



**LUT Department of Industrial Engineering and Management**

**CS30A1661 Open Innovation**

## **Open Innovation Huawei Challenge**

### **Quick app for cashless payment**

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**Huawei Group 4**

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## Abstract

The Telanto challenge of the Open Innovation course required groups of students to undertake a project with a selected company. The company chosen by the group was Huawei, who introduced the “Quick App Center” to open Quick App standards of the Chinese market to global users. The company proposed an innovation challenge focusing on the development of a quick app that offers a new perspective on how we approach the digital world.

To explore opportunities of these emerging application models for smartphones, global megatrends and different segments have been assessed. The holistic approach delved into business perspective, customer journey, persona definition, technical development, and partner ecosystems. During a multi-stage process involving brainstorming and workshop sessions the team focused the Quick App model development on tourism and fintech sectors targeting Thailand as first entry market. The quick app aims to enable cashless payments for tourists in street food markets. To illustrate the challenge and opportunities a market analysis on the tourism sector in Thailand and the government’s promotion of various initiatives and incentives towards digital payment society (National e-Payment Master Plan) was produced. Finally, a quick app prototype for digital street food payment used by tourists was developed and presented to the partner organization.

# 1 Introduction

The world of telecommunication and the rapid evolution of technology rightly amazed the society, and with it comes benefits and ramifications. Many businesses are leaning towards the adoption of internet of things, automation, and digitalization. Like never before, the rise of smartphones and its daily use in societies has brought advantages enabling more learning, research and development, advanced communications, new ways of working and has changed entirely the approach how we interact with the world around us (Huawei 2023).

With the explosion of the use of smartphone and the dependence societies created towards these devices, they have turned in many cases the number one tool to perform multiple activities in individual's daily routines. Given this scenario, experts and tech savvy are already challenging the current mode of operation bringing forward questions on how can emerging application models such as quick or mini apps disrupt the way how smartphones work and enable friction less and more dynamic life routines as a way of better serving consumers and leveraging different communication channels (Huawei 2023).

Quick apps are a new model of low code, no-installation apps, they enable industries to reconsider the way in which mobile applications can better support the change on a digital everything society and they are powerful benefits. Despite the disruption of quick apps and the rapid advancements of digital platforms, it is desirable to carry out deeper studies that help to identify key business opportunities across different industries and end users (XDA 2020).

The aim of this report is to document and share the work done identifying and assessing business opportunities for the development and implementation of quick apps. To limit the scope of the research, the paper focuses on the idea selected targeting cashless payment option for tourist traveling to Thailand and paying for street food services, this has been ranked as one of the top touristic attractions in the land of smiles but there is still a lack of digital payments methods provided from the street food vendors (Nanuam 2019).

The paper consists of three parts: the introduction, the study (divided between the market analysis, theoretical framework, business analysis and quick app solution) and the conclusion.

The goal is to summarize the potential opportunity to launch a quick app in the selected market and share main findings with Huawei and key stakeholder.

## 1.1 Company Background

Huawei Technologies Co, is a multinational technology corporation from China, founded thirty-six years ago, and with headquarters in Shenzhen, Guangdong province, the firm is an information and communications technology (ICT), telecommunication equipment, smart devices and consumer electronics (Huawei Technologies Co., Ltd 2023).

Huawei has introduced the Quick App Center for open Quick App standards of the Chinese market and global users (Sarkar 2020). These emerging models aim to fulfill the gaps from other apps framework, providing smartphones users with an installation-free app experience and less friction when downloading and installing an app. Users in some cases are uncertain on installing new apps, thus, new innovations and technologies need to be explored to reach different customer profiles. (XDA 2020).

## 2 Problem statement

Food markets and street food stalls are one of the main attractions for tourists in Thailand, a high percentage of these tourists traveling to Thailand are used to cashless methods of payments, but most street food vendors do not accept cashless forms of payments still. How quick apps can offer a cashless payment alternative for the street food vendors that does not involve card terminal?

## 3 Objectives and Limitations

The research aims to investigate the effectiveness and user adoption of QuickApp as a payment method for street market vendors, as well as to identify factors that influence

tourists' willingness to use QuickApp for street market payment. The project will help to obtain a better understanding of QuickApp's potential as a payment mechanism for the street market with a specific emphasis on street food market in Thailand as well as to identify the factors that influence vendors' willingness to accept QuickApp as a payment method by addressing most relevant research topics which will be described in the subsequent chapters. It is to help identify strategies to enhance the user experience and improve the acceptance rate among street food vendors and tourists.

We are aware that data availability and dependability may restrict Thailand's street market. Thailand is a quickly emerging country with a rapidly rising economy (Bank of Thailand, 2019); statistics on street food markets/tourists and payment options need to be improved and updated in terms quantity and quality frequently. To complete this research, we have acquired and evaluated data from various sources and utilized statistical tools to compensate for possible sources of bias and mistakes. However, there could still be errors with the data used, considering the rapidly changing technological advancement in the country which we see as a limitation.

## 4 Literature Review

In this section different scholarly peer reviewed journal articles have been used to provide description and overview on a selected topic.

### 4.1 Digital Payment

The technique of electronically transferring money or funds is referred as digital payment from a person who initiates the payment (payer) to the person who receives the payment (payee) using an e-payment platform. Customers can use such a platform to remotely access and control their bank accounts and transactions over an electronic network (Tang, et al., 2020). Digital payment is latest payment method in the retail industry which involves a merchant collecting payment details for products and services and inputting them into an

electronic form which generates digital records for transmission via a network for processing (Fatonah, et al., 2018).

The use of digital payments has gained momentum due to advancements in various technologies like blockchain, the internet of things (IoT) and near-field communication are all examples of new technologies. Furthermore, the establishment of payment-friendly rules such as the Payment Services Directive 2 (PSD2) in the Eurozone, policies that discourage cash usage (e.g. Sweden) (Petralia et al., 2019), pandemics like Covid-19, which has raised public concerns about the virus spreading through currency and the growth of e-commerce activities have all contributed to the acceleration of digital payment adoption (Alfonso et al., 2021; Petralia et al., 2019).

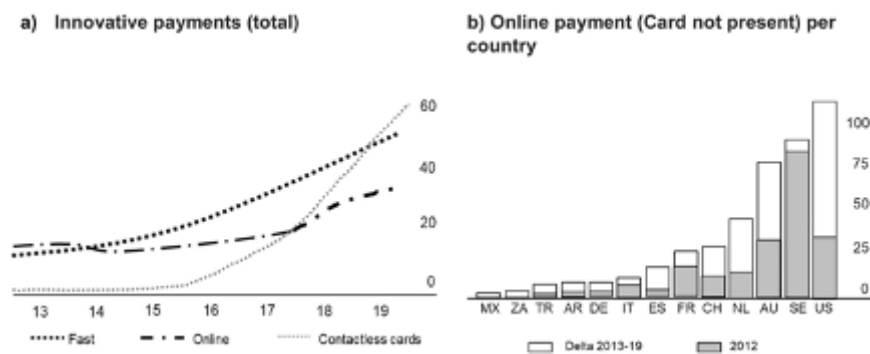


Figure 1 Evolution of Digital wallet user (Petralia et al., 2019).

The rise of e-commerce has been facilitated by Globalization and the Internet, and it has become crucial to meet evolving financial requirements, leading to the development of modern payment tools and services (Bezovski, 2016). The transition from traditional cash transactions to electronic transactions ones led to the emergence of e-payment. Initially, e-payment was defined as electronic cash transactions or any transfer of funds initiated through electronic communication channels to electronic-based accounts as stated by (Humphrey & Hancock in 1997). Nowadays, e-payment is typically understood to encompass credit card payments, electronic transfers, direct credits, and other electronic modes of payment, excluding cash and cheque payments. As time has passed, the definitions of e-payment have continued to evolve, linking it more closely with the use of direct electronic communications and the internet (Panetta, et al., 2023).

The rapid development of technology for information technology, communications and telecommunications, connection with the increased availability of smart phones, has brought



about changes in the definition of e-payment, leading to the introduction of terms like digital payment (D-payment) and mobile payment (m-payment). D-payment involves the use of smartphones or smart devices to make quick, convenient, and cost-effective payments, D-payment systems, also known as digital or mobile money, often rely on a digital infrastructure that enables the transfer of funds or money through bank deposits (Panetta, et al., 2023).

## 4.2 Types of Digital payment

There were four primary categories of digital payment technologies, including internet banking platforms, Point of Sales (PoS) devices, mobile wallets, and UPI. Internet banking platforms works as a transaction between individuals' bank accounts using a bank website or banks mobile application, while PoS devices enable businesses to accept credit and debit card payments. Mobile wallets enable participants to transfer funds to a digital wallet from a mobile app and transfer money to other in-app wallets scanning QR code or entering IP address manually but transferring money between different companies' mobile wallets can be challenging as some digital wallet is restricted to transfer fund to other digital wallet. Finally, the UPI system allows individuals to transfer funds directly between bank accounts using mobile apps like BHIM and QR code scanning, overseen by the Reserve Bank of India and developed by the National Payments Corporation (Ligon, et al., 2019).

## 4.3 Prerequisites for digital payment adoption

All four digital payment types necessitate that merchants have bank accounts in order to transfer money and complete transactions. If users and businesses don't have bank accounts, they must open one by providing necessary documents to the bank. All four digital payment types can be accessed through a smartphone application, but internet banking can be done on any smart device, and some mobile wallet payments can be made on an internet-capable feature phone. All four digital payment types can be completed over a smartphone application. For transactions, businesses should have at least one smart mobile phone with a fair internet speed, costing around \$105.00, in addition to a SIM card costing \$1.50. Mobile wallets typically have minimum fees compared to other and are charged only when users

transfer money from their wallet to their bank account, and these fees are generally not charged every month. The estimated cost for using digital payments is \$230 for a year. Merchants who use digital payments were asked about the upfront and recurring costs associated with various digital payment methods. Digital payments also require user to have basic knowledge and literacy in digital technology, social media, and smartphone apps, which can be achieved through secondary level education or by having an employee who is comfortable with technology or in some case social media user can use it (Ligon, et al., 2019).

## 5 Project management methodology

This chapter describes the project methodology undertaken by the group to manage the challenge presented by Huawei and achieve the project goals.

To choose the right project management methodology the project team analysed a series of factors to identify the right approach for the project, team, and stakeholder. The considerations we assessed are described as follow:

- **Cost and budget:** “Free of charge project” consequently not budget availability to propose the implementation of different tools, purchasing of software for a most advance customer journey or detailed market analysis.
- **Team size:** Five students were involved in the project; the majority were based out of a different location than the main stakeholder (Huawei). This led to carrying out the project fully remotely.
- **Ability to take risks:** small scale project with opportunity to bring new ideas and propose recommendations based on academic knowledge gained.
- **Flexibility:** The scope of the project can have small modification, but due to time limitations the project should try to follow the project plan to achieve the final stage
- **Timeline:** The time allocated to deliver the project is short, thus the team has agreed to deliver business potential to Huawei on the development for quick apps chieve better results.

According to the factors mentioned previously we have decided to follow the **Adaptive Project Framework (APF)** methodology, which is an approach that allows flexibility and adjusting project elements as needed. Many variables can impact an ongoing project, this project management methodology helps establishing guidelines and revisiting the project activities and timeline before starting a phase.

The APF methodology is ideal when working with stakeholders for the first time, because permits integrate their inputs, and requirements into each phase of the project. This requires open and constant communication with all stakeholders and like other agile project management methodologies be able to work collaboratively (Indeed Editorial Team, 2021).

The APF methodology suggested phases, these were considered and implemented for the Huawei quick apps challenge as follows:

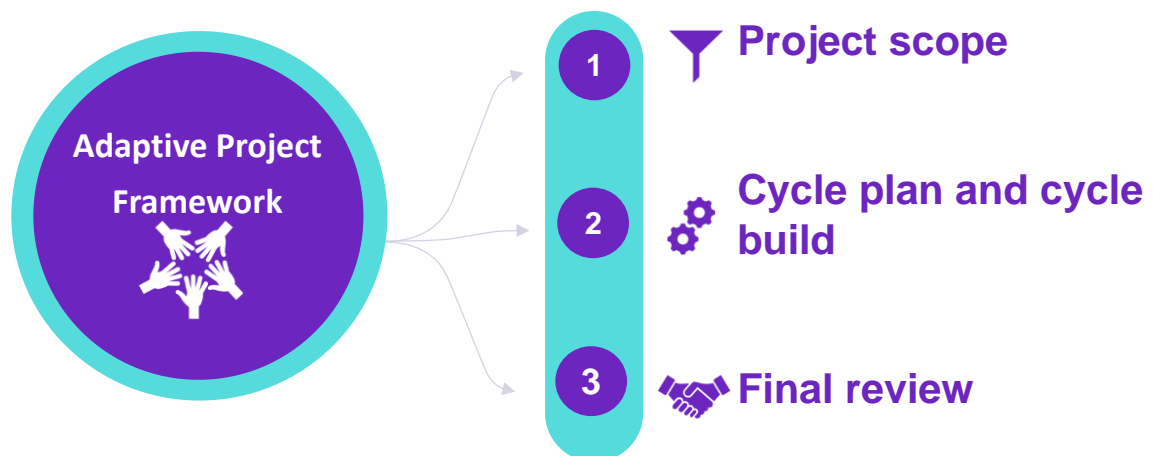


Figure 2 Adaptive project framework phases.

1. **Project Scope:** Definition of the project's requirements, customer segment, industry definition, opportunities, and challenges.
2. **Cycle Plan:** The project needs to be divided into smaller cycles that will form the basis of the project plan as follows:
  - **Step 1: Target Problem Definition:** Conduct an initial working session to define the target problem and identify global challenges, megatrends and potential business ideas.

- **Step 2: Market Analysis:** Preliminary industry analysis and business potential
  - **Step 3: Corrective Action Innovation:** Selection of the root causes and quick app brainstorming
  - **Step 4: Document the Results:** Compile a final presentation and report for Huawei.
3. **Cycle Build:** During the cycle build stage, the main activities of the project plan were executed, and the team members completed the task assigned and adjusted plans accordingly.
  4. **Stakeholder Checkpoint:** This stage is especially important; a couple of open sessions were arranged by the Open Innovation professor and tutors to present the challenge progress and receive feedback.
  5. **Final Review:** With a completed project, the project team and key stakeholders joined a final review event to share the project outcome.

## 6 Market Analysis

Extensive literature review has been done to identify the geographical areas where people are facing some challenges that can be resolved with the help of Quickapps. We finalized the tourism industry in Asia and our target customers are tourists and street food vendors mainly in Thailand.

### 6.1 Tourism segment in Southeast Asia

Asia tourism is off the beaten path, unexplored grasslands, temples, towns, hustle bustle streets and golden beaches. Tourism in Asia not just fill your stomach with delicious food but also fills your heart. Every year, many people visit Asian countries to explore this vast continent, its culture and its flavours.

### International tourism, number of arrivals – East Asia and Pacific

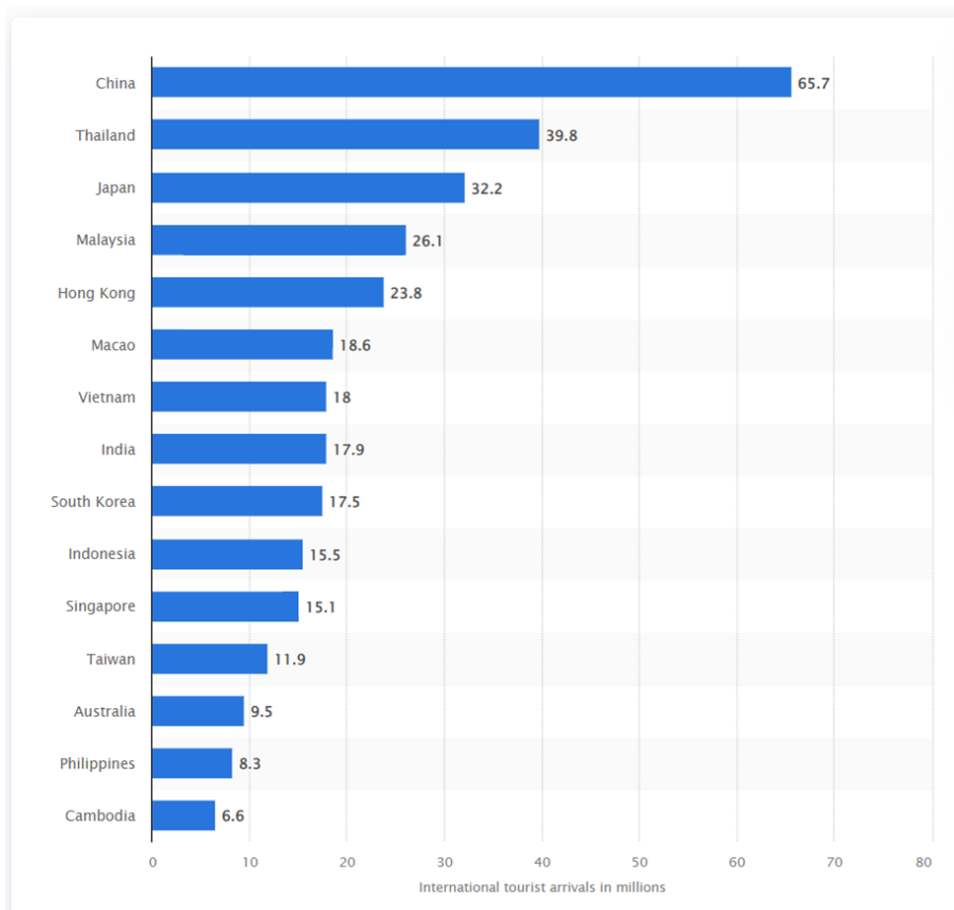


Figure 3 International tourism, number of arrivals – East Asia and Pacific (S.Ganbold, 2023).

As shown in bar chart, the number of tourist arrival in Asia in 2019 making Asian region to transform itself into traveller centre for all types of tourists. Throughout the past decade, Asia has experienced significant increase of both domestic and international tourist arrivals. The region has gained the reputation of being in-trend destination for holiday-goers, boosting must-see tourist attractions, idealised, natural landscapes. There is an exciting opportunity for tourists, tourism industry is vital for many established and growing economies across the Asia region having made vast contributions to GDPs. As shown in above bar chart, 65 million international tourists arrived in Cambodia, Vietnam and Thailand. 40 million tourists

are equivalent to 61% have chosen Thailand and preferred destinations. There are 1 million street food vendors across the three countries Cambodia, Vietnam and Thailand.

## 6.2 Street food vendors Asia and segmentation

Our customers as main food service segments found in Thailand are home deliveries and dine in, cafeterias and bar, restaurants, fast food serving restaurants, food cafes, street food vendors and kiosks. Our target customers are further divided into two segments, fixed that contains food stalls and foods markets and second one is mobile containing floating markets, beach vendors and food trucks which shows that there is a huge potential to address the challenge. Street food segment is the biggest market share among the other food service segmentations in Thailand.

## 6.3 Street food vendors in Thailand

Street food was put in place by Chinese migrated to Thailand in the late 19<sup>th</sup> century. In the 1960s with fast urban industrialization, Thai people moved to the cities and put-up food stalls and street food. It is hard to say in terms of numbers because the country does not value data collection so there are some rough estimations according to Bangkok post, there are approximately 300,000 street food vendors that are operating in Bangkok. Of these, 37% are food stall vendors means 111,000 shops. Let's assume that each province excluding Bangkok has about 1/20 of Bangkok's food street vendors, it means that there are approximately 421,800 food street vendors in Thailand. Assume that each street vendor has a family of four people means there are about 1.7 million people whose gross income is coming from street food stalls. Most likely, each vendor gets 100 customers per day on average. It is said that 421,800 food vendors are accountable for providing food to 42 million Thais daily – over half of the population, an extremely amount indeed (Kitlertsirivatana, 2022).

International tourists have predicted the quality of street food positively and significantly. They perceived that the prices are reasonable, and they would like to buy the food again. Reasonable prices are an important factor between Thailand street food quality and the intentions of buying it again. World tourism organization reported 1460 million international tourist arrivals with 1481 billion USD in tourism in 2019 (Jeaheng Y, et al.,2023). Food

expenses of international tourists was approximately 326 billion Thai baht of the total tourism revenue in 2016 which shows that tourism has significant role in Thailand's total economic revenue of 8.1 billion in 2016. There is an expect of 10% growth annually in food businesses by 2030. 1/3 of tourists visit the country for food, particularly street food. International tourists spend about 20% of their travel budget on food and drinks (Nanuam W, 2019).

## 7 Theoretical framework

The theoretical framework sections explained different topics such as benchmarking, competitor landscape in Thailand with various payment options already in use in the country, how digital payment adoption in Thailand has gone, and Thailand's digital payment plan.

### 7.1 Benchmarking

In this section we are going to show different digital payment methods and options existing in Thailand that are going to help us to identify who are the main competitors, what they are doing, and what are the challenges, and what are the target segments or target customers we are going to target.

Shortly the benchmarking means the comparison of financial services delivery systems with services or products of similar objectives from related sectors or international benchmarks (Ponsree, et al., 2023).

The use of digital payment systems has been gaining traction worldwide, including in Thailand. As emerging market economies grow, digital payments could accelerate their economic growth and social development. The potential of digital payments as an inclusive and supportive financial services infrastructure is well-known, including the promotion of e-commerce and other digital initiatives (Choosuwan, 2019).

## 7.2 Competitor landscape

In Thailand e-payment providers face tough competition from the conventional means of payment methods like cash, credit cards, and debit cards. E-payment market and landscape in Thailand is very competitive and constantly evolving with several players vying for market share. There are 6 popular payment methods in Thailand and those are cash, bank transfer, QR code, cards, digital wallet, and BNPL. While cash is still most popular and used payment method the mobile and digital payment options are slowly but surely getting more ground in the payment markets (2c2p, 2022).

The leading digital payment method in Thailand is now Promptpay and also Thai QR has proved to be very popular payment option. In digital wallets TrueMoney and Rabbit LINE Pay are the most used ones with considerable margin over other competitors with TrueMoney's usage being in 52.6% and Rabbit LINE Pay's in 24.7% and the next one is Airpay with only 5.7%. Credit cards are still a very popular payment option in Thailand and as in 2022 there were nearly 20 million credit cards in use in the country. Buy Now, Pay Later (BNPL) is a recent newcomer and it really has taken the world by the storm and Thailand also. Key players in this BNPL case in Thailand are Atome, Pine Labs, and Pace (2c2p, 2022).

Though cash is still the most preferred and widely used payment option in Thailand the way towards digital payments is going on strongly and with great strides by the nation and in this Promptpay has played a significant role paving the way for digital transformation and thus aiding acceptance of other digital payment methods as well (2c2p, 2022).

Just to point out PromptPay's influence in Thailand there were 62.2M registered proxies out of the population of 70M in July 2021, 30.2M transactions daily, and with more than 100% increase in average daily transactions during August 2020 to August 2021 (Mastercard, 2021).

Other popular e-payment methods or should we call e-wallets in this case in Asia just to mention a few because there are practically too wide scale with different options from which to choose are AliPay, WeChat Pay, UnionPay, OVO, and GrabPay but how popular and useful these e-payment options are in Thailand is another matter entirely because these



methods are widely recognized in their respective countries but not so much outside their own borders (ecommpay, 2021).

### 7.3 Digital payment adoption in Thailand

Digital payment adoption in Thailand is gradually increasing due to improved technological infrastructure and increased consumer awareness. This digital transformation towards cashless society is pretty much thanks to Thai government which has been actively promoting cashless transactions through initiatives such as quick response codes (QR) or the PromptPay system which needs ID, these two options and several other possible ones allows for electronic fund transfers as well as payments (Kraiwanit, et al., 2019)

It is clear that people's age, educational background, earnings, wealth, and the use of the internet were associated with access to the cashless society very strongly. Though there are still lot to do with older people who are somewhat slow to accepting new technology about various e-payment methods and thus moving towards cashless society (Kraiwanit, et al., 2019).

Overall, while cash still remains the dominant and widely used form of payment method in Thailand, digital payment adoption is clearly on the rise and is expected to continue increasing in the near future (Kraiwanit, et al., 2019).

Although the digital payment adoption in Thailand has been increasing pretty well and somewhat fast over the last years, with the clear aid from country's government and also from the private sector actively promoting cashless transactions but there is still need for business organizations to focus on promoting digital payment systems through awareness campaigns and user-friendly interfaces to encourage adoption and thus pave the way towards the future of cashless economy (Chavesuuk, et al., 2021).

One of the most important things in adopting cashless society are several key elements such as perceived easiness to use, perceived beneficialness, and especially trust in technology. Furthermore, the availability and convenience of various digital payment options were found to have somewhat good influence in consumer behaviour. There are still many challenges such as the lack of standardized payment systems and also security concerns that may hinder

further adoption especially with those who have suspicious attitude towards all the new technology (Chavesuuk, et al., 2019).

The biggest groups of adopting digital payment are the youths and especially amongst young people in northeastern Thailand the digital payment adoption has been on the rise. The adoption of digital payments with Thai youths is mostly driven by convenience, speed, and security. In addition, trust in digital payment security is the most crucial factor influencing young people's behaviour as well as intention in adopting digital payment methods (Ponsree, et al., 2023).

#### 7.4 Thailand Digital payment plan

Thai government has a digital payment plan in motion for Thailand, and this plan is focusing on the government's so called 50:50 co-payment scheme and this scheme started happening during the COVID-19 crisis in order to improve Thailand's economy and public health. This mentioned scheme aims to promote habitual mobile payment usage among people of Thailand especially by those who haven't used digital payments before or just scarcely used them by incentivizing them to use digital payment methods for their daily transactions. In all this mobile payment plan has become very popular in Thailand, even among people who have never used it before. Under the 50:50 plan, the Thai government provides a 50% subsidy for purchases made through certain approved mobile payment platforms, while the consumer pays the rest 50% (Boonsiritomachai & Sud-On, 2022)

Overall, this 50:50 co-payment scheme is a very important step ahead towards future for Thailand's digital payment plan, but this plan needs lots of efforts as well as investments (Boonsiritomachai & Sud-On, 2022).

Although cash is still the most preferred payment option in Thailand it's use is slowly declining just as the Thai government wants it to in their vision in bringing Thailand towards more mobile and electronic payment options and this vision or plan is called "National e-Payment Master Plan" (Globaldata, 2019).

Because of Thai government's action in promoting non-cash payment options for the cash payment volume has declined from 2018 85,6% to 77,8% in 2022 and also the non-cash payments have slowly but steadily risen to 22,2% in 2022 (Globaldata, 2019).

Promptpay a faster payment system was launched in 2016 by the Bank of Thailand. Using Promptpay allows users to make payments and transfers by mobile phone using either national ID number or mobile phone number and by the end of 2018 over half of Thailand's population was registered in the system. Thai Governments National e-Payment Master Plan was kicked off as a national program in 2017 with various offering or benefits for different stakeholders. In 2017 the central bank had collaboration with several financial services providers such as American Express, JCB International, Mastercard, UnionPay, and Visa to name just a few in introducing the Thai QR Code Payment standard with the clear purpose of creating accessible and interoperable payment infrastructure (Globaldata, 2019).

Despite cash still being the most prominent payment method in Thailand there is certain optimism towards cashless society by reducing the usage of cash. (Globaldata, 2019).

Thai government has done a lot in initiating several programs to encourage use of various digital payment options to reduce the use of cash thus pushing Thailand towards cashless society. These programs include increasing the number of electronic payment options available to consumers, promoting the use of Promptpay or QR codes for payments, as well as improving the efficiency of the national payment infrastructure. (Kraiwani, et al., 2019).

## 8 Business development

The business development aspect of this report contains a strategy used in developing the idea. It explains how QuickApp as a payment platform is a potentially sustainable business. The section gives a clear and comprehensive picture of the idea's potential making it easy to comprehend and discuss with others.

### 8.1 Business canvas

Entrepreneurs and company owners utilize a business canvas as a strategic tool to visualize and evaluate the essential components of their business model. The concept was introduced

in "Business Model Generation" by Alexander Osterwalder (Braun, et al., 2021), and it has since become a common framework used by startups and established enterprises. The canvas has nine building blocks, each representing a distinct component of the firm. Entrepreneurs and company owners can better know their business model and find areas for development by filling out each element of the canvas. It also enables them to share their business model with others, such as investors or team members.

One of the primary advantages of adopting a business canvas is that it fosters a comprehensive picture of the firm. Instead of concentrating primarily on one area, such as income or product development, the canvas encourages company leaders to evaluate the many variables contributing to their business success. This may aid in ensuring that the company is well-rounded and well-positioned for long-term success. The appendix 1 follows the model used to analyze QuickApp business opportunity.

Key partners, all-important partners and their areas of contribution must be identified for the QuickApp effective deployment. One of these major partners is the government, which provides regulatory assistance by developing laws and regulations encouraging digital payment systems adoption. This might include lowering transaction costs, offering tax breaks, and creating legal frameworks to protect tourists and businesses. The government may also give financial incentives to encourage the use of Quickapp (Bank of Thailand, 2019). This may involve financing initiatives to assist street food sellers with the initial cost of deploying the system and offering subsidies to customers/tourists that make purchases via Quickapp.

Other Fintech could also play a significant role in adopting the QuickApp payment system for street market payment by integrating it into other e-payment platforms currently used in the region. With effective collaboration, QuickApp could take advantage of the market base already in control of existing systems (Rahman *et al.*, 2022). Fintechs may partner with QuickApp developers to offer new products or services to the platform, such as incorporating blockchain technology or building new fraud protection measures.

Travel agencies can encourage their customers, particularly those visiting areas with a high concentration of street markets, to use QuickApp. Tourists could be educated on the usage and its security as some people often need an interest in and trust using a new system (Kilay, et al., 2022). This could be done by including QuickApp in their clients' travel plans, making

it simpler to utilize the payment system while on the road, and providing information on e-payment methods and vendors that accept QuickApp payments and offer discounts or prizes. Again, travel agencies could create new offerings tailored exclusively for QuickApp consumers such as tours in street market.

Microentrepreneurs may obtain instruction and training on utilizing QuickApp for their enterprises, including setting up accounts, executing transactions, and managing their funds. This may help people feel more familiar with the payment system and make it simpler to embrace. Microentrepreneurs may be critical partners in adopting QuickApp for street market payment by acting as early adopters and obtaining access to new clients.

Direct customer segment like microentrepreneurs are a vital customer segment for QuickApp adoption, and their use directly influences its adoption. Of course, there is only business if the vendors are willing to accept the payment through the app, making them unique partners and or customers. This segment of vendors includes those who prefer the convenience and security of digital payments and the lower transaction costs associated with maintaining e-payment. Again, small and medium-sized street food sellers are eager to improve the consumer experience by accepting payment methods other than cash.

Indirect customers' segment, tourists are a significant client category for street markets, and many of them are likely to choose digital payment solutions that are safe and simple to use in a foreign setting. QuickApp will be more appealing, especially to tourists who want to shop on street markets yet still need cash as it is usually required.

Also younger, or middle-aged who seek ease and quickness in their transactions, these clients are at ease with digital payments and are inclined to adopt new technologies (Bank of Thailand, 2019). The younger generations are key customer segments demographically as they prefer digital payment solutions such as QuickApp over cash. Customers that reside in metropolitan areas with a high concentration of street markets may be an essential client niche for QuickApp adoption. They may be drawn to the ease of digital payments, especially if they want to avoid carrying cash while buying in crowded street markets.

## 8.2 Persona definition

User personas are semi-fictional representations of target customers, they are created based on study and research originated from real-life derivations and experiences, giving a reference, insights and preferences of the business' target audience, for instance creating a persona for a mobile app could help determining the success of the user experience design, which includes data associated to personality traits, demographics, motivation, goals, brand preferences, expectations, frustrations, among others (appmysite 2023)

With the purpose of adding a layer of real world to our analysis and to ensure the personas created are precise representations of the users, we looked into conduct user research answering questions such as who the main users of digital payment are when travelling and who such promote digital payments in their businesses and why are they using the system. Brainstorming sessions were held to organize elements and ideas into the persona that characterize the target users, finally we made them realistic creating the right descriptions set up of each persona's biography, motivations traits, goals, frustration, preferred channels, and brands (Usability Gov 2023)

## 8.3 Persona street food vendor

The first persona created is the street food vendor who lives in Bangkok, Thailand. He is married having child and the main source of income for his household, bringing food for the family and paying fee of the children. He sells food, drinks on a street or other public places such as markets, fairs and parks. He serves food to majority of middle-income consumers who prefer to have quick access and cheap serving street food daily especially in Thailand which is a developing country.

He has a desire to have cashless payment method because a lot of his customers bounce back to not having cash with them and he does not facilitate cashless payments. He is looking for a digital payment method easy to use with extremely low tax to favour non-local customers to provide hassle free payment method if they don't have cash with them.

The main goal of street food vendor is to provide convenience to customers with no cash, safe and secure transactions, to track the transactions in a better way and easy to carry

financial transactions at any level. The detailed food street vendor persona example can be seen in Appendix 2.

#### 8.4 Persona tourist

The second persona developed represent travelers' millennials, seeking for new experiences, and are food enthusiastic, they travel the world primarily in Asia, Latin-American and Africa and they love trying the local flavors. They are young people that love the technology and are used to pay every product and service cashless, they have found many challenges to have their wallet and pockets cashless due to the lack of digital methods of payment in street food markets and stalls ending with an enormous collection of coins and notes in different currencies, additionally, two frustration are recurrent, in some cases they are not able to eat where they want and finding the right ATM that does not charge high transaction commission for foreigners, these situations make the travel experience for the millennials less enjoyable.

The travelers' millennials have two main desires, the first one, having the option to pay in street food market cashless and reduce the amount of time looking for ATM in countries that they are not very familiar. The detailed travelers' millennials persona example can be seen in Appendix 3.

#### 8.5 Customer journey

Our direct and main customer is the street food vendor having some goals and expectations to offer better customer service and transition to cashless payment method.

**Awareness:** Initially he looks worried by having aware that world is changing too fast, technology is becoming advanced.

**Consideration:** He is looking for some technology solution but with pain point being bank terminal and he does not have a bank account. He started considering cashless payment options with some low tax and easy to use.

**Purchase:** He purchased Huawei to use Quickapp for payment for non-local people. He is happy that the Quickapp is developed by a trusted company and contains no hidden costs.

**Onboarding:** He tried the Quickapp and started learning to use. Chat support is available if he faced some technical issues.

**Advocacy:** At the end, he is happy with the solution, support and positive reviews that recommended the Quickapp to his friends and other food street vendors.

The detailed food street vendor customer journey example can be seen in Appendix 4.

## 9 Business model

A business model is a strategy which describes how business enterprise create, provide, and gets worth. Thus the business model outlines companies' procedures, methods, and strategies to meet its objectives, produce income, and remain competitive in the market (Westerveld et al., 2023). In this report, we will look at some of the critical components of a business model and how firms employ various models to generate revenue. It could be through product sales, subscription fees, advertising revenue, or licensing fees. A firm must have different revenue sources to lessen its reliance on any one source of income and to enable it have flexibility in reaction to market changes. When developing the revenue stream, it is also critical to consider the cost structure. This section details the costs incurred by a firm to manufacture and distribute its goods or services, such as production costs, staff wages, marketing expenditures, and overhead costs. A business must control its expenses to be sustainable financially. In this topic a three different business model options are considered for Huawei's quickapp in Thailand's streetfood markets.

### 9.1 B2B model

With (B2B) model, subscription-based models are becoming more popular for online businesses because they provide a consistent and predictable revenue stream. Subscription-based models could be done in different ways to generate income. Aside from the free basic version, QuickApp may offer exclusive content only available to subscribers. This might be a good incentive for vendors to join up and enjoy the benefit in the package. It could include



access to premium articles, video material, or online business management courses that non-subscribers cannot access.

Again, membership to a website or community may be an effective way to earn revenue via subscriptions. This could include exclusive forums, events, or product discounts. Street food vendors can build loyal clients prepared to pay for access to exclusive advantages by establishing a feeling of community. QuickApp may charge a membership fee for virtual services such as online coaching, consultation, or personal training. This gives clients continuing assistance and direction while generating recurring revenue for the business.

## 9.2 B2C model

The B2C business model has a good chance of creating a great revenue for Huawei but only if it is implemented effectively enough. Here is mentioned a few possible potential ways how to create revenue using B2C business model.

For street food vendors the possibility to connect with potential customers, increasing their visibility at the markets as well as possibly reach beyond their own neighbourhood thus possibly expanding their customer base, and with a possible feedback system in Huawei's quickapp customers can review vendor's menus, ratings and other possible information considering what street food vendors have to offer.

For the customers and tourists this is a good and easy way to find what you might be looking for without spending too much time wandering around the various marketplaces especially if you are in a bit of a hurry.

Huawei will generate its income by getting a commission off a percentage of transactions made through Huawei's quickapp.

Also, a noteworthy possibility to gain revenue is a possible partnership with food delivery companies by using cross-promotion services between food delivery companies and street food vendors but in this case, there needs to be a significant increase in sales that the vendors might use quickapp.

### 9.3 On-Demand model

On-Demand business model would give street food vendors visibility, more convenience, efficiency in day-to-day operations, time saving, and extensive selection of the menu the vendors are offering. And also, for the customers and tourists they would more easily locate and make orders for whatever they might be looking for.

Huawei would get revenue mainly from promotions and discounts but also with a possibility with a small charge by using Huawei's quickapp for accessing collected data about customer behaviours and preferences might give street food vendors something valuable insights for their own operations as well.

## 10 Open innovation application- Partner ecosystem

During the Open Innovation course various concepts were introduced, for our team was pertinent to implement some of the theory learned in our quick app business idea. Ecosystems, nature, animals form adjacent relations in order to have mutual benefits, for instance some species work together to increase their chances of survival, and this could work same for businesses, if a company wants to scale faster in a red ocean with a competitive market, a partner ecosystem is required (Jacobides et al 2018).

For the quick app business enablement, we are proposing to develop a partner ecosystem as a key platform that can power the go to market strategy and provide complementary services within the tourism, fintech and technology industries. The partner ecosystem strategy is a stack of different companies and organizations that complement the quick app service and accelerate the market penetration for faster revenues. The definition of mutual benefits and sales channels need to be clear what everyone stands to gain and what is the value proposition, this creates a culture of every company working toward a common goal.

The quick app partner ecosystem approach is based on building collaboration with different companies and organizations that are open to work together to achieve a cashless society and make the tourist experience more enjoyable while contributing to the prosperity of the

local economy. The companies and organizations that the cashless payment app is targeting as part of the partner ecosystem approach are described in the image bellow.

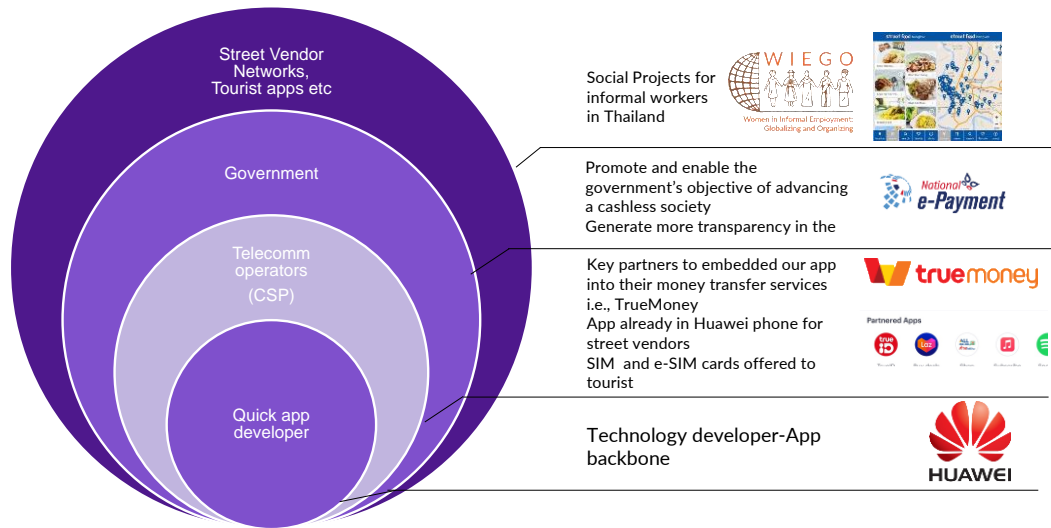


Figure 4 Quick app partner ecosystem framework.

## 11 Quick app solution

In this section researcher have presented how Easy Pay quick app digital wallet can be solution over existing payment method and analysis the risk associated while operating digital wallet.

### 11.1 E2E solution description from payer to payee (Cash in cash out process)

Once the payer and payee both get connected to bank channels, which facilitates the exchange of funds. User can load money from bank account to Easy pay account or Send money to bank account from easy pay bank account. By utilizing the Easy Pay gateway

Cash In: Depositing money from different Bank and currency around the world into Easy pay user account. Users can deposit money from various banks and currencies around the world into their Easy Pay accounts. The initial step is to link their bank accounts with their

Easy Pay accounts. After authorizing the connection, users can conveniently transfer funds into their Easy Pay accounts and make purchases by scanning a QR code.

**Cash Out:** The process of transferring or withdrawing funds from a user's Easy Pay account is straightforward. As Easy Pay is a quick application that can transfer funds easily and securely, users can initiate transfers to their previously linked bank accounts or other digital wallets once they have completed the required verification procedures. Physical cash withdrawals from ATM machines are not supported by the app; thus, users must have to transfer their funds to their bank or other digital platform.

Overall, this process is designed to provide a secure and efficient means of conducting transactions through the Easy Pay platform.

## 11.2 Payer and payee requirements

Most digital payment apps require users to possess a certain level of technological literacy. Currently in other app to register as a personal customer, one must provide their national citizenship number, bank details and firms need to provide their Firm registration number and bank account number. Street food vendors who operate without registration are unable to enable any form of digital payment. Digital payment apps also require a bank account in the name of the firm, which discourages restaurant owners from using the app. Furthermore, certain apps require high-tech devices and fast internet to function properly.

Our app aims to become a bridge between street food vendors and tourists by providing a seamless user experience and enabling fast and efficient transactions. The requirements for opening an account on our app are minimal, as users can sign up using their Gmail account, phone number, or national identity number or any other official documents from government. Although payers and payees can connect their bank accounts to the app, it is not mandatory, as users can store money in the app itself, and payers can load money through different sources such as electronic cards and other digital payment options.

## 11.3 Considerations and risks

Easy Pay app offers different innovative solutions to all the problems mentioned above.

**Multifactor authentication:** Many users abandoned digital payment due to lengthy authentication process so, Easy pay app offers multi-factor authentication options such as facial, voice, and biometric authentication, reducing time for authentication processes that may deter users from utilizing digital payment options.

**Cost effective:** Additional high charges and currencies exchange fee demotivates users to use digital wallet to purchase every single transaction. Easy pay charge 0.5% transaction fee and currencies exchange fee which is very low compared to the competitors so Easy pay will be best option for user and cost effective.

**User Friendly:** Most digital payment apps require users to possess a certain level of technological literacy, so user have problem using app but to make it easier Easy pay is very user friendly, requires minimal knowledge and different language option.

**Latest Technology:** Easy Pay provides a simple way of transferring funds across various currencies and continuously integrates new technologies to meet the demands of its users, such as its partnership with Klarna. This collaboration will allow user "buy now, pay later" policy with zero interest. To keep up with the latest trends and changing user needs, Easy Pay frequently introduces innovative features and upgrades its services with new technologies.

**Additional security:** Security and reliability are prime concerns when it comes to digital payments, so to ensure security of our user transaction we integrate with different servers and offer a more secure gateway with an additional level of security to avoid any type to fraud or cybercrime. Security is prime concern as app holds lots of personal data.

**Improved tracking:** This app is mainly targeted to tourist and street food vendors. Typically, street food vendors are busy running their business and may need to spend additional charges for auditing or bookkeeping services. This app aims to simplify the process for street food vendors by providing automatic bookkeeping features, enabling them to keep track of their daily business operations, develop sales strategies, and increase their profits.

There are certainly some risks while operating quick app digital wallet:

**Security risks:** Quick app get connected to user's bank accounts and also store customer information which are Confidential. Any problems in security will cause loss of fund and disclose of personal information. There are always people trying to hack the software and

gateway so additional security in gateway is required before every transaction to detect the fraud and minimize the risk.

**Regulatory risks:** Regulations for transferring funds from bank accounts to digital wallets vary across different countries. Some countries have restrictions on transferring funds from banks to digital wallets, which poses a risk. Additionally, laws and regulations governing digital wallets and fund transfers are constantly evolving and may change frequently in some countries.

**Technological risk:** Easy pay depends heavily on technology for its operations so, any kind of technological problems or failure in the system which lead to resulting slow process, loss of trust of customer is also crucial risk factor. Once company get negative reputation among customer then there will be significantly a smaller number of user due to bad company's reputation.

**Competitors risk:** With the increasing number of users, there is significant attention on digital wallets, prompting new companies to introduce innovative features to stay competitive and meet user demands. However, due to pressure from competitors, operational fees are constantly decreasing, creating a risk of reduced profitability.

#### 11.4 Prototype and Demo

In the prototype, the home screen features a variety of options, including "scan and pay," payment history, your digital wallet, statements, load money or send money, and bank transfer options. Your added bank cards will be remembered to make transactions even faster and more convenient.



*Figure 5 Prototype of Easy pay quick application.*

Wire frame gives overview how our app works, where the first step is to create a username using your email address or phone number, or with your national ID number. While logging in case you forget your password, there is a "forgot password" option that allows you to retrieve your account.

Upon logging in, the home screen displays the "load money" option, which connects you to your bank. Once you have successfully loaded money, you will receive a notification. You can then request a transaction by scanning a QR code and entering the amount. After requesting the transaction, authentication is required, and once validated, the money is deducted from your EASY Pay account, and you receive a notification of the transaction. The transaction and exchange fees are then collected by easy pay and deposited into the vendor's account. Billing and settlement information will be then sent to both payer and payee.

## 12 Outcomes and conclusions

Digital payment methods have become an important part of financial inclusion policies worldwide. Over 90 countries have implemented mobile money platforms till 2019, and large international funders allocate approximately 30-40 billion dollars annually towards digital inclusion initiatives. The use of digital payments offers several potential advantages, such as reducing the challenges associated with transacting in cash (e.g. providing change), reducing the costs associated with distance (e.g. depositing cash), increasing financial transparency (e.g. mitigating cash-related fraud), enhancing security (e.g. reducing the risk of theft of cash), and improving business record-keeping (e.g. generating a verifiable transaction history) (Ligon, E. et al. 2019). Increased transparency in transactions will led to increase in tax so, government are interested in digital wallet and E-transactions. According to the research, there is enormous potential for quick apps like Easy Pay to serve as a bridge between street food vendors and tourists who seek for reliable, secure and quick payment platform. Research study examined the efficacy and adoption of Quick App as a payment method for street market vendors, as well as identifying the factors that influence tourists' willingness to use Quick App for street market transactions.

The study's primary focus was to understand and identify the factors that motivate vendors to accept Easy Pay's digital wallet, with an emphasis on creating a better user experience and improving the app's competitiveness compared to other similar other available applications in the market. The research showed that security is a crucial when it comes to digital payments, adding an additional layer of security in transaction gateway to prevent fraud and cybercrime will increase the reputation and goodwill. To remain competitive in the market, it is equally important to innovate and adopt new technologies and features. Enabling new features like PayPal and Klarna will make better customer experience and attract more user. The lengthy authentication and transaction processing times are a significant factor in the abandonment of digital payments. Therefore, enabling multifactor authentication to expedite the process can attract more users. Low transaction fees and foreign currency exchange fees are also critical factors in the successful adoption of Easy Pay and make one of the best options in the market.



In conclusion quick app like Easy Pay digital wallets are becoming more and more popular and adopted by countries around the world and have huge potential in Thailand's market. In this digital era secure, fast and reliable digital payment have potential to transform the method of payment and make transaction transparent, faster and convenient than ever before.

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# Appendix

## Appendix 1: Business Canvas

<p><b>KEY PARTNERS</b></p> <p>Government and its agencies.</p> <p>Local street food vendors and market associations.</p> <p>Fintech (e.g. Promptpay).</p> <p>Travel Agencies.</p> <p>Local and International telecommunication service providers.</p>	<p><b>KEY ACTIVITIES</b></p> <p>Development of QuickApp platform</p> <p>Marketing of the App through branding and awareness campaigns</p> <p>Facilitate transactions between vendors and customers.</p> <p>Create strategies to connect apps with cashless solutions.</p>	<p><b>VALUE PROPOSITIONS</b></p> <p>Improved efficiency for vendors by reducing cash handling time.</p> <p>Quick and easy access for customers to find vendors.</p> <p>Potential increase in sales for vendors with greater exposure to customers through the QuickApp platform</p>	<p><b>CUSTOMER RELATIONSHIPS</b></p> <p>Introduction of the App to users through training and advertisement</p> <p>Chatbot for reporting suspicious activities.</p> <p>Interactive by sending them benefit and discount notices.</p> <p>Keeping track of shopping data.</p>	<p><b>CUSTOMER SEGMENT</b></p> <p>Urban dwellers who patronize street food but are not willing to carry large amounts of money with them.</p> <p>Tourists who want convenient and secure payment for items purchased on the street.</p> <p>Street food vendors who may be switching to a delivery-focused model</p>
	<p><b>KEY RESOURCES</b></p> <p>Developers to create and maintain the QuickApp platform.</p> <p>Financial resources to promote the App.</p> <p>Digital marketing team to promote the app to street food vendors and potential customers.</p>	<p>Offers convenience, QR access to diverse stalls, and trace transactions for street vendors and tourists.</p> <p>Provide tourists with a centralized dashboard displaying "food options," and sharing vendor photos with possible spice selections.</p>	<p><b>CHANNELS</b></p> <p>Digital marketing campaigns to target and attract potential vendors and customers.</p> <p>Brochures in a strategic place (hotels and tourist sites)</p> <p>Physical presence at food markets, house places, and magazines</p> <p>Use of local bloggers and social media influencers</p>	<p>Younger generations who prioritize convenience using technology want to explore alternative payment options.</p> <p>IT and tech startups in food delivery services</p> <p>Local and national government agencies with an interest in managing the street market.</p>
<p><b>COST STRUCTURE</b></p> <p>Development and maintenance costs of the QuickApp platform (technology, hardware, IoT enable components), general workflow.</p> <p>Marketing and operational cost</p> <p>Customizing where necessary for vendors.</p>		<p><b>REVENUE STREAMS</b></p> <p>Commissions charged on transactions and/or subscription fees from vendors.</p> <p>Processing fees are taken from customers who use the App for settlement control and charges on the in-app advertisement.</p>		

## Appendix 2: Persona Definition-Street food vendor

# Somchai



Trait 1  
Enterprising

Trait 2  
Conventional

Trait 3  
Social

### Motivation

- Low-start up cost
- No taxes
- Self-employment
- Potential to expand
- No-prior experience needed

*"Repetition makes reputation and reputation makes customers"*

Age: **30**  
 Work: **Food Street Vendor**  
 Family: **Married, 1 Kid**  
 Location: Bangkok, **Thailand**

### Goals

- Provide convenience to customers who does not contain cash with them.
- Provide security measures with cashless transactions
- Better tracking of transactions and ease of carrying financial transactions at any point

### Frustrations

- When it comes to payment and customer wants digital payment method.
- Cashless payments affects the people without having banking services.
- Sometimes loss of customers for not having e-payment

### Bio

He is a street food vendor in Bangkok, Thailand provides a main source of income for my household, bringing food for the family and paying fees of my children. He sell food, drinks on a street or other public places such as markets, fairs and parks. He serves food to majority of middle income consumers rely on the quick access and cheap service of street food for daily nutrition especially in Thailand (a developing country). He is looking for a digital payment method that can be easy to use with extremely low tax so that he can facilitate the non-local customers also by providing them hassle free payment method if they are not carrying cash with them.

### Brands & Influencers

**Kai Jeow Som Tam** Khao Niew Ma Muang

### Personality

Introvert	Extrovert
Thinking	Feeling
Sensing	Intuition
Judging	Perceiving

### Preferred Channels

- Traditional Ads
- Online & Social Media
- Referral

## Appendix 3: Persona definition-Tourist

### Travelers millennials- Persona example



**"We are all about new experiences, food, traveling the world"**

Age: 20-35  
Work: Engineers  
Family: Single  
Location: Sweden  
Character: Foodie millennials

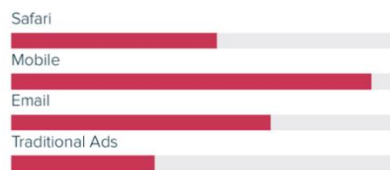


Organized   Practical  
Social   Problem-solver

#### Bio

Donato and Luca are best friends, It's been three years since they graduated from college and Foodie Millennials enjoyed the bohemian lifestyle of managing jobs, travel, and sports. They enjoy traveling, meeting new people, trying different foods, and being tech-savvy. They spend each year two months traveling to Asia, Latin America, the US, or Africa. They are frustrated by the fact that no matter how frequently they take similar trips, they need to withdraw money to pay for food at local street food markets and stalls. They expect solutions that reduce the number of coins and bills in their wallet

#### Preferred Channels



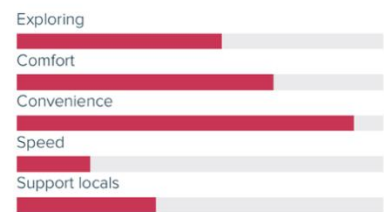
#### Goals

- To spend less time finding atm
- To have more cashless payment options

#### Frustrations

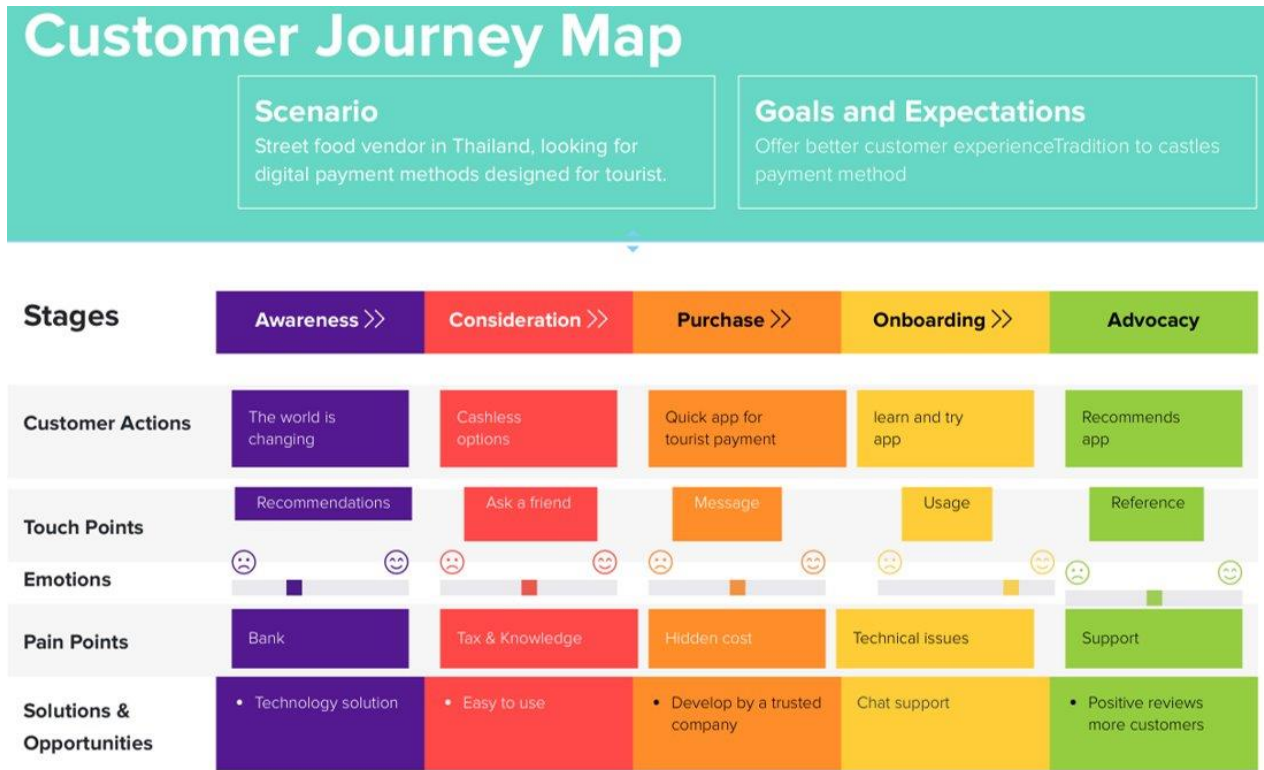
- Too much cash in their wallets and in different currencies.
- Not able to eat everywhere due to lack of cashless payment options

#### Motivation





## Appendix 4: Customer Journey Map



Appendix 5: Wire frame of Easy pay app.

