

Growth in unattended commerce fuels demand for self-service payments

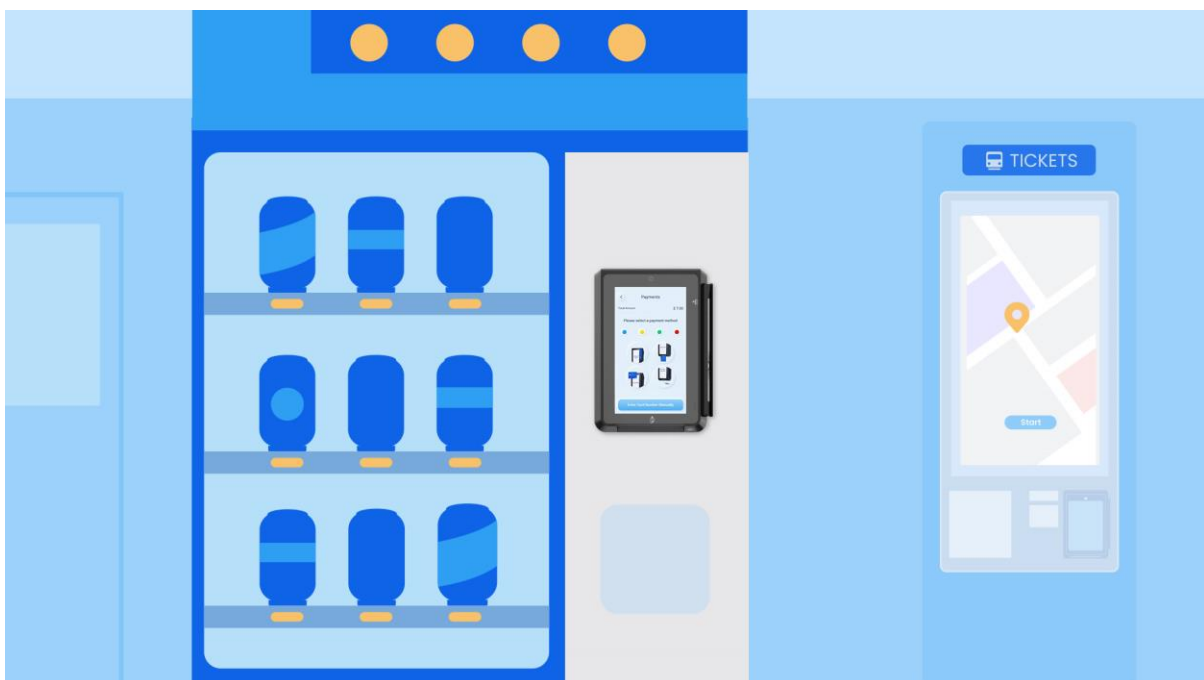
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The unattended commerce market is huge, and growing rapidly around the world. In the United States of America - the world's largest self-service payment market - the sector accounts for sales of over USD 31 billion, a figure which does not include the additional billions spent on transportation tickets and kiosk-based purchases. Globally, vending machines alone account for USD 56 billion in sales, and is predicted to reach USD 129 billion by 2030.



Drivers for self-service

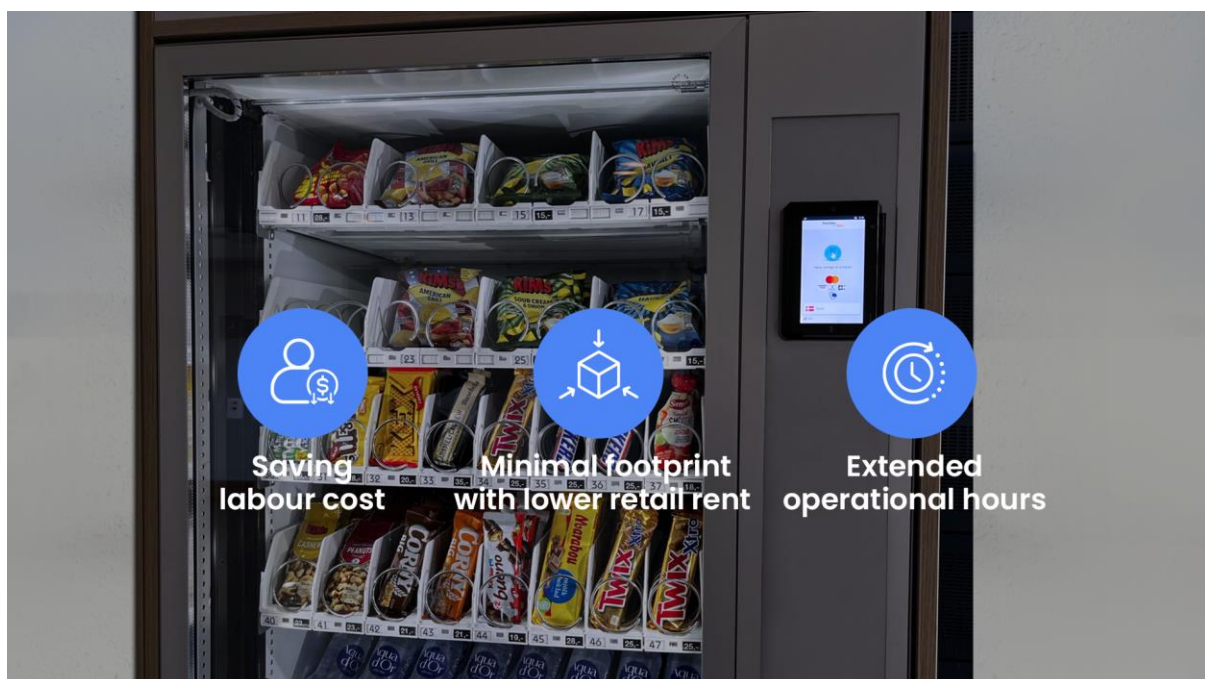
The COVID-19 pandemic accelerated the adoption of many digital payment options, a trend which shows no sign of slowing down. Unattended payment points were felt to reduce the chance of infection spreading, and forced shoppers to develop new payment habits. And now, tough economic conditions provide a further catalyst to greater investments in self-service payments technology.

Businesses are increasingly looking to accept electronic payments without the need for employees to be involved in processing the transaction. This automation of retail business is emphasized by an aging population challenge, which many countries around the world face today. An increased demand for automation and self-service is part of the wider shift towards a cashless society. Devices can either be installed outdoors or inside stores, and in both unattended and semi-attended environments. Consumers have become familiar with serving themselves and indeed many prefer self-administration as it allows them to operate at their own pace. A few very large retailers including Amazon are even experimenting with completely self-service, fully automated, store formats.

Unattended commerce is nothing new, with the origins of Vending Machines dating back to 1888 when chewing gum sales were introduced on New York subway platforms.

Self-service offers many benefits

Self-service delivers labour cost savings, which are very relevant in times of rising employee wages and difficulties in recruiting and retaining staff. Higher retail rent means that floor space must be put to maximum use. The latest self-service machines take up a minimal footprint, allowing space to be reallocated to product sales. Extended operational hours are also possible, as self-service machines do not need staff breaks or have homes to return to!



Unattended devices have been around for many years but until now these had to support a range of legacy payment practices, including cash and bank note acceptance, and the printing of paper receipts for customers. These requirements added to the initial Capital Expenditure (CAPEX) cost and, critically, created multiple points of failure, opportunities for criminal attack, as well as high operational servicing costs. Far too frequently the out-of-service sign appeared on unattended payment points.

Faster times and shorter queues

Surveys have shown that the main reason customers choose to use a self-service machine is that they can deliver faster transaction times, with the second highest factor being a reduction in the amount of time spent queuing. Queuing, even for the orderly British, Japanese & Scandinavians, is a major source of frustration and often leads to the abandonment of a sale, or a reluctance to return to that store in the future. The third most common reason is a reluctance to engage in conversation with employees and this is particularly relevant to Gen Z and Millennials who often prefer to interact digitally rather than verbally. The latest generation of self-service machines serve customers much faster thanks to larger and more intuitive displays, faster processors, contactless card and digital wallet acceptance, and faster network communications.

Unattended environments

Vending machine sales continue to be dominated by food and drink dispensing, with some forecasts showing that these account for half of all sales. Refrigeration technology advancement is helping expand the range of food products that can be self-dispensed. Laundry services continue to be a significant segment for the unattended market. Use is now being extended to other product categories including vehicle services, clothing, health & beauty, and electronic products.

The public transportation sector drives a very high number of daily self-service payments. In this segment, tickets are sold from traditional unattended ticket dispensers, but also via new types of devices which are required to validate or purchase tickets on-board buses, trams, and trains, and to support new fare types based on the actual journey or start/stop times. Toll charging points are also growing globally to help fund investment in expensive new road and bridge infrastructures. These toll booths require rapid digital payments acceptance to prevent the formation of queues.



Parking continues to be a critical sector for unattended payments, both at garage car parking lots and to pay for on-street parking. Contactless card and digital wallet payment options have now become the preferred consumer method. When fuelling a vehicle, Pay@Pump is showing lower growth rates perhaps due to an increase in digital wallet payment adoption and thanks to governmental pressure, at least in certain parts of the world, to protect jobs.

With public sector budgets under scrutiny, individuals are increasingly being required to contribute financially towards the use of public services. This even applies to public restrooms, where contactless payments are needed as the cost exceeds 'spending a penny'.

Growth from the retail, hospitality and entertainment sectors

Quick Service Restaurant (QSR) chains have been busy installing self-ordering points at drive-through lanes and inside restaurants, to achieve operational efficiency improvements and cost savings. This allows employees to focus on food preparation and service.



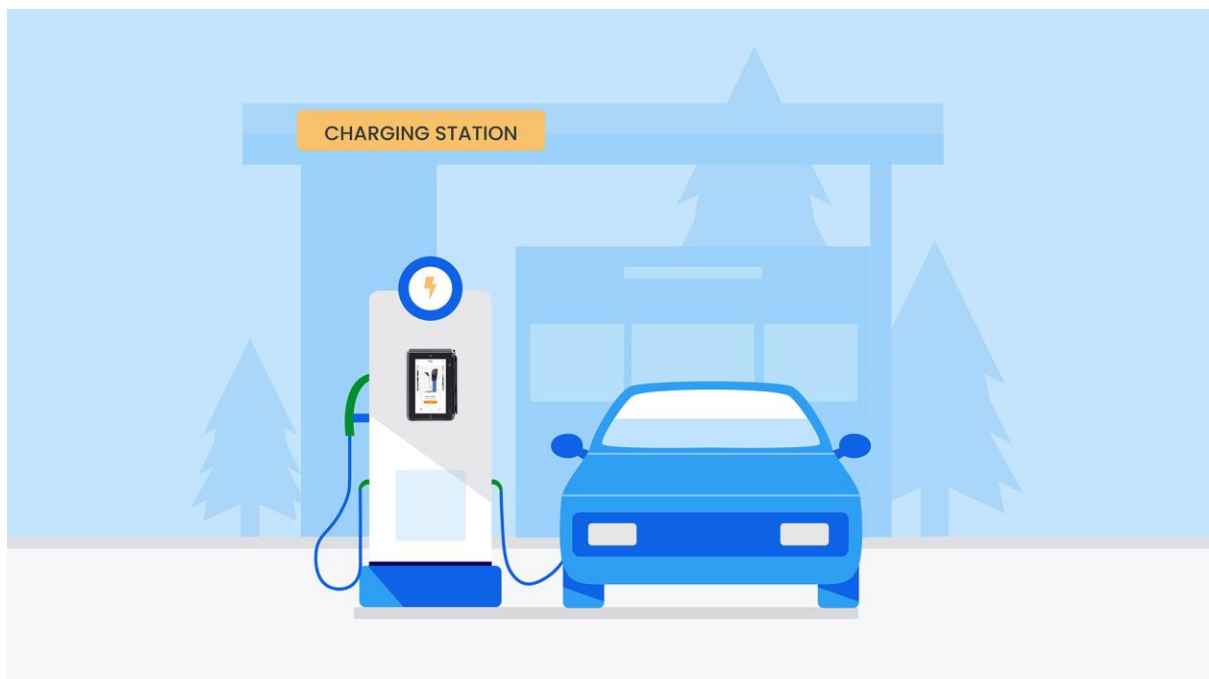
Self-service kiosks have been successfully introduced by many hoteliers in their lobbies to offer extended check-in hours and to reduce queues at peak check-out times. These devices also support revenue generating services such as gym, pool, meeting room & WiFi access, sauna & beauty treatments, as well as car parking, all to be paid for without requiring front-desk staff involvement.

Within retail stores, in addition to self-checkout lanes, kiosks are being introduced to support the growth in 'Click & Collect' sales volumes, and as a queue busting option for the fast purchasing of appropriate product lines.

The entertainment sector has also recognised the potential of self-service kiosks to authenticate customers securely, dispense pre-purchased tickets rapidly and allow self-administration of seat selection, providing also various upselling opportunities.

Electric Vehicle charging

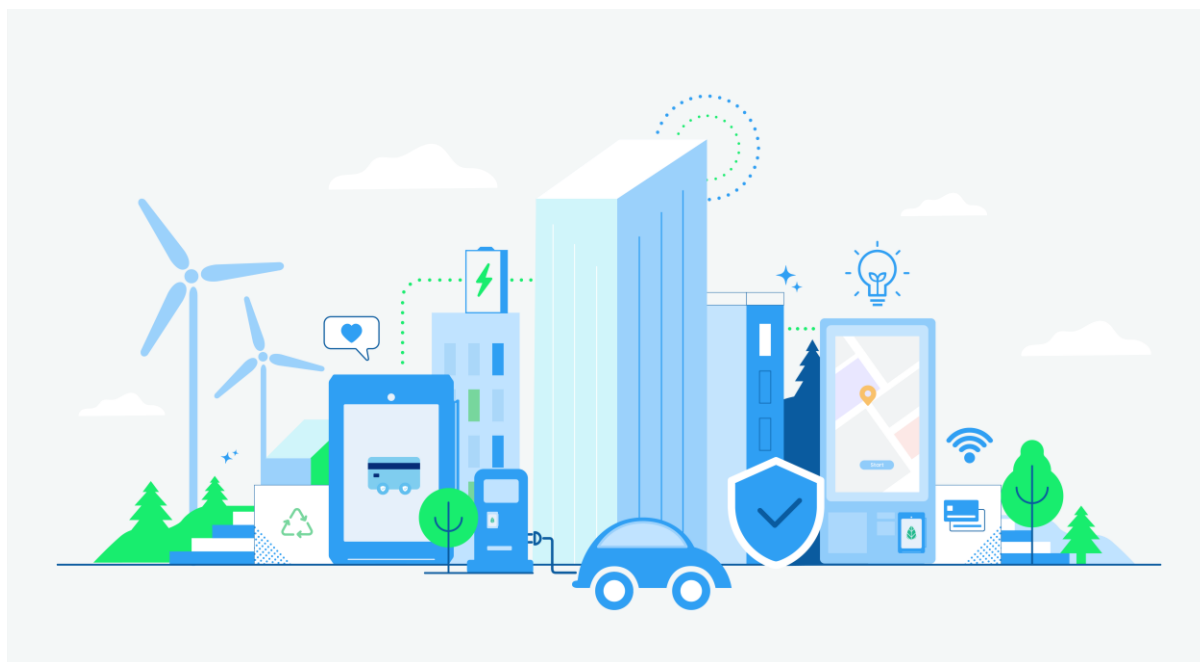
The transition away from fossil fuel powered cars to Electric Vehicles (EV) is creating a major growth opportunity for unattended digital payments. The European Union Green Fund is providing investment to encourage EV adoption, and the EU Alternative Fuels Infrastructure Regulation (AFIR) provides regulatory guidance that all new public EV charging locations must accept contactless payments. European forecasts show that 2.9 million EV charging points are needed by 2030. This means a huge 27-fold increase of the current install base in order to meet demand.



EV charging is not just a European market opportunity, as it will apply in all global regions but perhaps at different timeframes.

Smart cities

The number of 'smart' cities and regions continues to grow globally, with a wide variety of smart projects being introduced by local governments, where almost all use cases require a secure payments infrastructure and the introduction of unattended or self-service payment solutions.



The Multi Drop Bus protocol

Most vending machines are designed to use the Multi Drop Bus (MDB) Internal Communications Protocol. This standard was originally defined in the early 1990s by the American National Automatic Merchandising Association and is now supported by the European Vending Association as well as other regional organisations around the world. It defines how a broad range of peripherals, such as note acceptors and card readers, should interact with the central processing module. Payment acceptance solutions are often required to support this MDB. The unattended & self-service solutions provided by PAX Technology support this protocol.

The PAX Unattended perspective

The [IM30](#) is considered the world's market-leading Android-powered unattended model. This 'All-in-One' device combines contact, contactless and magnetic stripe card reading, with a large interactive touch screen display, camera, and a range of communication & connectivity options. The form factor looks great, and installation/upgrades are simple thanks to the clever design and mounting kits. The IM30 offers many advantages over modular unattended payment components.

PIN entry can be made directly onto the glass display thanks to PAX Technology's high security design and PCI certification. This avoids the need for a costly separate PINpad to be purchased and integrated into the

unattended solution. The 5-inch display provides a high-quality user experience (UX) that can support international languages. Sound alerts also help guide a user when necessary.



Another popular unattended payment device is the [IM20](#) model - Linux-based rather than latest generation Android such as the IM30 - designed to provide a complete communications interface where all transaction processing needs can be handled in one place. Mass transit operators are using the IM20 for ticket purchases and validation.

Like all products in the huge PAX portfolio of Android SmartPOS products, the IM30 can run a selling and payments application simultaneously on the same device. This reduces the overall cost of a kiosk/unattended solution and avoids hardware duplication. Common product certifications across the PAX range mean that the same payment app can be run on standalone, multilane or unattended models, allowing a self-service device to appear as just another check-out lane, whether in-store or outside.

The [SK700](#) Smart Kiosk, with its 21.5-inch display, provides QSR retailers with a flexible customer ordering point, and incorporates an integrated IM30 to securely handle the payments and transaction processing.



New products will soon be launched by PAX, adding to the unattended product suite and demonstrating our continued commitment to this particular payments acceptance segment. Product certifications are currently underway and we look forward to presenting these models to you shortly.

PAX unattended models have been designed to operate in harsh environments, with special protection for dust, dirt, water, moisture, and from being vandalised. They have been granted high Ingress Protection (IP) and Impact Protection (IK) ratings. A proximity sensor in the IM30 allows automatic wake-up and sleep mode to be supported. This delivers energy savings and extends the life of the product.



Our products support a broad range of communication options, including 4G for remote sites, Ethernet (LAN), WiFi, or Bluetooth for in-store usage, and serial ports for backward compatibility to legacy devices. An HDMI interface allows multimedia and video content to be displayed.

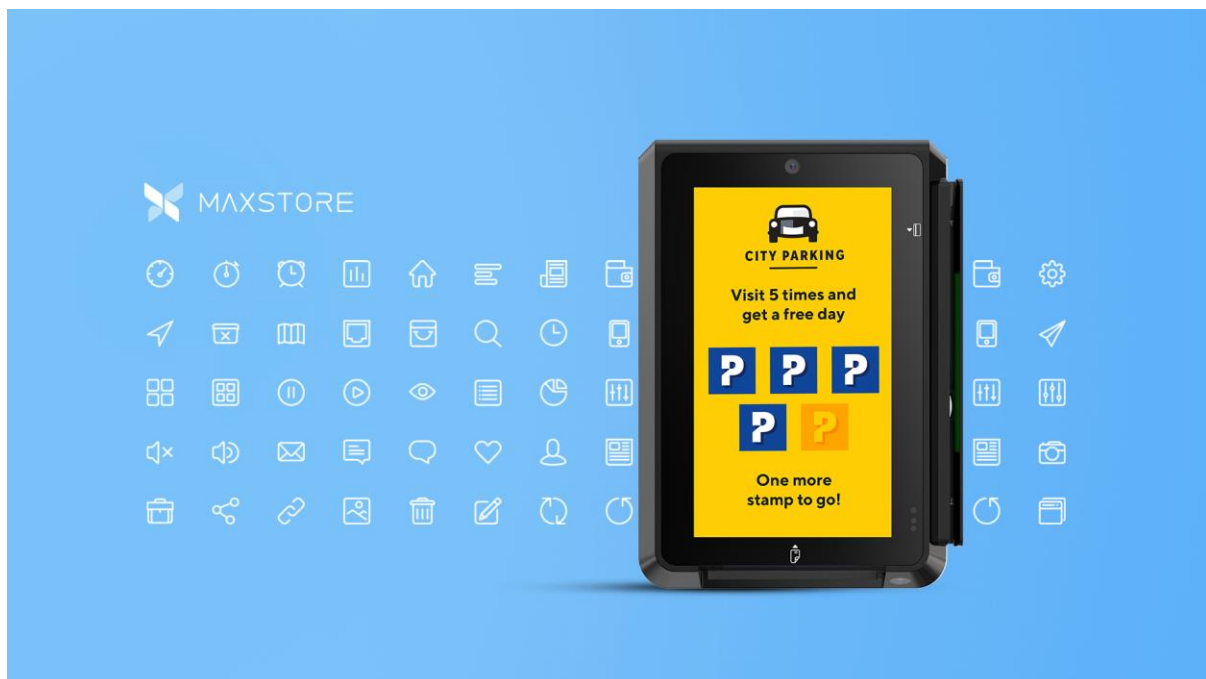
The inclusion of a camera enables a variety of innovative use cases including voucher redemption, ticket collection, product scanning, local payment method support, picture surveillance and even basic facial recognition.

We are predicting the joining up of many unattended use cases. We already see innovative retailers offering discounted parking terms using vouchers. Soon we can expect combined offers for parking, EV charging and public transport fares. But these require each of the devices to have realtime connectivity, and for apps to communicate with each other effectively.

ATEX certification has been granted to unattended PAX products, guaranteeing that such models are intrinsically safe for operations in hazardous environments such as petroleum forecourts, and that the products are compliant with EV industry standards.

The higher processing power, extensive range of features supported, easier software integration, and broad connectivity options - all managed through Android - have encouraged vending machine operators to turn the IM30 into a preferred MDB Master device, performing what could be called a vending machine 'heart transplant' by placing the IM30 at the centre of all processing rather than following the traditional model where it would act as a peripheral slave device. Advanced telemetry services can be supplied in real-time, another key value-added service required by the unattended market.

The IM30 and other Android models are remotely managed through [MAXSTORE](#), our market leading application and mobile device management platform. This ensures high operational availability, delivery of real-time data insights, remote key injection, and a terminal management system which eliminates the need for unnecessary engineer site visits.



As a leading international payments solution provider, PAX supplies products for global deployments, which is a particular need of vending machine deployers and multinational retailers. We have formed strategic partnerships with vending machine sector leaders such as the Swiss-based multinational Selecta, and we are a member of the European Vending Association (providing a Chairperson for their unattended working group).

The PAX global community looks forward to discussing your unattended payment needs and having the opportunity to demonstrate our innovative product line. Please do get in touch to schedule a convenient time.



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