

# **PAX Global (HKEX: 327):**

## ***Disrupting the Global Payment Terminal and Global POS System Markets***

*The cash register was one of the great contributions to civilization. It's a wonderful story. Patterson was a small retail merchant who didn't make any money. One day, somebody sold him a crude cash register which he put into his retail operation. And it instantly changed from losing money to earning a profit because it made it so much harder for the employees to steal.*

*But Patterson, having the kind of mind that he did, didn't think, "Oh, good for my retail business." He thought, "I'm going into the cash register business." And, of course, he created National Cash Register.*

*And he "surfed". He got the best distribution system, the biggest collection of patents and the best of everything. He was a fanatic about everything important as the technology developed. I have in my files an early National Cash Register Company report in which Patterson described his methods and objectives. And a well-educated orangutan could see that buying into partnership with Patterson in those early days, given his notions about the cash register business, was a total 100% cinch.*

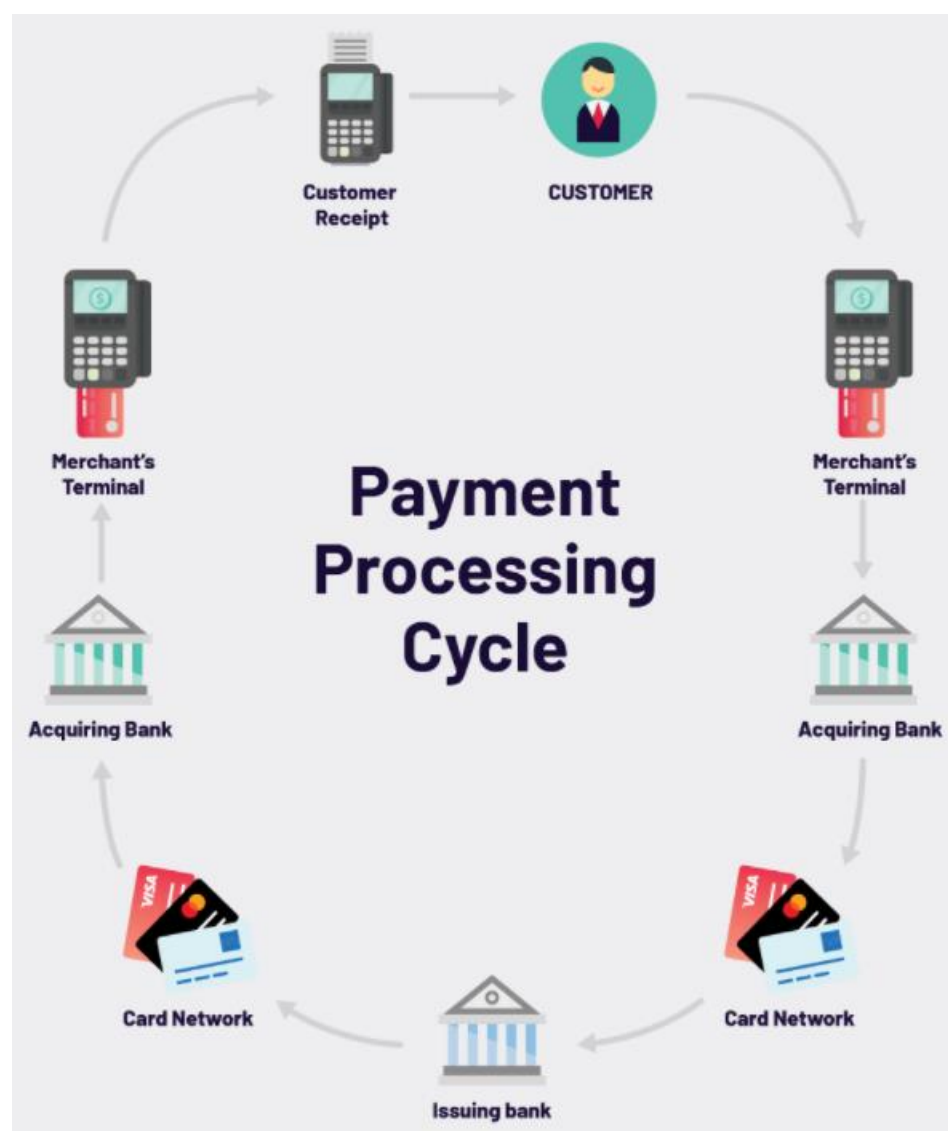
*And, of course, that's exactly what an investor should be looking for. In a long life, you can expect to profit heavily from at least a few of those opportunities if you develop the wisdom and will to seize them. At any rate, "surfing" is a very powerful model.*

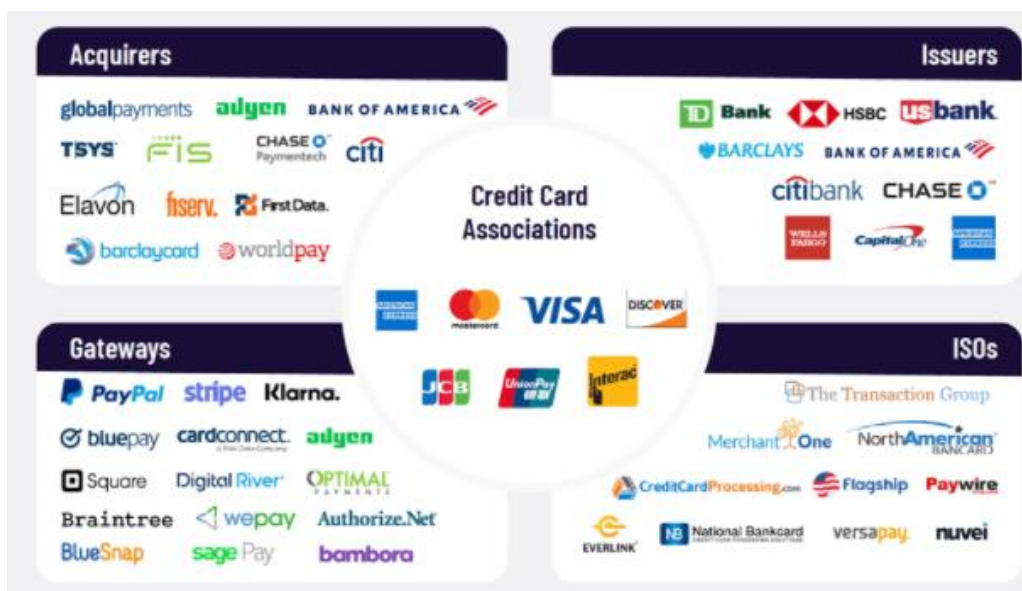
--Charlie Munger, *Poor Charlies Almanack*



## Payment System Overview

The payment system in most markets around the global is a complicated system of data flows. The payment system is about facilitating the transfer of funds (what is money other than the ability to change someone else's ledger) from customer to merchant by securely transferring data to centralized financial institutions that tells them which ledgers to debit and credit. The payment cycle starts and ends with the customer's credit card or smartphone which interacts with a merchant's payment terminal. Payment processors facilitate the flow of information from the terminals to the merchant's bank, otherwise known as the acquirer or acquiring bank. The acquiring bank sends the information over a card network which is an electronic network that allows payments (ledger debits and credits) to be processed among various financial institutions.

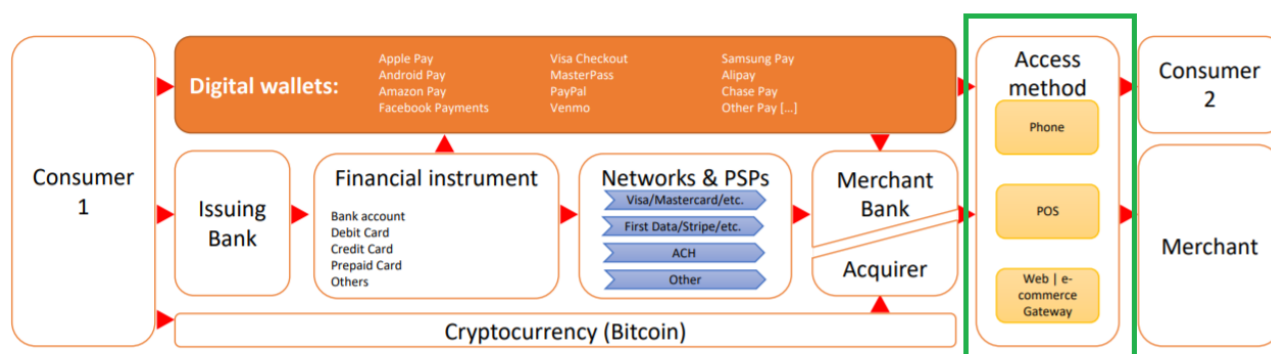




<https://www.cardknox.com/white-papers/payments-industry-landscape/>

## Payment Systems

**A Method to Amend and Record Entries on Ledgers for Money  
Authorizing, Clearing and Recording Final Settlement**



<https://ocw.mit.edu/courses/sloan-school-of-management/15-s12-blockchain-and-money-fall-2018/lecture-slides/>

Pax Global sells merchant terminals to acquiring banks which then sell them to merchants. For example, two of PAX's biggest customers are PagSeguro and StoneCo in Brazil which facilitate digital payments. Both provide POS devices manufactured by PAX to merchants.

<https://investors.pagseguro.com/about-us/who-we-are/>

<https://pagseguro.uol.com.br/para-seu-negocio/maquininhas/pagphone>

<https://pagseguro.uol.com.br/para-seu-negocio/maquininhas/moderninha-smart>

<https://www.stone.com.br/maquina-de-cartao/>

## The Evolution of the POS System

Over the last decade, point-of-sale (POS) systems have gone through significant changes evolving from simple credit card readers combined with expensive, complex desktop-based software systems to seamless, mobile solutions that can manage entire retail operations. Digital innovations in POS systems are leading the way not only in how merchants receive payments (credits to the ledgers of their financial institutions) but also how they manage their businesses. Gone are the days of basic cash management systems and stationary card readers located at a checkout station which feeds data into complex, cumbersome PC accounting software systems. Features have evolved and merchants have many more choices today than ever before. POS systems now seamlessly track sales, manage loyalty programs, control inventory, and integrate with accounting systems all from one simple to use device.

Payment terminals and POS systems date back to the late 1800s when Dayton, Ohio entrepreneur, James Ritty, developed the idea of the recording cash transactions after watching how mechanical devices on steamboats tracked propeller revolutions. Major innovations, however, to the cash register had to wait another hundred years until IBM introduced the first computer-driven cash registers in the 1970s. Early POS systems were simple *dumb terminals* wired back to mainframe computers. These systems used several cutting-edge technologies at the time such as client-servers and local area networks. After IBM's introduction of the electronic cash register, Asian manufacturers began using micro-processors to create a boom in available products. In 1980s and 1990s, standalone credit card readers were introduced.

As computing power increased and the size of computers shrank, the first multi-functional POS system was created in the early nineties running on Microsoft Windows. Throughout the 2000s, POS systems continued to evolve adding more sophistication and features beyond just cash management and accepting payments. POS systems could now create financial reports, run inventory and customer relationship management programs along with other back-office functions. These systems, however, were expensive, complex and difficult to implement, hence available to only large customers and used on desktop computers. Further increases in processing power and software design in the 2020s will allow modern POS systems to continue to evolve by incorporating artificial intelligence, providing SaaS solutions that connect to multiple data points, and making services available to retailers of all sizes.

As Patrick Diab, Chief Product Officer of Moneris (a PAX customer and Canada's biggest payment processor), says, "Canadian business owners want an affordable, modern payment solution. Moneris Go's intuitive interface provides small and large businesses with a streamlined payment experience that can be continuously updated with advanced features such as pay-at-table and third-party app integration. Moneris Go is more than a payment terminal, it is business operations in an elegantly designed mobile device."

Jack Lu, the CEO of PAX Technology describes the benefits of new phones that can now securely accept payments, "The M30 and M50 are compelling devices, not just because of their technology, but in how they have the potential to revolutionize retail. You can now accept payments, make voice & video calls and interact with customers on social media, all via a single device. In Brazil, where many tens of thousands of the M-series models were deployed during a successful pilot phase, entrepreneurial merchants and businesses are now marketing goods & services by filming videos and taking photos, and then selling and accepting payment, all via these innovative PAX devices."

<https://lavu.com/how-pos-changing-and-why-it-matters/>

[https://paxglobal.com.hk/media/2735/pr\\_pax-and-moneris-solutions-launch-a920-in-canada.pdf](https://paxglobal.com.hk/media/2735/pr_pax-and-moneris-solutions-launch-a920-in-canada.pdf)

<https://www.paxtechnology.com/blog/world-s-first-android-payphones-launched-by-pax-technology-at-money20-20-in>

Below is a link to Toast's website which provides a good infographic of for the evolution of the POS system.

<https://pos.toasttab.com/blog/modern-pos-history>

Examples of modern POS software systems include Toast, Revel, Oracle (NetSuite and Micros), QuickBooks, and Lightspeed, among many others. Most of which offer integrated payment platforms. Most POS systems target at a specific industry or large enterprises. However, as computing power continues to advance, the line between a POS system and stand-alone payment terminal is quickly blurring.

<https://www.pcmag.com/picks/the-best-point-of-sale-pos-systems>

<https://www.businessnewsdaily.com/2955-best-pos-systems.html>

## **Payment Terminal Hardware Market Structure**

Global shipments of payment terminals were 135 million in 2020. Most of the shipment volume and growth is in the APAC region which is led by China. The Chinese market is dominated by Chinese companies that specialize in the China market and have grown very rapidly in the last few years as China rapidly digitized its payment system. The Chinese payment terminal is more commoditized and has lower margins for manufacturers due to the influence of AliPay and WePay. Although, payment terminals even in China maybe becoming less commoditized as merchants demand more sophisticated POS features integrated into the payment terminal. The APAC region in the following table also includes the important markets of Japan, India and Southeast Asia.

Developed western markets are led by Ingenico (Worldline) and Verifone. Ingenico is headquartered in Paris and Verifone in San Jose, USA. Ingenico is bigger in Europe and Verifone leads in North America. Ingenico and Verifone have been the leaders in Western markets for many years. The Ingenico/Verifone duopoly is characterized by high initial capital requirements, high R&D budgets, and long certification periods. The duopolies have built strong partnerships with card networks such as Visa and Mastercard and acquiring banks such as Bank of America and Wells Fargo. Ingenico and Verifone also eliminated competition through acquisitions. Importantly, their technologies are based on the old architecture of closed networks and stationary card readers. Even today, it was very difficult for third parties to provide innovative services at the terminal level (i.e., checkout counter) using Ingenico and Verifone terminals. There are limited frameworks or APIs that can integrate with the payment flow. The operating systems are closed systems based on Linux and developed by each company. Ingenico has Telium and Verifone has Verix. To develop on Telium and Verix requires extensive knowledge of C or C++. Further, the knowledge to maintain these systems is not open source; so even if a developer knows C or C++, he may not be able to easily and quickly began developing or modifying code on these operating systems.

Verifone was bought by a private equity firm in August 2018 and Ingenico was acquired by Worldline in 2020. Worldline is a large payment processing firm and competitor to many of Ingenico's customers that buy payment terminals and POS systems.

PAX Global leads in Latin America and is gaining market share in North America and Europe. Castles Technologies is also gaining market share in Europe and Latin America. BBPOS shipments have declined over the last several years as it sold plugin devices that attached to smartphones and these plugins have fallen out of favor over the last three years.

## POS Terminal Shipments

USA					EUROPE					USA + EUROPE				
	2017	2018	2019	2020		2017	2018	2019	2020		2017	2018	2019	2020
Verifone	1,685,800	1,597,026	1,862,000	1,899,240	Worldline	3,155,481	3,020,143	3,379,533	3,315,322	Worldline	4,133,481	3,969,413	4,432,523	4,608,041
Worldline	978,000	949,270	1,052,990	1,292,719	Verifone	1,319,260	1,267,750	1,621,200	1,645,518	Verifone	3,005,060	2,864,776	3,483,200	3,544,758
Fiserv	693,200	700,800	884,300	928,515	Dates	465,970	871,118	1,174,362	1,032,858	PAX	456,294	612,254	968,903	927,593
BBPOS	1,181,887	572,973	798,329	54,065	PAX	286,815	426,853	743,002	700,659	Castles	235,000	757,700	887,000	1,018,973
Castle	123,000	457,000	512,000	516,000	Castles	112,000	300,700	375,000	502,973					
PAX	169,479	185,401	225,901	226,934										
All Others	1,021,373	1,100,673	1,374,577	1,049,905	All Others	1,609,897	2,020,753	2,237,147	2,746,841	All Others	4,972,327	5,266,317	6,468,715	5,812,184
Total	5,852,739	5,563,143	6,710,097	5,967,378	Total	6,949,423	7,907,317	9,530,244	9,944,171	Total	12,802,162	13,470,460	16,240,341	15,911,549
	2017	2018	2019	2020		2017	2018	2019	2020		2017	2018	2019	2020
Verifone	29%	29%	28%	32%	Worldline	45%	38%	35%	33%	Worldline	32.3%	29.5%	27.3%	29.0%
Worldline	17%	17%	16%	22%	Verifone	19%	16%	17%	17%	Verifone	23.5%	21.3%	21.4%	22.3%
Fiserv	12%	13%	13%	16%	Dates	7%	11%	12%	10%	PAX	3.6%	4.5%	6.0%	5.8%
BBPOS	20%	10%	12%	1%	PAX	4%	5%	8%	7%	Castles	1.8%	5.6%	5.5%	6.4%
Castle	2%	8%	8%	9%	Castles	2%	4%	4%	5%					
Pax	3%	3%	3%	4%										
All Others	17%	20%	20%	18%	All Others	23%	26%	23%	28%	All Others	39%	39%	40%	37%
Total	100%	100%	100%	100%	Total	100%	100%	100%	100%	Total	100%	100%	100%	100%

LATIN AMERICA					MIDDLE EAST / AFRICA					ASIA-PACIFIC				
	2017	2018	2019	2020		2017	2018	2019	2020		2017	2018	2019	2020
PAX	2,572,449	5,101,001	6,513,002	6,983,682	Bitel	896,800	896,550	901,000	928,030	MoreFun	1,102,700	5,028,808	7,600,000	11,500,000
BBPOS	1,536,606	2,523,650	2,379,374	-	PAX	499,614	526,123	586,009	630,223	New POS	1,148,428	2,274,561	8,405,491	11,425,249
Worldline	1,323,000	1,389,100	2,534,992	2,548,887	Verifone	487,000	535,200	557,983	563,563	Tianyu	-	4,129,626	13,090,110	11,255,835
Verifone	1,313,000	1,372,083	2,272,110	2,310,736	Vanstone	-	-	-	538,000	Newland	8,172,532	13,657,985	7,669,500	7,668,802
Dspread	430,000	720,000	1,203,000	1,570,000	Castles	715,000	653,000	565,000	532,000	Worldline	5,278,400	5,442,200	6,551,044	6,308,249
Newland	16,552	123,370	302,400	899,634	Dspread	-	1,029,000	425,500	411,000	Centerm	7,242,324	5,024,427	5,394,039	6,259,230
Castles	49,500	664,000	733,000	728,000	Worldline	264,000	309,218	328,053	324,000	Pax	2,377,651	44,100,429	2,951,999	2,434,218
All Others	1,867,783	1,957,311	2,953,149	3,943,933	All Others	2,647,170	2,692,037	3,143,503	3,555,301	All Others	15,709,652	4,410,429	34,563,388	35,282,797
Total	9,108,890	13,850,515	18,891,027	18,984,872	Total	5,509,584	6,641,128	6,507,048	7,482,117	Total	41,031,687	69,303,286	86,225,571	92,134,380
	2017	2018	2019	2020		2017	2018	2019	2020		2017	2018	2019	2020
PAX	28%	37%	34%	37%	Bitel	16%	13%	14%	12%	MoreFun	3%	7%	9%	12%
BBPOS	17%	18%	13%	0%	PAX	9%	8%	9%	8%	New POS	3%	3%	10%	12%
Worldline	15%	10%	13%	13%	Verifone	9%	8%	9%	8%	Tianyu	0%	6%	15%	12%
Verifone	14%	10%	12%	12%	Vanstone	0%	0%	0%	7%	Newland	20%	20%	9%	8%
Dspread	5%	5%	6%	8%	Castles	13%	10%	9%	7%	Worldline	13%	8%	8%	7%
Newland	0%	1%	2%	5%	Dspread	0%	15%	7%	5%	Centerm	18%	7%	6%	7%
Castles	1%	5%	4%	4%	Worldline	5%	5%	5%	4%	Pax	6%	64%	3%	3%
All Others	21%	14%	16%	21%	All Others	48%	41%	48%	48%	All Others	38%	6%	40%	38%
Total	156%	249%	100%	100%	Total	79%	84%	100%	100%	Total	321%	514%	100%	100%

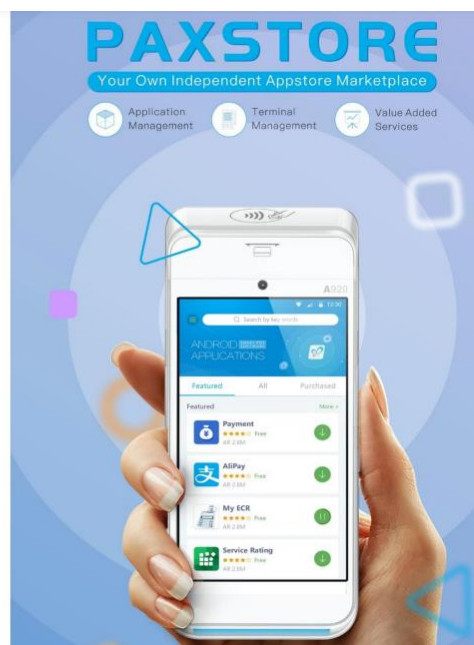
\*Source: Nilson Reports



## The Android OS: a Game Changer for PAX Global

Just a few years ago PAX was mostly using an internally developed Linux based operating system called Prolin. However, PAX is moving rapidly to the Android operating system, which is also developed from the Linux kernel but is open and has the world's largest network of software developers. Also, Ingenico and Verifone are beginning to develop new products based on the Android OS but seem to be progressing at a much slower pace than PAX which is not surprising when analyzed (as we will later in the paper) using the framework developed by Clayton Christensen in *The Innovator's Dilemma*.

**Android smart terminal combined with the PAXSTORE platform is the core of PAX's present & future development strategy**



### Compare PAX terminals

See the difference between PAX Android SmartPOS A910, A920 and A920Pro

A910



Android 7.0  
Operating system

A920



Android 7.1  
Operating system

A920Pro



Android 8.1  
Operating system

[https://www.paxglobal.com.hk/media/3014/pax\\_2021-annual-results-presentation\\_en.pdf](https://www.paxglobal.com.hk/media/3014/pax_2021-annual-results-presentation_en.pdf)  
<https://www.paxtechnology.com/compare-smartpos>

### **Android Operating System Advantages**

First off, the Android OS used to be less secure than internally developed Linux based operating systems used only in payments terminals. Now, however, Android OS is just as secure as other operating systems. Second, the payment motherboard is separate from the POS motherboard. So, the data for payments flow through a different system than the data for POS functions. And now that security concerns have been addressed, the Android OS has several key advantages:

- 1) **Reduced Cost of Ownership to merchants.** A single device replaces multiple devices and software systems now that the payment terminal is combined with a POS system with a wide range of functionality.
- 2) **The Android OS increases the number of services financial service providers can offer.**
  - a. Merchant acquirers and payment processors now have the ability to develop their own apps which increases loyalty among retailers towards these financial service providers.
  - b. Rapid innovation based on the Android operating systems can be achieved via real-time updates. Android has one of the world's largest development communities with extensive tools and resources for rapid development and deployment of new software services. POS systems can now be updated as soon as developers create and release new applications or versions. There are billions of devices running on the Android OS which means a huge ecosystem of developers and tools are available to facilitate the creation and maintenance of Android apps versus less common operating systems.
- 3) **The Android OS allows developers to reach a global market.** New apps can be created and distributed instantaneously throughout the world via the cloud. The Android OS is used from Russia to Brazil to Africa to India to the European Union to the United States. Now, an Indian software developer can reach American merchants instantaneously and at a low cost. Prior to the Android OS and PAXSTORE, foreign software firms needed an expensive salesforce.

Today, POS systems are being disrupted because of new technologies that include the internet, mobile computing and Google's Android operating system. Modern payment terminals still need to obtain and maintain strict regulatory certifications which will limit the ability of competitors with small R&D budgets and weak relationships to enter the market. On the other hand, however, Android based POS systems will allow for rapid innovation and cost savings for millions of merchants as payment terminals and POS services get merged into one easy to use device.

<https://economictimes.indiatimes.com/small-biz/money/in-india-android-pos-terminals-have-enabled-new-stream-of-revenue-fmerchants-pax-global/articleshow/85584316.cms>

[https://blog.ingenico.com/posts/2021/06/developing-pos-terminal-applications-from-a-to%E2%80%A6.html?utm\\_campaign=ING+-+MKT+-](https://blog.ingenico.com/posts/2021/06/developing-pos-terminal-applications-from-a-to%E2%80%A6.html?utm_campaign=ING+-+MKT+-)

[+BLOG+%22Developing+POS+terminal+applications%22+-+EV%5BOwner%3A+SL%5D&utm\\_medium=social&utm\\_source=twitter](#)

## Android smart terminals are merchants preferred interface for accessing SaaS



## Hardware product portfolios - retail solutions



Go beyond payment

- Android POS covers all market segments
- Traditional POS continues to lead the way and innovate

### Android POS



### Traditional POS



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## Hardware product portfolios – PAYphone & tablet solutions



- Support a variety of commercial and personal Apps
- Accept physical card payment
- Meet the needs of brick-and-mortar businesses and self-employed businesses

### PAYPhone



### PAYTablet



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## PAX Android smart terminal ranks No.1 in Europe and the U.S. & is becoming the global trend

With PAX Android smart terminals, digital transformation is no longer the exclusive remit of large enterprises, small merchants can also embrace the opportunities.

PAX Android smart terminals have been popular across Europe, North America, Latin America and the Asia-Pacific regions.

Merchants can analyse customer behaviours, create automated marketing campaigns, manage inventory and more.



2021 1H

Revenue contribution

>HK\$ 1,290M  
(+ 86%)

Of total revenue

>35%  
(2020FY: >30%)



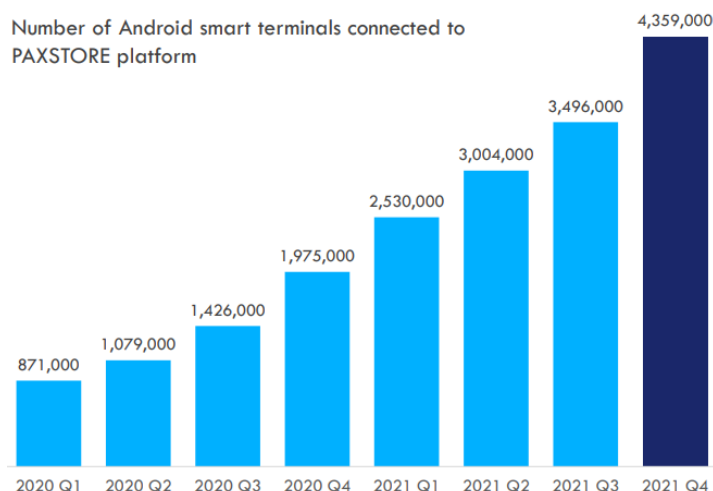
## Software is Eating the Merchant's World

PAX's customers are acquiring banks and payment processors whose customers are in turn merchants. PAX's new Android terminals are no longer dumb hardware devices that just transmit data. PAX's Android line through the PAXSTORE now offers acquiring banks a wide range of applications they can offer merchants around the world. Acquiring banks and payment processors create their own Appstore using the PAXSTORE and offer a white-label services developed by third parties.

### SaaS platform - PAXSTORE



### PAX is considered the payment industry's leading R&D organization for Android smart terminals



#### SaaS solutions revenue

HK\$ **42** million

**(+193%)**

#### Android smart terminals revenue

HK\$ **3,230** million

**(+78%)**



The PAXSTORE is SaaS ecosystem platform that connects three parties: software developers, acquirers, and merchants. This ecosystem allows software developers to quickly reach a large and growing number of customers which include acquiring banks and payment processors (such as Moneris), millions of merchants around the planet, and billions of global consumers. With white-label services in an Appstore, acquiring banks and payment processors can strengthen their offering to merchants and better compete in the marketplace. With innovative applications, merchants can more effectively provide services to customers and manage operations. The PAXSTORE allows acquiring banks to better compete in their local markets (usually entire countries) and merchants to better compete in their markets (often neighborhoods, towns, cities or regions). Remember, PagSeguro and SoneCo are in competition to win market share and need to be able to rapidly offer new services to merchants, and merchants are in competition with other merchants and need to keep pace with rapidly evolving demands.

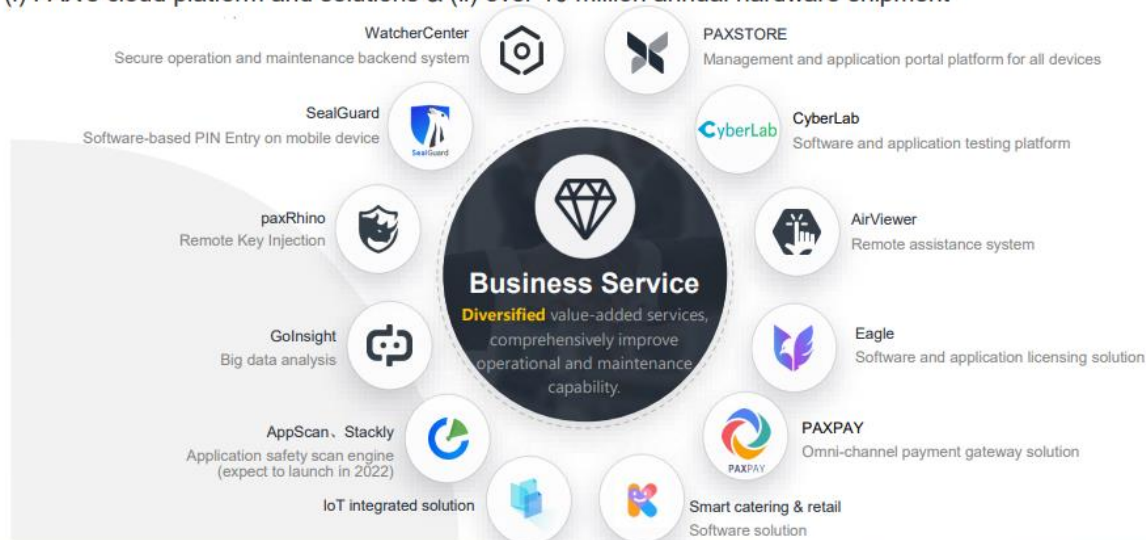
PAXSTORE is about creating an *open* system for software development. The below slides show software tools developed by PAX to help software developers rapidly innovate on the PAXSTORE.

## Software applications – cloud platform and solutions



### Business synergies for PAX:

(i) PAX's cloud platform and solutions & (ii) over 10 million annual hardware shipment



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PAXSTORE is an open-platform collaborative ecosystem which connects app providers, terminal managers, payment service providers and merchants.



### PAXSTORE: A Constantly Evolving Ecosystem



### Features & Benefits

#### • CLOUD BASED DEPLOYMENT

One account can have all the features of the platform, reducing the cost of local deployment and hardware.

#### • API INTEGRATION SUITE

Standard Integration Suite is ready to integrate with your system, making the synchronization automatic.

#### • MULTI BRANDS DEVICES SUPPORT

It becomes possible to connect all your devices to one platform with the help of the device integration standards.

#### • HIGH CONCURRENCY FOR BINARY UPDATE

High concurrency allows that all terminals can get any updates immediately, avoiding a long wait.

More Software Services



More Software Services



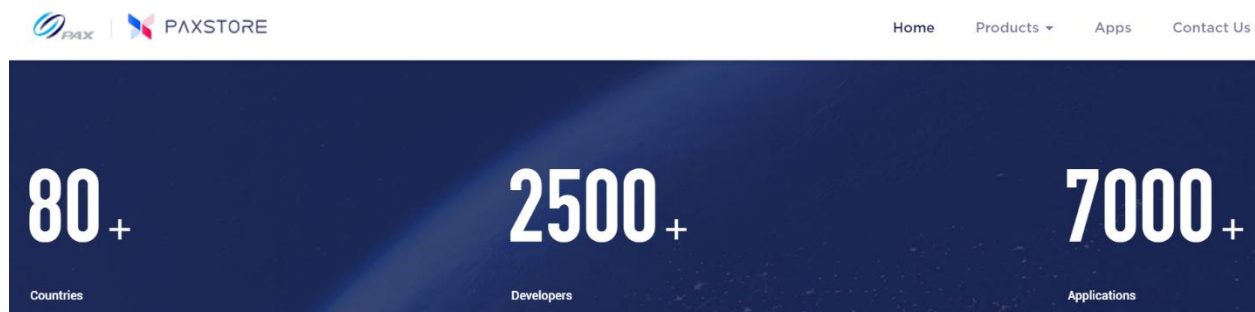
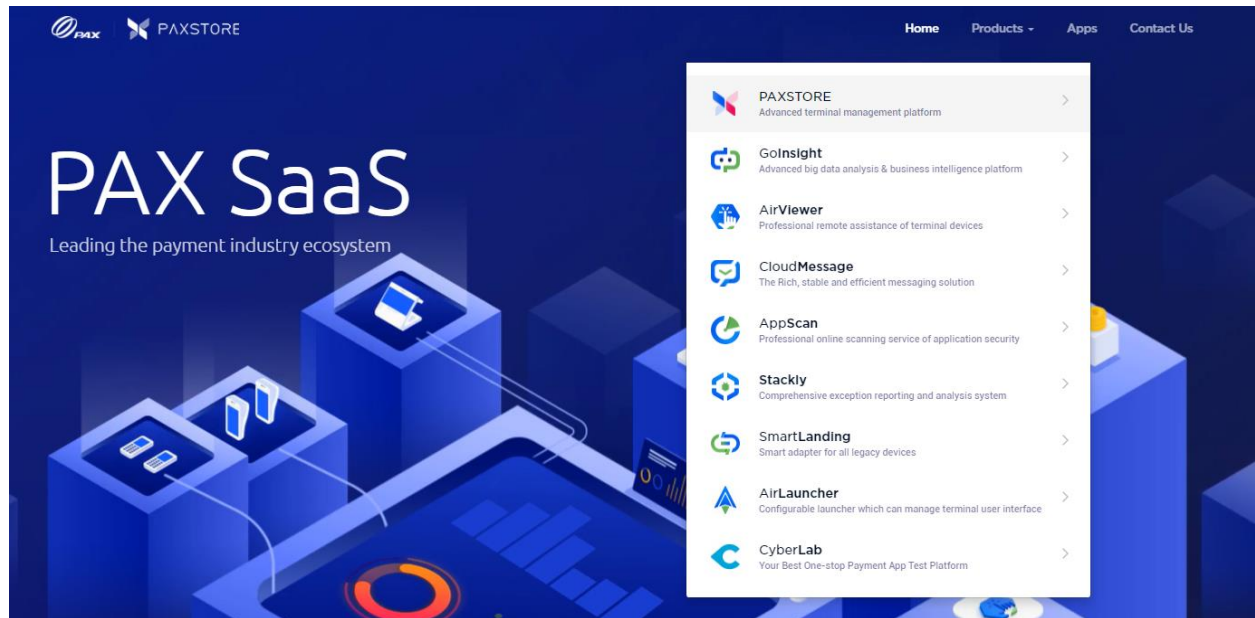
<https://www.pax.com.cn/library/index.aspx>

<https://www.slideshare.net/GabrielCastroCFA/pax-global-2021-interim-result-transcript>

<https://www.slideshare.net/GabrielCastroCFA/pax-global-transcript-fy-2020>

<https://www.slideshare.net/GabrielCastroCFA/pax-global-earnings-call-transcript-fy-2019>





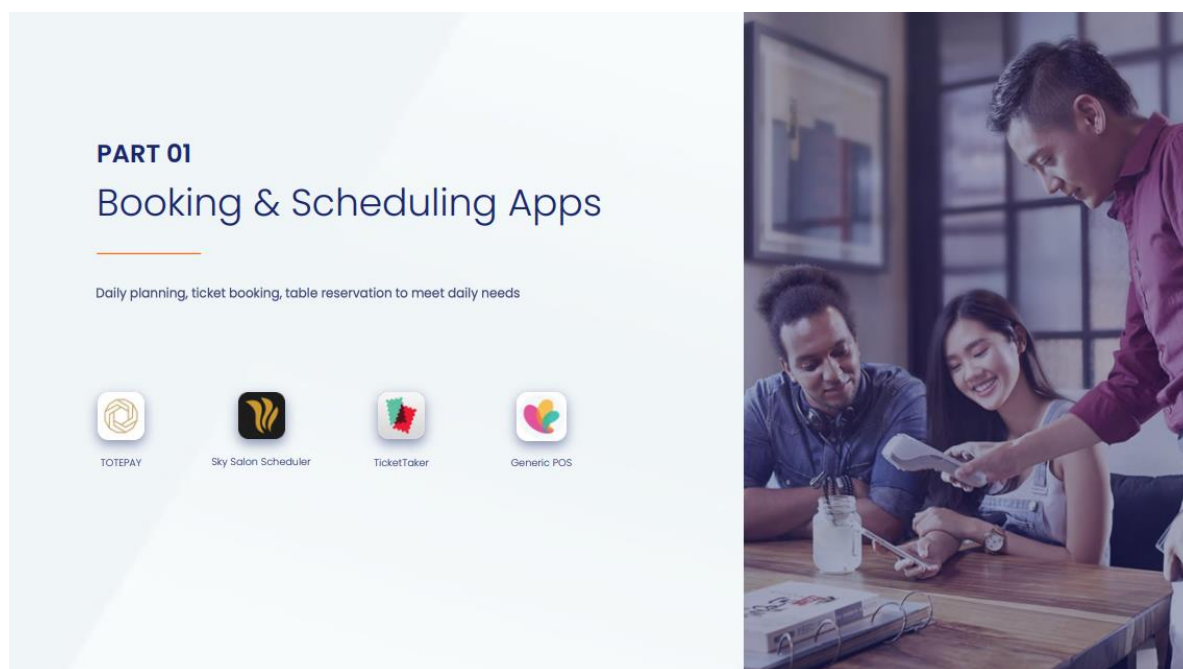
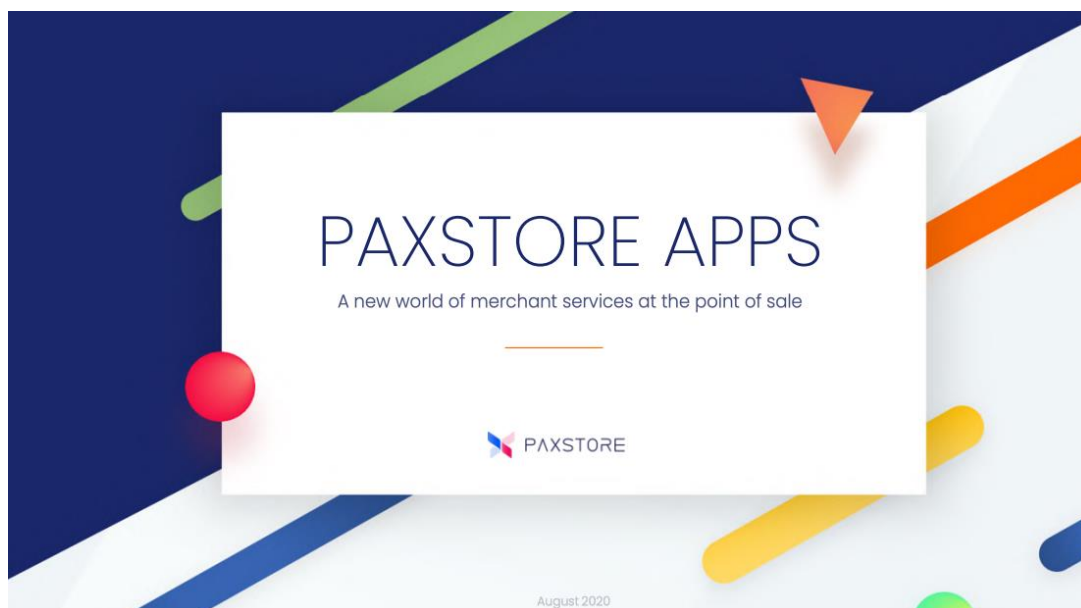
Join Hundreds of Independent Business Partners



<https://www.paxstore.us/portal#/home>

<https://www.whatspos.com/>

## PAXSTORE APPS



<https://uploads.strikinglycdn.com/files/15409edb-b319-4394-b338-3f891ba01e9a/PAXSTORE%20Apps20210114.pdf>

<https://www.paxglobal.com.hk/media/1249/paxstore-solution-182e2d0d-9acd-4672-94ea-363eed76db3c.pdf>

**PART 02**

## Customer Engagement Apps

Strengthening Customer Relationships







Table Tiger




Digital Loyalty




Braandz



Mobile ECR




Payment Loyalty




**PART 03**

## Employee Management Apps


Empower your people to work more efficiently



Dienstag



When I Work Staff Scheduling



The following are short videos that help understand the PAXSTORE.

[https://www.youtube.com/watch?v=jk\\_s0wN\\_rEE](https://www.youtube.com/watch?v=jk_s0wN_rEE)

<https://www.youtube.com/watch?v=b5PyaaMN9Zo>

<https://www.youtube.com/watch?v=mON8uGvM8ws>

## PART 04

# Point of Sale Apps

Many useful services for managing your business more efficiently

### Product & Stock Management

Barcode

Inventory360

### Payment Acceptance

USAePay

PayLo POS

Vendas

Paytm POS

NetPay Mini

### POS Supply

Paper Rolls

Order Paper

### Tax Free Shopping

Tax Free

### Ordering Systems

Register

Onslip POS

AddicTill

Life pay

Bleu POS

### Tools

Check Point

CBA App Lock

Capsule VPN

Global

App Store

Merchant Center

Developer Center

LOGIN

App Type Business Category Charge Type

Ranking

Run your own gift card programmes!

New applications available now!

savvy®

BRAND CUSTOMIZATION

DEVELOPER ECOLOGY

Hot

VIEW ALL

AirViewer

Rating / Regulatory / Syste...

NeptuneService

Ordering / Retail / Restaura...

CheckUp

Ordering / Retail / Restaura...

Paxsocks

Rating / Tax Refund / Regul...

PDM (Payment Device Managem...

Ordering / Retail / Restaura...

PAYUI

Nominate Loyalty

Register

Digital Loyalty

Oiyaa Retailer POS

<https://www.whatspos.com/portal/#/home>

Pax Global Tech. LTD. – 327 – HKEX

20

Remember that PAX's customer are acquiring banks and they are in competition to offer merchants the best and most comprehensive set of services, create a loyal following, manage employees, and optimize the flow of resources. The PAXSTORE can be more rapidly deployed than any other POS system because PAX ships 10 million (soon to be 22 million) units annually. See page 12 above for the rapid growth in terminals connected to the PAXSTORE.

*Loyalzoo, the leader in loyalty platforms for small and medium-sized retailers, and PAX Technology, the world's leading electronic payment terminal solution provider, have announced that Loyalzoo's Digital Loyalty app is now available on PAXSTORE, an open eco-system designed to manage and provide 3<sup>rd</sup> party business applications, allowing banks and merchants to create their own independent application stores and provide value-added services via Android-based terminals.*

*"Being on PAXSTORE is a big event for us", said Loyalzoo CEO Massimo Sirolla. "In the last five years we've worked on a lot of integrations with major smart POS providers. We realised at an early stage that to make loyalty a valuable add-on for merchants, it has to be integrated into the payment process. At a practical level, you need a solution that does not obstruct the merchant's sales process. More importantly, we found that an integrated solution could leverage all the information coming out of the payment system itself. In other words, through careful integration, we can give merchants the kind of CRM system normally available only to big retail and hospitality. What we offer helps smaller merchants punch far above their weight."*

*'We're delighted to have valuable applications featured on PAXSTORE, said Conor Devane, PAXSTORE marketing manager. "Partnering with solution providers such as Loyalzoo is part of PAXSTORE's strategy to provide a leading open-platform collaborative ecosystem which connects app providers, terminal managers, payment service providers and merchants.*

*The first of many projects this year will see the deployment of Loyalzoo on PAXSTORE to thousands of merchants in Ireland via TruePOS payment solutions. Using the Loyalzoo application on PAX A920 Android mobile SmartPOS, it will provide a highly integrated and feature-rich in-store solution with the smallest hardware footprint.*

<https://www.loyalzoo.com/digital-loyalty-paxstore/>

<https://www.nfcw.com/whats-new-in-payments/pax-technology-partners-with-dejamobile-to-let-merchants-accept-contactless-payments-on-nfc-devices/>



**SUNRISE, Fla., October 14, 2021--(BUSINESS WIRE)--**Chetu, a leading provider of world-class payment software development and support services, today announced its partnership with PAX Technology, Inc., a leading payments solutions provider, and that it has been added to the company's global partner network to create unique payment experiences for ISOs/MSPs, PayFacs, PSPs, payment gateway providers and payment processors. As a PAX partner, Chetu will be able to extend the functionality of PAX POS systems with custom apps and integrated solutions for the entire PAX family of devices, including PAX Smart Series, MPOS, countertop & pin pad devices.

One of the largest electronic payment solutions providers in the world, PAX Technology, Inc.'s POS terminals are used throughout numerous industries and in over 120 countries. Utilizing its own large, global presence, Chetu can leverage its backend industry experience in the very same industries to create unparalleled point-of-sale solutions for mutual clients, including:

- Configuration of the PAX SDK to enable application development for POS systems.
- Building standalone, semi-integrated, and fully integrated POS applications for PAX's Android-based devices.
- Customizing PAX systems and creating easy-to-use payment solutions with UX modules that include multi-payment options such as mobile wallets, EMV, NFC, Apple Pay, and self-service.
- Providing integration services with third-party software systems using Rest APIs to extend the functionality of PAX's payment applications.

"Chetu is beyond thrilled to be partnered with a prominent payment solutions provider such as PAX," said William Dawsey, vice president of sales for payments at Chetu. "We recognize the tremendous value that PAX provides to its clients and look forward to offering our decades of experience in payments software development to help customize and amplify PAX's solutions for clients worldwide." Chetu's status as a PAX partner allows them to successfully integrate with PAX POS systems, develop and deploy apps on the PAXSTORE, and implement custom terminal application flows for cash discount, pay-at-the-table, and other loyalty-based applications.

"PAX, and its easy-to-use SDK, large number of devices, and Android operating system capabilities, makes it an attractive payment solutions provider to offer our clients looking to leverage a POS provider in their applications," said Jaideep Sharma, director of operations for payments solutions at Chetu.

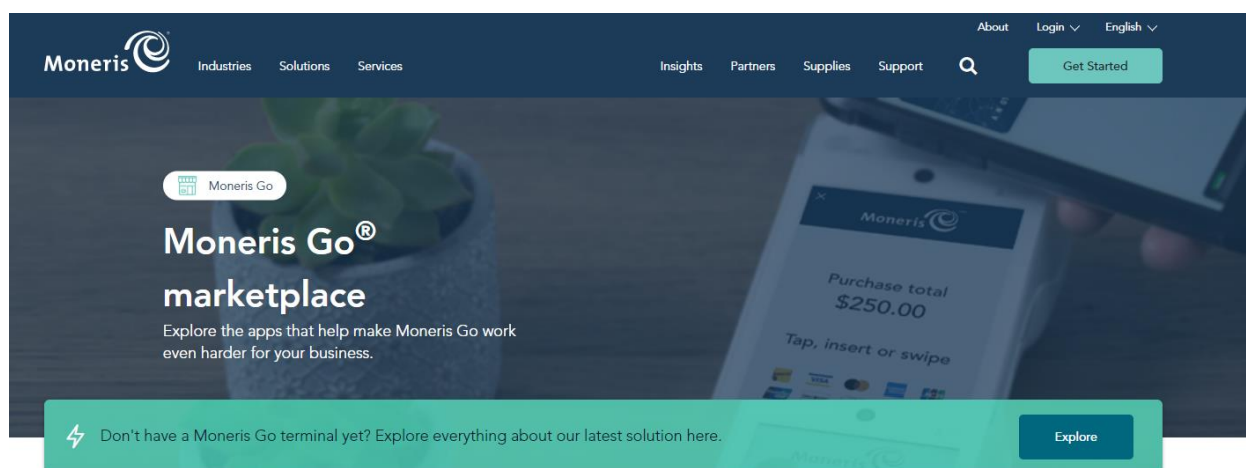
"Given the increasing demand for mobile payment applications, our partnership with PAX will only further our capabilities to meet our clients' needs." Along with PAX, Chetu maintains partnerships with other major payment solutions providers and remains an internationally recognized expert in payment processing and POS software development.

"PAX Technology, Inc. is always looking to augment our partner network with skilled POS software development partners such as Chetu, said Kenneth Shember, vice president of middle markets & ISV/VAR solutions at PAX Technology, Inc. It is third-party development partners like Chetu that allow PAX to better cater to its clients and continue to provide them with innovative payment processing solutions."

<https://www.yahoo.com/now/chetu-announces-partnership-pax-technology-130000980.html>

## PAXSTORE versus TOAST

PAXSTORE is an open system that allows acquiring banks and payment processors to choose from a wide variety of apps developed by either PAX or third parties. The acquiring banks and payment processors then offer these services to merchants. For instance, Moneris offers comprehensive services to its customers in Canada regardless of their industry. The PAXSTORE has 6,000 applications connected to 4.4 million terminals as March 2023 (up from 2.3 million in February 2021) in 80+ countries.



Help expand the capabilities of your device with powerful app pairings.

Your Moneris Go device has the ability to download apps, just like your smartphone, and each mobile application we offer is designed with businesses like yours in mind.

## Here's how to download the app on your Moneris Go terminal:



### Open the app menu

Select the PAXSTORE and view the apps available to you by selecting 'All'.



### Download the app of your choice

Once you've found the app you want, select 'Get' and use the cloud icon to start your download.



### You're good to go

After your download is complete you'll be able to open your app and get started.

## Explore our featured Moneris Go applications:

### Verify Ontario

Ontario's official app for verifying COVID-19 vaccine certificates. A business or organization can scan a visitor's digital or paper QR code with this app.

#### Features:

- Protect user privacy by reading certificates that are trusted and secure.
- Check if a certificate is valid and the visitor can enter.
- Show a visitor's name and date of birth so their identity can be verified.
- Works offline (without an internet connection).

**Developer:** Government of Ontario

**Support contact:** [appfeedback@ontario.ca](mailto:appfeedback@ontario.ca)

[Visit website](#)



<https://www.moneris.com/en/Products-Services/Terminals/Moneris-Go-Marketplace>



Heartland is a payment processor and fintech firm that offers services in the U.S. and is traded on the NYSE.


Heartland POS
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Knowledge
Knowledge Hub

## PAX A920 Setup Guide

### Overview

This article describes how to configure Heartland Retail to use the PAX A920 device to process payments. The A920 terminal is an Android based, multi-line transaction processing and mobile smart terminal. This service is only supported by Heartland Payment processing.



To function properly, the device must be loaded with a **Special PAXStore template for Heartland Retail**. We recommend you make any adjustments to the device at the PAXStore level to ensure that, if the device's firmware is ever updated or changed, those updates will include the site-specific settings. If you do not set them at the PAXStore level, your settings will be overwritten by any downloads.

### Prerequisites

- You must add an A920 SKU to an opportunity in Salesforce.
- The merchant account must have a Heartland Processing MID in Salesforce to complete the order.
- The merchant must be processing with Heartland Payments Systems.

PAX devices are set up in BroadPOS or PAXStore with a pre-configured template for Heartland Retail. We recommend you make any adjustments to the device at the BroadPOS/PAXStore level to ensure that, if the device's firmware is ever updated or changed, those updates will include the site-specific settings. If you do not set them at this level, your settings will be overwritten by any downloads. If you have any questions or concerns regarding the PAX device, please email them to [paxsupport@e-hps.com](mailto:paxsupport@e-hps.com), or call 1.888.909.8498.

### Related Articles

- PAX A920 Setup Guide 4
- Scan to Pay Setup Guide 15
- Heartland Restaurant - PAX D210 Setup Guide 4
- Pax S300 Setup Guide 9
- PAX S920 Setup Guide 6

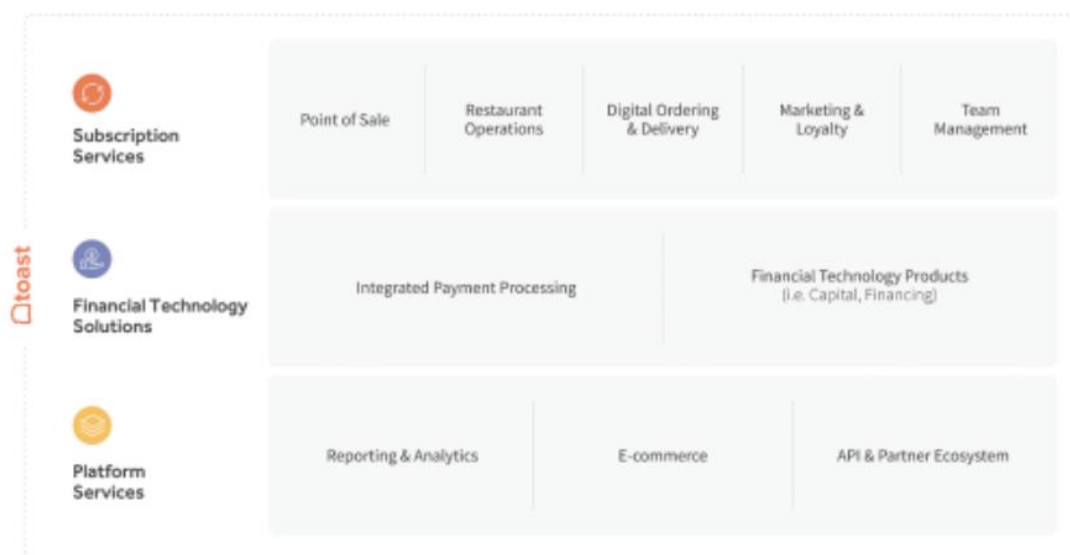
### Trending Articles

- Connecting Your Heartland Retail Account to Your QBO Account (Settings > Integrations > QBO)
- Configuring (or Mapping) Heartland Retail Financial Events to Your QBO Chart of Accounts (Settings > Financial)
- Setting up printed receipts and email receipts
- Journal Entries Created in QBO via Heartland Retail Financial Events
- Suggested Accounts for the Heartland Retail to Quickbooks Online Integration

<https://heartlandcommerce.force.com/lightningcommunity/s/article/PAX-A920-Setup-Guide>

<https://support.heartlandretail.us/en/articles/4551123-pax-a920-setup-guide>

Toast, unlike PAX, offers a wide variety of applications and services that its developers have created in-house. It also does have 150 partners that offer applications on its SaaS platform. As of June 30, 2021, only 33,000 locations use apps from Toast's Partner Ecosystem.



<https://www.sec.gov/Archives/edgar/data/0001650164/000119312521258447/d166297ds1.htm>

[https://s28.q4cdn.com/141746709/files/doc\\_financials/2021/q4/TOST-Q4FY21.pdf](https://s28.q4cdn.com/141746709/files/doc_financials/2021/q4/TOST-Q4FY21.pdf)

Toast has 18.7% gross margins, 497 employees in R&D, a market cap of approximately \$10 billion and sells for over 6.0x revenues.

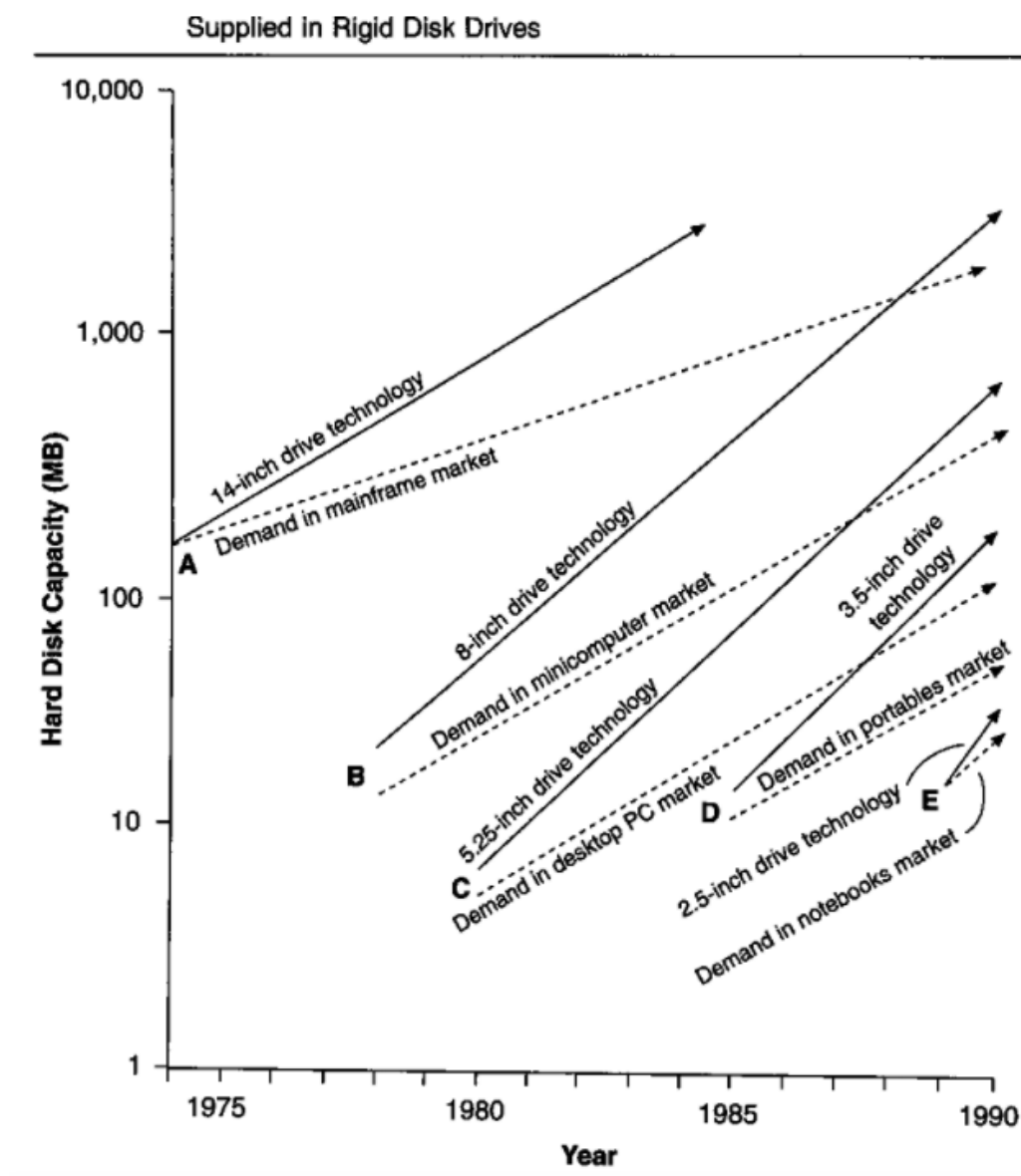
Pax has 39.3% gross margins, 817 in house R&D employees, over 2,100 software developers working on apps in the PAXSTORE, a market cap of less \$900 million and sells for approximately 1x revenues.

How many app developers are likely working on apps for Ingenico and Verifone?

## **The Innovator's Dilemma and Why Strong Firms Fail**

In *The Innovator's Dilemma*, Clayton Christensen posited that incumbent firms are very good at improving product performance while employing sustaining technologies. Sustaining technologies are incremental improvements using current knowledge-based frameworks. Disruptive technologies, on the other hand, are based on a different architecture and performance is measured against different criteria. For instance, in Chapter 1 of *The Innovator's Dilemma*, Mr. Christensen compares the performance of different size disk drives. In the below table, 5.25" drives (disruptive technology) were inferior on metrics that were important to current customers of disk drive manufacturers. The important metrics for current customers were capacity, access time, and costs. But new products/architectures were measured against different criteria such as size and weight which were important to early adapters of the new desktop computer. The desktop computer market had yet to be developed and early on it was not clear how big the market was going to be for these smaller computing products.

Attribute	8-Inch Drives (Minicomputer Market)	5.25-Inch Drives (Desktop Computer Market)
Capacity (megabytes)	60	10
Physical volume (cubicinches)	566	150
Weight (pounds)	21	6
Access time (milliseconds)	30	160
Cost per megabyte	\$50	\$200
Unit cost	\$3000	\$2000

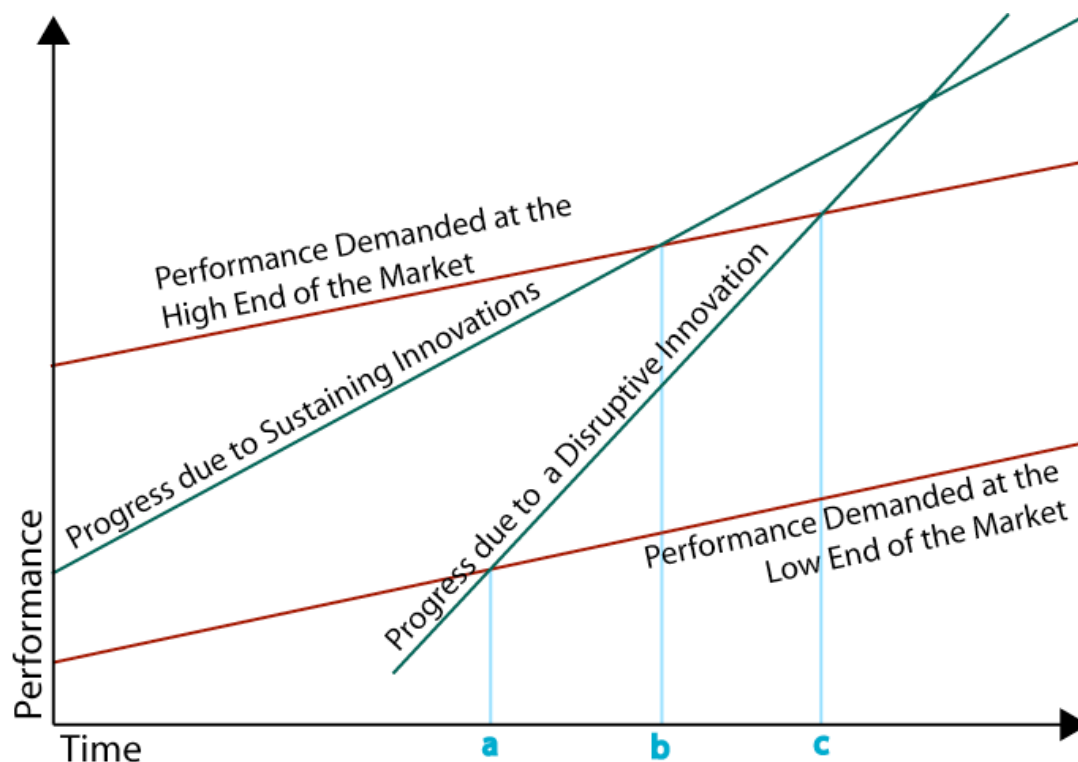


<https://www.semanticscholar.org/paper/The-Innovator's-Dilemma-Christensen/ca3698315441292596205d44d1a775d9cfc3fe37#extracted>

Incumbent firms easily out competed new entrants using sustaining technologies to increase capacity, reduce access time and drive down costs of older drives. However, incumbent firms always failed to survive. Incredibly, the new architectures were not technologically demanding relative to the improvements made by sustaining technologies. Yet incumbent firms still always failed to change and went bankrupt in the disk drive industry.

Mr. Christensen posited five reasons why incumbent firms have a difficult time competing when faced with firms employing disruptive technologies:

- 1) **RESOURCE DEPENDENCE**: Customers and Investors control the flow of resources. Current customers have needs and requirements that can only be met using sustaining technologies. Incumbent firms are in fierce competition to continually improve upon metrics that are important based on old architectures. Senior management, accounting and sales personnel will fight for resources to be allocated to win in current markets, not future unknown markets. Also, investors's needs and wants often dictate the flow of funds.
- 2) **SMALL MARKETS**: New markets are too small to justify investment and do not offer significant growth for large incumbents. Larger firms need growth opportunities that are big enough to have a meaningful impact. This can be especially problematic when investors such as public markets or private equity firms need to show a return on investment.
- 3) **UNQUANTIFIABLE RISKS**: New markets do not have data and cannot be analyzed. Management teams have a difficult time justifying to boards and owners investments that cannot be backed by data.
- 4) **ORGANIZATIONAL LIMITATIONS**: Organizations develop intellectual and capital investments that are used to support current customers. This means that they may lack talent and other resources that can be used to develop products and services for new markets.
- 5) **TECHNOLOGY SUPPLY AND CONSUMER DEMAND**: Supply does not match market demand. Very often when new architectures are first introduced, product performance is well below performance based on old technology and even below the requirements of the lowest segment of the market as depicted in the below graph. As time progresses, however, product performance based on the disruptive technology improves very rapidly surpassing demand of the entire market.



<https://dltj.org/article/disruptive-innovation-card/>

In the payments terminal market, sustaining technologies are “dumb” terminals using closed, internally developed Linux based operating systems that offer limited functionality. In the POS market, sustaining technologies are desktop or client/server-based systems that are either based on Windows or Linux.

The disruptive technology in both cases is the Android operating system that offers mobile computing with wider functionality based on real-time data and interactions. The low-end of the market are mom-and-pop retailers in Brazil and India and the high-end of the market are large retailer chains in the USA and Europe. On the time scale, 2021 is somewhere between a and b, but rapidly moving to the right.

## Competitors in 2021

A cursory search of Ingenico's and Verifone's websites will demonstrate that PAX Global's product line is innovating and growing more rapidly.



### Telium TETRA

The Telium TETRA offer allows value-added services to be seamlessly deployed in the payment value chain.

Ingenico's Telium TETRA range of payment solutions create a breakthrough in the way payment service providers can operate their fleet and finally handle legacy payment activities while transitioning to the digital age. This makes it a unique ecosystem and a perfect opportunity for the payment industry to enhance the consumer experience.

The new Telium TETRA suite relies on a new generation operating system and three major offers: Payment Terminals, Payment Applications and the Estate Manager.



Payment Terminals



Operating System



Payment Applications



The Estate Manager

## Operating System

Secure in payment. Open to creativity with Telium TETRA

With 30 years of experience, Ingenico has developed a unique experience in designing best-in-class secured operating systems managing over 2500 payment applications.

On its latest generation of Telium TETRA payment terminals, Ingenico has designed a new Operating System, with a user-friendly interface, openness to the web standard and security at its core. This new future-proof Operating System embeds powerful and innovative security mechanisms to bridge secure payment with an open web-based environment. A new experience is within reach for developers, users and final consumers.

- A proven OS for payment.
- Designed for enhanced user experience.
- Best-in-class security.
- Open to worldwide apps.
- A new experience for developers, users & consumers.



<https://www.ingenico.us/smart-terminals/telium-tetra#operating-system>

<https://www.ingenico.us/smart-terminals#telium2>

<https://developer.ingenico.com/>

Ingenico does have a competing Android OS called AXIUM.

## AXIUM: a complete, integrated platform



To be fair, Ingenico is beginning to offer more innovative Android solutions with the launch of its new AXIUM platform in April 2021.

<https://www.ingenico.com/axium>

[https://worldline.com/en/home/pressroom/press-releases/2021/pr-2021\\_04\\_06\\_01.html](https://worldline.com/en/home/pressroom/press-releases/2021/pr-2021_04_06_01.html)

[https://cdn.ingenico.com/binaries/content/assets/corporate-en/library/brochures/ing\\_brochure-axium\\_apr21.pdf](https://cdn.ingenico.com/binaries/content/assets/corporate-en/library/brochures/ing_brochure-axium_apr21.pdf)

<https://developer.ingenico.com/product/axium/>

[https://www.ingenico.com/binaries/content/assets/corporate-en/library/2015/151118\\_the-marketplace.pdf](https://www.ingenico.com/binaries/content/assets/corporate-en/library/2015/151118_the-marketplace.pdf)

<https://www.youtube.com/watch?v=M5A7cIbf5RU>



Below is taken from Verifone's website and shows the different operating system structures for both the payment terminal and the POS system. The payment terminal is Linux based and the POS system is Android based.

## A Payment Terminal



SW stack in a payment terminal includes following these main layers:

Operating system, can be Verifone developed (Verix) or commercial (VOS, based on Linux).

Runtime on top of which the installed applications run

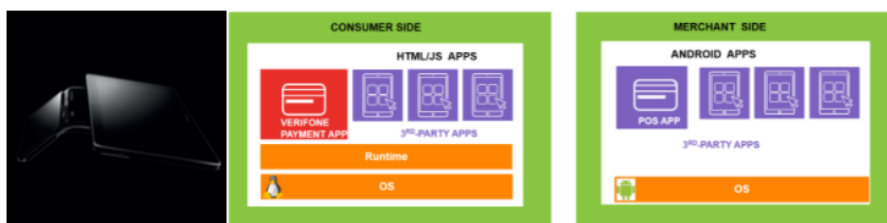
Payment application that takes care of payment processing. Payment application is in scope of PCI certification. It is a native application typically developed by Verifone (SCA payment application is an example).

3rd party applications. These applications are called as Terminal Commerce Applications, and are implemented with HTML/CSS/JS. HTML and CSS for building the application UI and JavaScript for application logic.

Terminal Commerce Applications are not in scope of PCI certification as they do not have access to the payment card info.

Some examples of payment devices are the new Engage family devices like P400 or P200

## A POS Terminal



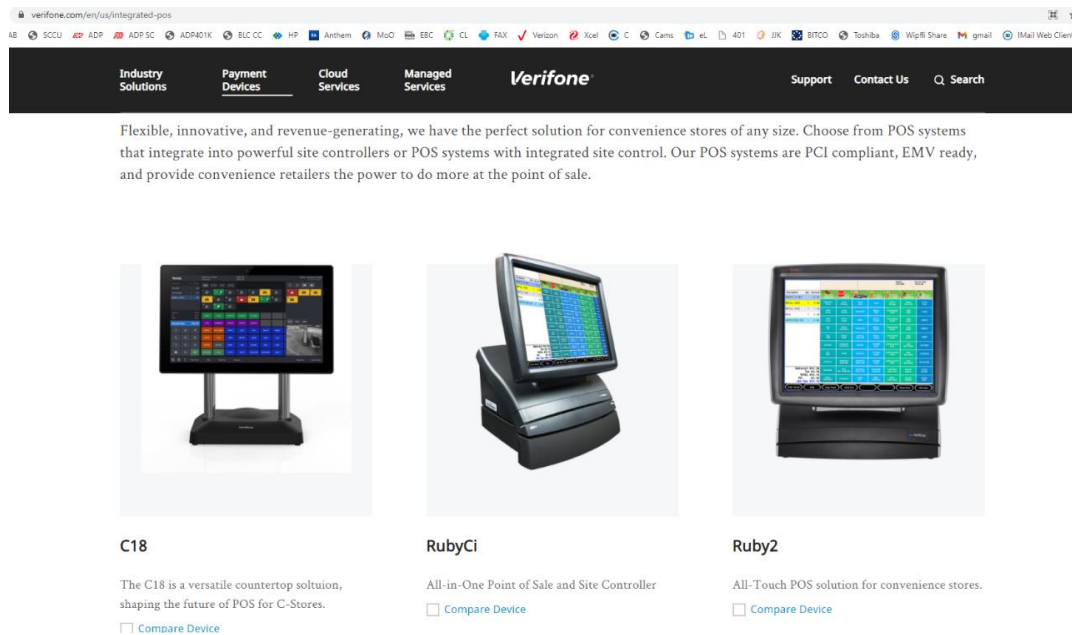
A POS terminal offers a full point-of-sale solution. The device supports both the consumer and merchant interaction with dedicated displays.

The SW stack of the consumer side is aligned with the SW stack on the payment terminals. Consumer side includes a PCI-certified payment application taking care of payment transactions, and 3rd party Terminal Commerce Applications implemented with HTML/CSS/JS.

The SW stack on the merchant side is a standard Android tablet SW stack including Android OS on top of which the 3rd party Android applications are installed.

These 3rd party apps can be standard Android apps, or they can use the Verifone-delivered Payment and Commerce APIs. In the latter case, we refer to the applications as Android Commerce Applications. Android Commerce Applications can use the Payment API to interact with the Payment application on the consumer side of the device, or the Commerce API to interact with the Terminal Commerce applications on the consumer side of the device.

<https://developer.verifone.com/docs/overview/platform>



The screenshot shows the Verifone integrated POS website. The header includes navigation links for Industry Solutions, Payment Devices, Cloud Services, and Managed Services, along with the Verifone logo and links for Support, Contact Us, and Search. The main content area features a paragraph describing the flexibility and revenue-generating capabilities of their POS systems. Below this, three device models are showcased: C18, RubyCi, and Ruby2. Each model is accompanied by a description and a 'Compare Device' link.

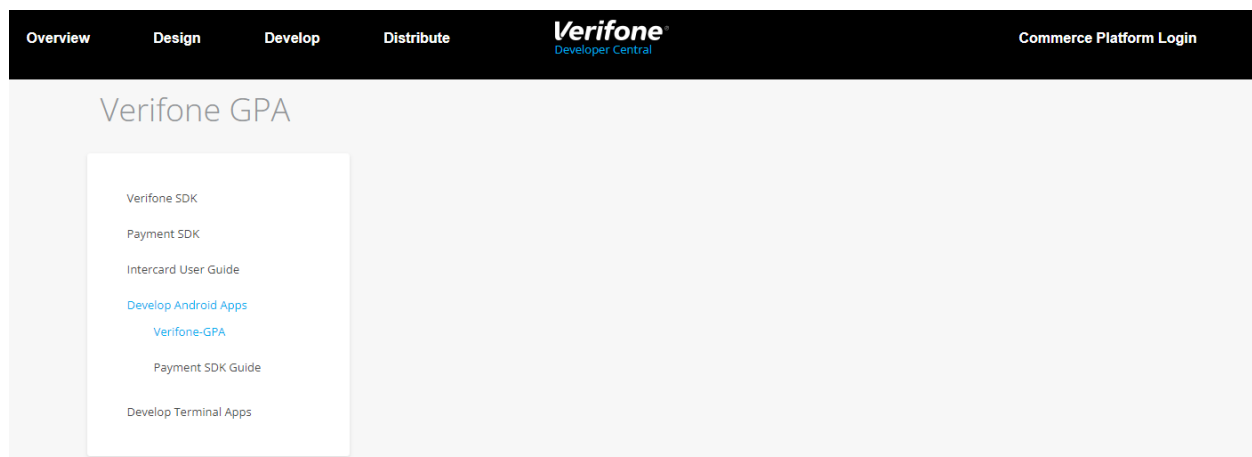
**C18**  
The C18 is a versatile countertop solution, shaping the future of POS for C-Stores.  
[Compare Device](#)

**RubyCi**  
All-in-One Point of Sale and Site Controller  
[Compare Device](#)

**Ruby2**  
All-Touch POS solution for convenience stores.  
[Compare Device](#)

<https://www.verifone.com/en/us/integrated-pos>

Compare the tools made available in the PAXSTORE to software developers to the tools available by VeriFone.



The screenshot shows the Verifone Developer Central website. The header includes navigation links for Overview, Design, Develop, and Distribute, along with the Verifone logo and a link for Commerce Platform Login. The main content area features a section titled 'Verifone GPA' with a list of links: Verifone SDK, Payment SDK, InterCard User Guide, Develop Android Apps, Verifone-GPA, Payment SDK Guide, and Develop Terminal Apps.

**Verifone GPA**

- Verifone SDK
- Payment SDK
- InterCard User Guide
- Develop Android Apps
- Verifone-GPA
- Payment SDK Guide
- Develop Terminal Apps

<https://developer.verifone.com/docs/develop/develop-android-apps/verifone-gpa>

By going back to Clayton Christensen's five reasons why incumbents fail, we can see why Ingenico and Verifone are trailing PAX Global.

- 1) **RESOURCE DEPENDENCE**: Ingenico's and Verifone's owners used cash flows from traditional payment terminals to funnel into other service areas or to return to owners. Francisco Partners implemented cost cutting measures at Verifone after the private equity firm purchased the company. The high debt levels make it hard for Verifone to compete. Ingenico acquired Bambora in 2017 and merged with Worldline in 2018. Bambora is a merchant acquirer and competitor to Ingenico's customers. Customers will likely move away from Ingenico to PAX. Ingenico and Verifone were (and still are) slow to develop smart, mobile terminals because their customers were not demanding these solutions until very recently.
- 2) **SMALL MARKETS**: Initially, the market for smart payment terminals with limited POS features was small because it was limited to mom-and-pop retailers in developing markets. Now, however, mom-and-pop retailers in western markets are demanding better POS features as they become knowledgeable about services that payment terminals now provide. Soon the market will move to larger corporations.
- 3) **UNQUANTIFIABLE RISKS**: At first, there was no data to analyze the size or profitability of the new emerging market for smart payment terminals. Would large acquirers and payments processors purchase payment terminals that would use Android OS rather terminals using proven Linux operating systems? What was the reputation risk for failure?
- 4) **ORGANIZATIONAL LIMITATIONS**: Ingenico and Verifone software developers have expertise to maintain and enhance internally developed Linux based operating systems along with knowhow to develop applications based on these older systems. Also, these manufacturers have relationships with Asian manufacturers that have know-how to manufacture traditional (not smart) POS systems. PAX by being based in Shenzhen can move fast to develop, prototype, and then reach manufacturing scale when creating new products. Also, the emergence of young digital native payments companies means that Ingenico's and Verifone's historical relationships with large financial institutions are less important today than in the past.
- 5) **TECHNOLOGY SUPPLY AND CONSUMER DEMAND**: At first, the added POS functionality was limited in payment terminals. Further, large enterprises had already invested great resources in traditional POS systems that accomplished tasks such as sales analysis, accounting, and inventory tracking. The main attribute payment terminals were measured against for two decades was security not added functionality. Hence, there was very limited demand for smart payment terminals and the supply of services was inadequate because the technology had yet to be develop. Today, while security is still paramount, additional features and POS services are

becoming quickly available thanks to the rapid increase in software development tools offered by PAX and the increasing number of developers using these tools.

<i>Prospector Profile</i>		
<i>18.1381</i>		
<b>Verifone Systems, Inc.</b> 88 W Plumeria Dr San Jose, CA 95134 (408) 232-7800	NAICS Employees	334118 5,600
<b>Category:</b> Low Rating		
<p><b>Event:</b> Moody's Investors Service assigned to Verifone Systems, Inc. a B2 Corporate Family Rating, B2-PD Probability of Default Rating, and B1 and Caa1 ratings to the company's proposed first lien and second lien credit facilities, respectively. The ratings have a stable outlook. The proceeds from the new credit facilities will be used to consummate the acquisition of Verifone by a consortium led by Francisco Partners for approximately \$3.4 billion, including net debt. Moody's expects to withdraw Verifone, Inc's existing ratings upon the close of the acquisition.</p> <p>The B2 CFR reflects Verifone's high expected leverage and elevated execution risk over the next 12 to 18 months. Execution risk will be elevated as Verifone will implement significant cost and operating expense savings over the approximately 18 months after the close of the acquisition. The targeted efficiencies are substantial relative to Verifone's existing expense base and will affect all core functions of the company. The B2 rating incorporates Moody's expectation that Verifone's leverage will decline from about 7x at the close of the acquisition to below 5x over the following 18 months and strengthen significantly in 2020 when the cost reductions will be fully reflected in the earnings. While the planned savings are substantial, a large portion of the savings will come from headcount reductions and are achievable.</p> <p>The B2 rating is supported by Verifone's good business profile reflecting its large installed base and relationships with merchant acquirers and customers. Verifone has leading market positions in the Point of Sale terminals market in several major economies and good geographic revenue diversity. The company is in the midst of a multi-year transformation from a POS-centric business to higher margin Services, which needs to be proven. Moody's believes that Verifone's new products launched over the last 12 months position the company well to defend its market shares in the POS market and execute its services growth strategy though sales from new products will comprise a small proportion of overall systems sales in the near term.</p> <p><b>Description:</b> Verifone Systems, Inc., is a provider of Point-of-Sale electronic payment terminals and also offers security, encryption, product maintenance and other payments services.</p>		

<http://bankrupt.com/periodicals/tcp1807301.pdf><https://www.ingenico.com/press-and-publications/press-releases/finance/2017/07/ingenico-ramps-up-its-transformation-acquisition-of-bambora.html>

**Calvin Pei, IR / Host**

Thank you Kenny for your question, our management is going to respond.

**Ethan Cheung, CFO**

Thank you for your question. Indeed, it's very relevant and important question to PAX. It will have a positive impact on PAX. The reason behind is we already know that in 2018, one of our major competitors, the U.S. company, when it was acquired by a PE firm. Immediately after six months, we already received a lot of active orders or invitation to bidding process from customers in the United States and in European region. The reason behind is, when a supplier switches their business from payment terminal into a processing business or service providing business, there're big business risk for them that, directly competing with their customers. For the company size like the French competitor, if you were customers of them, you directly competed with them, the first thing you'd think of would be looking for another supplier to provide you payment terminals instead of continuing your business with the French competitor. What we are expecting now is, that will not happen just in one night, but will happen in next few years while we expect the people or customers in this payment terminal industry they will gradually shift from our big competitor, who are actually competing with them now, to PAX. And we feel like, as you may probably heard about that, their emphasis shifted from hardware to their service business. That's why we believe that the overall trend will happen in next few years and definitely will bring results and good impact on PAX.

**A - Ethan Cheung**

Okay. Well -- just one second. Well, if you -- the commercial reason why our strong competition power, the commercial reason is simple. If you look at our two largest competitors, Ingenico and VeriFone, you would expect that their focus will gradually shift more towards software and services income. But for PAX, we keep the consistency. We continue to focus on the hardware portfolio. Of course, we are also exploring the income from services and solutions, but at the same time, we didn't lose our sight on providing the perfect and best hardware portfolio in this industry.

So our focus on hardware, you can take one example that we are basically entertaining every -- the global demand. Every country when they want to have a new product, they look to PAX. And we are the -- indeed the quickest to respond and to provide them hardware and to provide them with customized products. And if you look at our Android products now, we are far ahead of our -- we are far in front of our competitors. This is a perfect demonstration of our execution of our strategies.

PAX's goal is to continue to provide hardware and POS software to merchant banks and payment processors whereas Ingenico wants to own the whole payment process.

<https://www.slideshare.net/GabrielCastroCFA/pax-global-earnings-call-transcript-fy-2019>



## PAX Global's Deepening Competitive Advantage

In July 2021, Pax Global stated that it would construct a new manufacturing and research facility to expand current production capacity from 12 million units to at least 22 million units. Note that non-Chinese demand is probably around 80 million units today, but also growing. So, 10 million additional units of production capacity from PAX is a meaningful change in the industry supply composition. Currently most of PAX's production goes to Latin America and the APAC region, excluding China. Incremental production capacity will likely flow into North America and Europe.

### PAX plans to build a Smart Terminal Industrial Park to increase production capacity and enhance supply chain management



1

#### Increase production capacity

- Current annual capacity: approx. 12m units; expected annual capacity (at least): approx. 22m units
- Effectively meet the huge demand of payment terminals in the future
- Further enhance PAX's international competitive advantage

2

#### Build an enhanced and concentrated supply chain

- Invite suppliers and sub-contractors
- Strengthen cooperation and relationship with suppliers and sub-contractors
- Continue to mainly outsource the manufacturing process



### Smart Terminal Industrial Park is located in a favourable position of the electronics industry



#### Location

**Zhongkai High-tech Zone, Huizhou City, Guangdong Province, the PRC**

- Huizhou City is an important electronics industry cluster. It has geographical advantages with a comprehensive transportation network of highway, sea, air and rail, to achieve convenient logistics and transportation.



#### Consideration

**RMB 417.4 million (HK\$ 501.4 million)**



#### Gross floor area

**~ 274,000 square meters**

- Comprising production plants, logistic warehouses, technology centre, and employee dormitories



#### Construction planning

- Expected completion: Q4 2022 (at the earliest)
- Expected commencement of production: Q2 2023 (at the earliest)



## **Smart Payment Terminals and Dumb Equity Markets**

PAX Global (HKEX: 327) trades at 6.7x LTM earnings, has 52% of its market cap in cash on the balance sheet, and Android sales are growing at 78% a year. Currently, the equity market in Hong Kong is valuing PAX as if it is a low margin hardware manufacturer that can be easily replaced and is in a cyclical industry. As argued in this paper, we do not believe this is true. In fact, PAX is using an *open software platform* based on the Android OS to win market share and expand its offering.

<https://github.com/PAXSTORE>

<https://www.nuget.org/packages/Paxstore.OpenApi/>

<https://www.youtube.com/watch?v=aZdF5LWsZgA>

The global POS terminal hardware market is probably around \$7 billion to \$10 billion. 135 million units times \$75 per unit equals \$10 billion dollars. Alternatively, in 2020, PAX had 8% market share and \$728 million in sales. This is the total addressable market (TAM) that the equity market is using to value PAX. However, this is incorrect. PAXSTORE has offerings that compete against the entire POS ecosystem which is forecast to grow to a \$131 billion in 2028 (Although, \$131 billion maybe too big due to deflationary forces which will be partially caused by PAX if it is successful). PAX's terminals are already at the heart of a merchant's operation giving PAX two key advantages:

- 1) PAX already has regulatory approval to accept payments around the global, so traditional POS system makers (as opposed to terminal payment manufacturers) will have difficulty reaching millions of customers as rapidly as PAX. Currently, PAX has millions of deployed Android payment terminals in use which can quickly be updated to give access the PAXSTORE.
- 2) PAX has a large lead over incumbent payment terminal EOMs in its Android offering and the lead is growing quickly especially versus Verifone, maybe less so against Ingenico. PAX has the largest ecosystem of apps and developers for smart, mobile payment terminals. PAX's future valuation creation is not solely about hardware manufacturing capabilities but is rather more about the software services it offers developers and financial services firms combined with the large number of developers, financial service firms, and merchants are on its platform.

To demonstrate the potential of PAX's ambitions assume there are 100 million Android terminals connected to the PAXSTORE in 3 years and each pays \$5 a year in usage fees (current price is \$1 a year) to PAX (likely there would be some kind of split between PAX, the developer and the acquiring bank but assume PAX's share is \$5). That would be \$500 million a year in ~90% margin software sales. PAX's current market cap is \$725 million. Of course, there are risks and this may not work as well as hoped, but an investor is certainly not paying for this optionality at today's share price.

Below are the technical specifications for PAX's new A920Pro.

### Technical Specifications

**OS**  
PayDroid  
Based on Android 8.1

**Processor**  
AP: 4core Cortex™-A53, 1.4GHZ  
SP: 32-bit RISC Core (ARMv7-M) 96/MHz

**Memory**  
8GB eMMC Flash + 1GB DDR RAM  
16GB eMMC Flash + 2GB DDR RAM(optional)  
Extended Micro SD card slot up to 128GB

**Display**  
5.5" IPS Screen, 1440 x 720 Pixels  
Multi-Point Capacitive Touch Screen

**Battery**  
3.7V / 5150mAh Polymer Lithium Battery

**Physical**  
L x W x H (mm): 178.3 x 78.0 x 54.2  
Weight (g): 390

**Communications**  
4G / 3G / 2G  
WIFI 2.4GHz + Bluetooth  
WIFI 5GHz + Bluetooth 5.0 (optional)  
Support Hotspot

**Camera**  
5MP Rear-Facing Camera  
Top-Side Barcode Scanner,  
Reads 1D & 2D Codes  
Optional: Higher quality barcode scanner

**Card Readers**  
1 x Micro SIM + 2 x PSAM  
1 x Micro SIM + 1 x Mini SIM + 1 x PSAM (optional)

**Peripheral Ports**  
1 Type C USB OTG  
6 PIN POGO PIN

**Printer**  
2" High-Speed Thermal Printer  
Print Speed: 80mm/s  
Paper Width / Diameter: 58mm / 40mm

**Certifications**  
PCI PTS Sxx, SRED EMV L1 & L2  
EMV Contactless L1, Discover D-PAS I IC  
MasterCard Contactless, Visa payWave,  
ABECS, CE, IC, Anatel, American ExpressPay  
PTCRB, MasterCard TQM, Interac\_Flash\_L2  
J/Speedy L2, FCC, RoHS

### Applicable Industries

Self-service supermarket

Fresh market

Restaurant chain

Coffeehouse chain

Franchise store

Convenience store

### Functions & Applications

Self-checkout

Online order

Quick order

Table management

Settlement at reception

Members management

Cashier management

Remote store management

Inventory management

Inventory verification

<https://www.paxglobal.com.hk/media/2634/a920pro-2020-0717.pdf>

Dear Valued Bluefin Client,

As a Bluefin client with a PAX terminal, we would like to advise you of a scheduled PAX migration to a new terminal management system used by Bluefin to manage PAX devices.

Bluefin currently manages your terminals in a PAX system known as BroadPOS. PAX will be migrating all PAX devices to a new system called PAXStore Marketplace. This migration will not affect the performance of your devices. Please follow the instructions below to avoid disruptions in service.

<https://www.bluefin.com/download/support/Bluefin-PAX-Terminal-Update-May-2020.pdf>

<https://www.grandviewresearch.com/industry-analysis/point-of-sale-pos-terminals-market#:~:text=The%20global%20POS%20terminals%20market,USD%201.86%20billion%20in%202021>

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