by pure Android, respectively other OS's, such as Linux or iOS.

“SoftPOS innovation is only just beginning, while today a lot of the use cases being tested are around queue busting or transport, we are only just beginning to see the incremental development of the solution by providers. I see a future that is not too far away, where SoftPOS could easily replace traditional payment apps – I need to caveat the hardware will not necessarily change with a combination of smartPOS type, BYOD, tablets, tills etc... but the underlying software running them could and probably will in the future be SoftPOS. Sure, there are some leaps that will need to be made to get there, but even today it is entirely possible that a client could target a “SoftPOS only” strategy and roll that out on a myriad of managed and unmanaged devices.” says James Durrant co-author of this report and product lead for emerging payments at Aevi.

“The critical thing that needs to be remembered is that the benefits of SoftPOS will drive the adoption and the innovation, for consumers it is a small

leap, which is moving from insert card + PIN to tap & PIN, this is slightly slicker for the consumer, so there is a low barrier that side.

The others side is the payment providers and the benefits for these businesses are vast in scale – imagine – what if you could have a single code base that worked on any device and in any market, what if instead of having to do 20 certifications you only had to do one, what if you did not have to do custom development to support new hardware every single time? Simply the cost saving and time saving advantages here I have no doubt will soon be realised by payment providers. Ultimately whether the revolution succeeds or fails will come down to co-operation, adoption, investment and unified standards and rules from the schemes and PCI council.”

The possibilities of what the industry can achieve are endless, but what is clear is that regional leaders will emerge with a specific focus on localisation. That is the very reason why given the new modularisation of the payment application where it is detached from the hardware, Aevi have

decided to take a strategic approach of building an orchestrated network of SoftPOS providers rather than building in house.

We have done extensive global research and have analysed and selected only the absolute best SoftPOS providers that met our exacting standard of UX, UI, Flexibility, Technology Security and localisation, which means that you can save yourself some time in both research and deployment and through a single integration with Aevi get access to multiple SoftPOS providers all over the globe.

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James Durrant

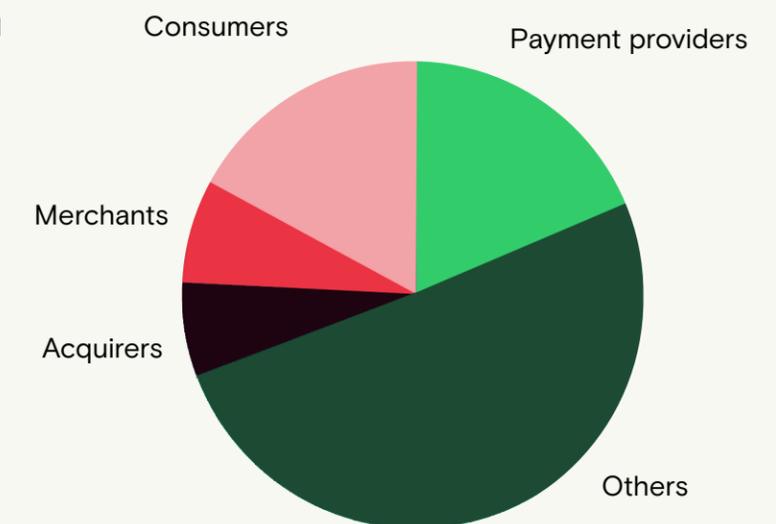
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# APPENDIX

## Further insight into all answers

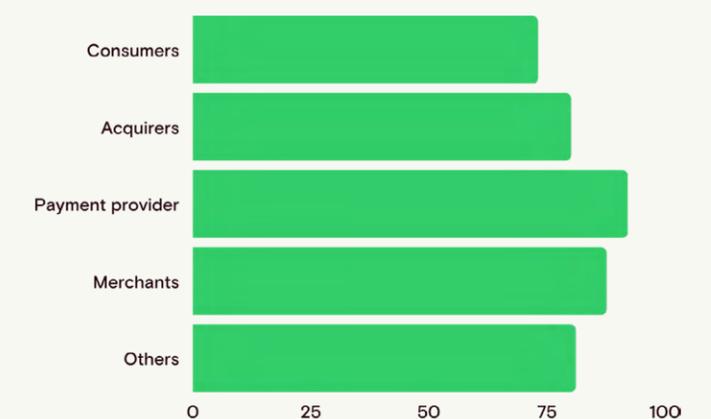
Below you can see all questions and their respective answers from the survey carried out. All of which help to understand what is crucial to each group, and where attention should be focused.

**1** In which group of users do you belong?

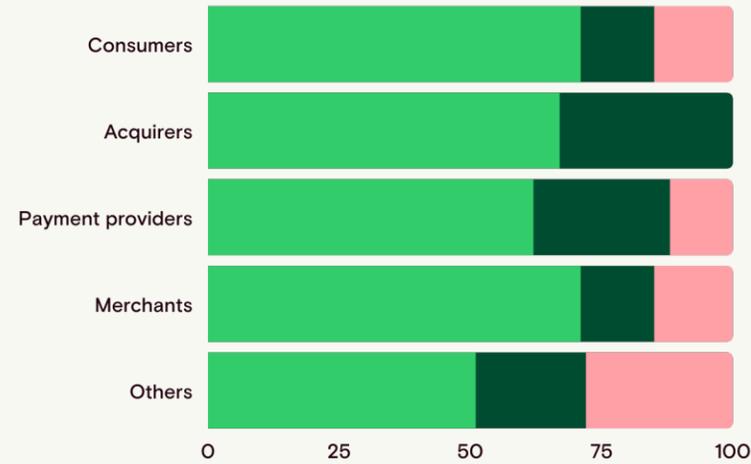
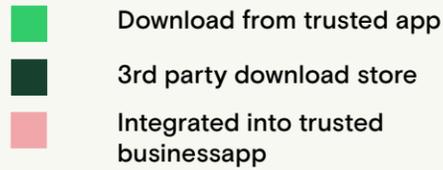


**2** How do you feel about paying on a phone rather than a payment terminal? (rate from 0-5)

Percentage of respondents that scored 3 or higher

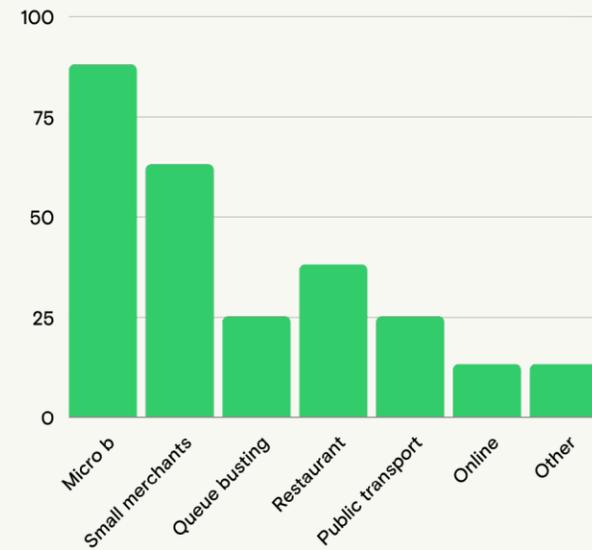


### 3 Do you think SoftPOS will replace traditional payment terminals in the future?

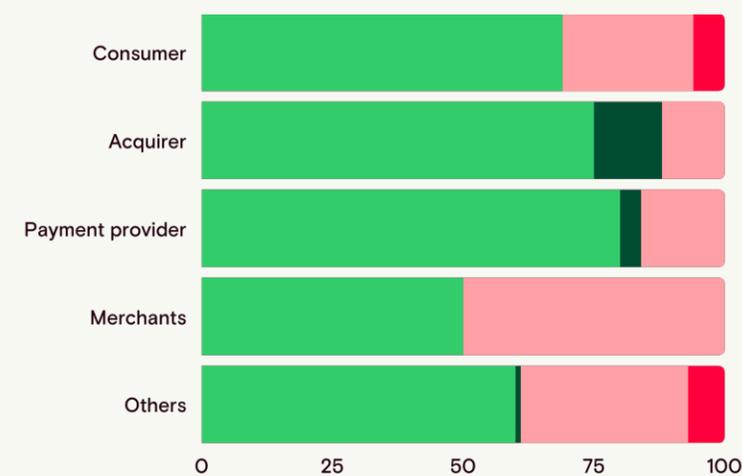
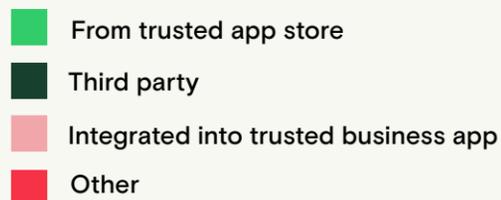


### 4 In general, where do you expect SoftPOS solutions to be used most?

Answers by acquirers

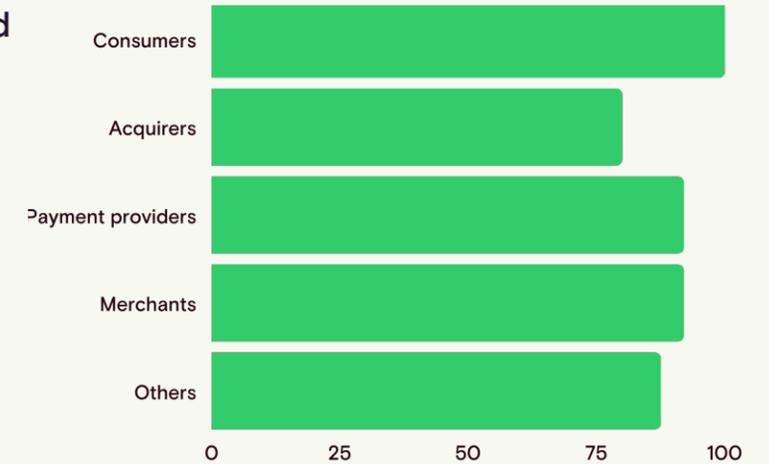


### 5 What is your preferred way of using a payment app?



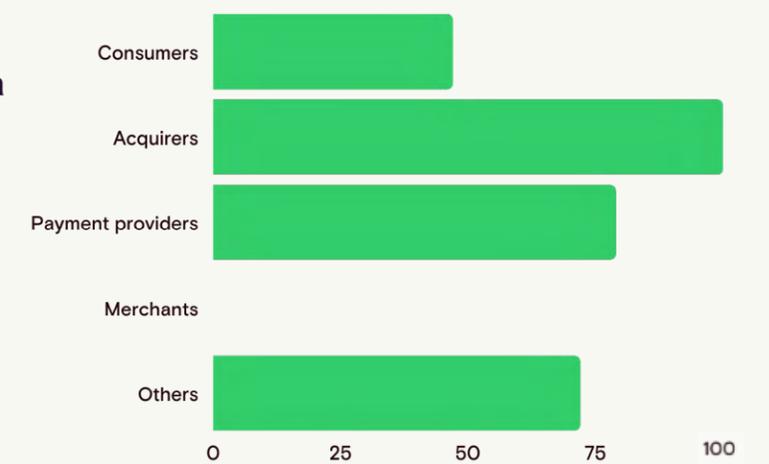
### 6 What payment methods would you need to be supported?

Percentage of respondents who selected major Western schemes



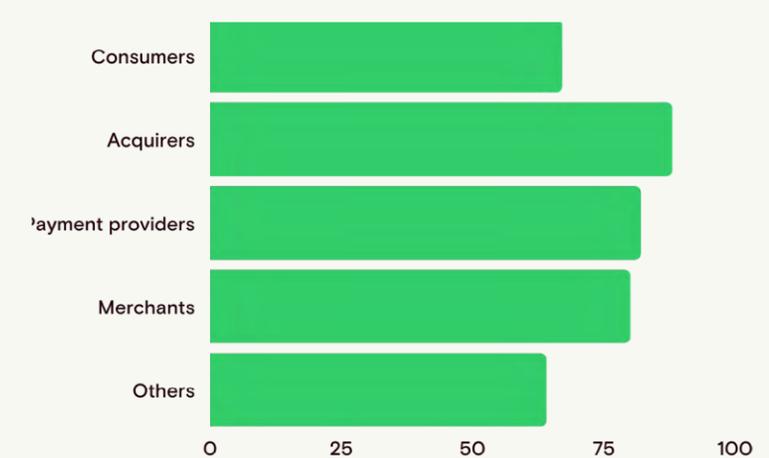
### 7 What are your top needs/wants in terms of features of a SoftPOS?

Percentage of respondents who selected contactless and 'tap & PIN'



### 8 What are the most important transaction features?

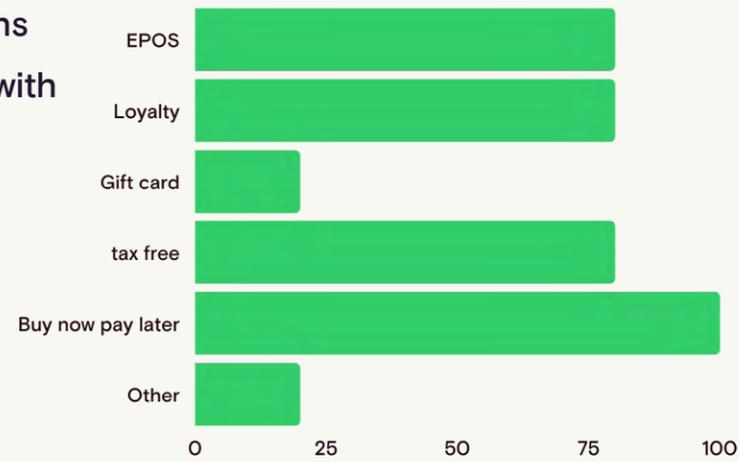
Percentage of respondents who selected Sale/Reversal/Refund as the most important feature



# 9

Which value-added solutions would you like to integrate with the SoftPOS device?

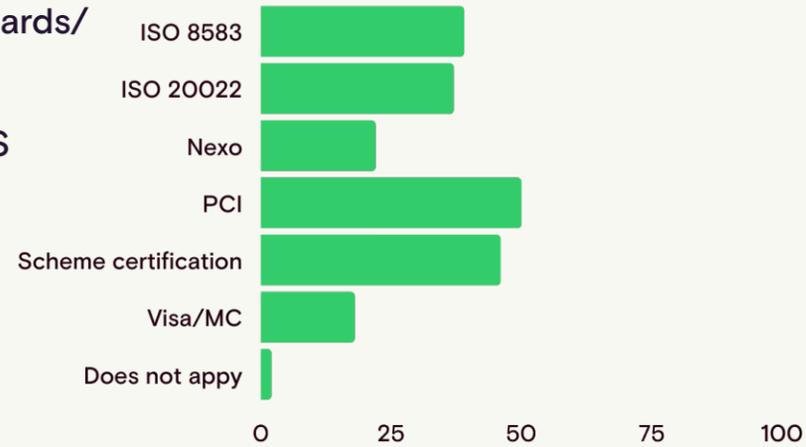
Answers by merchants



# 10

Which supported standards/certifications would be needed on the SoftPOS device?

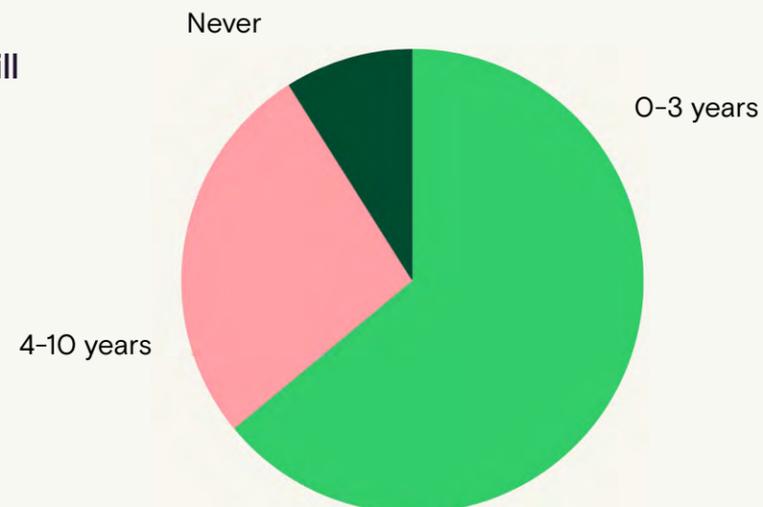
Average of all respondents



# 11

When do you think you will start using SoftPOS?

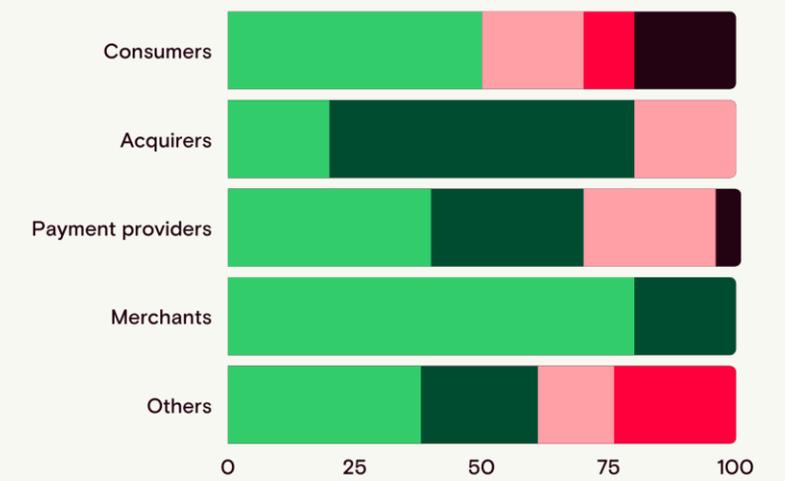
Average of all respondents



# 12

What problems do you think SoftPOS would solve for you?

- Easy payments
- Lower costs
- Hardware issues
- Trust & compliance
- None



# About Aevi

## Setting payments free

The in-person payment experts, we bring all your transactions together on one open platform.

Keeping you one step ahead of whatever comes next in payment tech.

## Reinventing an industry

We believe in-person payments should be as innovative as online payments.

As the inventor of the first ever smartPOS, we've always driven change. Now fully cloud-based, our platform lets our customers and partners embrace the latest payment tech – and empowers their businesses with unprecedented data.

## Breaking down barriers

The in-person payment world is trapped in the same old systems while technology moves on around it.

We're setting payments free with an open platform defined by flexibility. Completely device agnostic, it puts all our customers firmly in control.

## Partnering with the world

We can't change the payment game on our own. So we're starting a movement where everyone can win.

Like our platform, we're open to the world and inspired by collaboration. Bringing all industry partners together across the value chain, we create the best possible customer experience.

# LET'S TALK

Would you like more insights about the future of SoftPOS, or discuss your options?

Chat to one of our experts to learn more.

Get in touch

Aevi

