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Does WeChat have a chance in Europe?

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Chapter 1.: Introduction

“Today’s technology is improving so quickly which can make our life easier, but other times inconvenient as well. There are many situations in which we use our smartphones to make tasks faster, but here comes another problem such as getting lost in the labyrinth of the hundreds of apps on our phone. However, in China there is one app that has almost everything built in it.” (Kántor, 2023)

WeChat, the well-known Chinese application with over 1.38 billion monthly active users, was launched in 2011 by the giant tech company Tencent. This super-app includes multifunctional chat, social networking, e-commerce, mobile payment function and many more features. For Chinese companies WeChat is an obvious choice for doing businesses since they can create their official account and use it as a marketing channel.

“These features are essential for Chinese people and they are helping them daily in many types of situations. They do not need to download many applications, create new accounts, stress about the passwords and constantly switch between apps. Many American tech companies think about creating such apps in the USA as well, they consider it as the biggest achievement, or we can say “the holy grail of modern technology”, but it is not that easy to reach. There are many reasons why they have not already created it and brought it to Europe.” (Kántor, 2023)

In today’s digital era, the way Chinese people communicate with each other has transformed. Mostly because WeChat integrated into their daily life making the communication effortless. However, WeChat is far less popular in Europe compared to other messaging platforms such as Facebook, Messenger, WhatsApp, or Instagram, as well as digital banking solutions like Revolut, Wise or the bank-specific apps (OTP App, K&H App). Even the payment system has shaped with the innovative QR code-based payment method what is offered by WeChat. Therefore, people can make different type and size of transactions with the help of QR codes.

In my research, I would like to investigate the topic: “Does WeChat have a chance in Europe?”. In this specific paper, I would like to mostly focus on the digital payment system and how European, Hungarians would feel about the QR code technology when paying. Would Hungarians fancy the QR code-based payment method? How willing would they be to adapt such a technology in Hungary? How much would they trust such technology with QR codes?

Chapter 2.: Theoretical framework

2.1. The Importance of Modern Technology in business communication

(Kántor, 2023)

Throughout history, Asia has always been significant for the world. China's influence started when the Han-dynasty opened its famous trade road in 130 B.C.E., "Silk Road". (National Geographic Society) This is still often used as a symbol for the exchange of goods and ideas between different cultures. While globalization has become a prominent topic of discussion, today the focus tends to revolve around immigration, religion, multinational corporations, and international trade. However, in recent years, the resurgence of powerful trading economies has played a critical role across various fields.

China has undeniably emerged as a significant player in the global business arena, gaining attention for its rapid development and relevant economic influence. With its immense population, impressive technological advancements, and strategic business policies, the nation has become innovative and filled with opportunities.

According to various scientific studies (Balzer et al., 2020; Kirikkaleli & Ozun, 2019), it has been proven that innovative development plays a crucial role in a country's economic growth and long-term welfare. Nowadays, innovation is widely recognized as a key factor in ensuring the efficiency of businesses worldwide and promoting economic security and sustainable development (Sineviciene et al., 2018).

2.1.1. The fourth industrial revolution

In today's context, innovation is closely tied to the adoption of information and communication technology (ICT), which is crucial for market success and competitiveness.

We are currently in the middle of the fourth industrial revolution, also known as Industry 4.0. (IBM, 2022) Modern technology has become essential for businesses in different sectors, fundamentally transforming how they communicate, cooperate, promote their offerings,

optimize operations, and make well-informed choices. According to Dhara B, there are several crucial domains where modern technology is widely employed in the business realm.

Communication and collaboration have been revolutionized by technology, altering the way businesses interact both internally and externally. Tools like e-mail, instant messaging, video conferencing, and collaborative platforms enable teams to connect and collaborate regardless of their physical location. These technological advancements not only boost productivity but also facilitate real-time decision-making and encourage innovation. Additionally, businesses are utilizing technology to automate repetitive tasks and optimize processes, resulting in improved efficiency and reduced costs. Robotic Process Automation (RPA), artificial intelligence (AI), and machine learning (ML) are being employed in various areas such as data entry, customer support, inventory management, and quality control. (Dhara, 2023)

Data management and analytics have been greatly impacted by technology in the digital era. Businesses now have the ability to collect, store, and analyse vast amounts of data, using advanced analytics tools and business intelligence platforms. This enables organizations to gain valuable insights into customer behaviour, market trends, and operational performance, empowering them to make informed decisions based on data. Furthermore, technology has revolutionized the way businesses conduct sales through the advent of e-commerce platforms. These platforms allow companies to establish online stores, reach a global customer base, and provide personalized shopping experiences. Additionally, digital marketing techniques such as search engine optimization (SEO), social media marketing, and content marketing have become crucial for businesses to build brand awareness and engage with customers in the online realm. (Dhara, 2023)

Cloud computing has revolutionized the way businesses manage their computing resources by providing flexible solutions, eliminating the need for costly on-site infrastructure. Cloud-based services offer secure data storage, seamless collaboration, and convenient access to applications from any location with an internet connection. This technology also ensures data backup, disaster recovery, and improved scalability, catering to businesses of all sizes. Mobile technology has also had a significant impact, transforming how businesses engage with both customers and employees. Mobile applications enable businesses to provide convenient access to services, enhance customer interaction, and streamline internal

processes. Additionally, the rise of mobile payment solutions has simplified transactions and expanded payment options. (Dhara, 2023)

2.1.2. Super-apps

“A superapp is like a Swiss army knife — with a range of component tools (miniapps) that the user can use and remove as needed.” (Gartner, 2022)

In the last few years, the term “super-app” has been created for the powerful phenomenon that is currently revolutionizing the way people use their devices. In simple terms, a super app can be described as a complex platform that integrates multiple functions and services into one single application. These types of apps provide users with access to a wide range of services and features without the need to switch between different apps. It goes beyond the traditional view of an application because usually, it offers features such as messaging, video calls, social networking, food delivery, e-commerce, transportation, financial services, wallet, ePay, and much more. By incorporating these diverse functionalities, super apps aim to simplify daily life and digital presence for the user and enhance efficiency.

In the beginning, super-apps gained popularity because of the younger generation, but now it has changed. Also, the older generation noticed one of the key advantages of a super app, which is the convenience it offers to users.

According to Gartner, “by 2027, more than 50% of the global population will be daily active users of multiple superapps and this concept will also expand to include enterprise mobile and desktop experiences, such as workflow, collaboration and messaging platforms.”

Even businesswise, super apps have the potential to foster collaboration and partnerships among businesses. By integrating various features and services into one single platform, they create a win-win scenario for both app-users and for service providers. Users benefit from the easy accessibility of services, while businesses can reach a wider audience and expand their customer base.

Currently, super apps are not widely used in Europe and North America, but they are very popular in Asia, Africa, and Central America. One explanation for this is that web-only

services like Amazon, Facebook, and Google gained popularity prior to the broad adoption of smartphones. Later, North American tech companies created mobile apps, but they limited their capability to match their initial web-only service offers. However, nowadays super-apps have rapidly gained traction in other parts of the world, with global tech giants like Google and Facebook also venturing into the realm of super apps. As the competition is getting more and more intense, innovation continues to drive the industry forward.

According to the article “Understanding the Chinese super app”, the biggest competitor of the iPhone is not Android but WeChat. (Talin, 2023) This relatively new application which was launched by the Chinese tech company Tencent, changed the industry when it gained over a billion monthly users and became the most influential platform.

2.2. Analysis of the importance of WeChat in China and in the world

(Kántor, 2023)

2.2.1. Introduction of WeChat

WeChat, or in Chinese *Weixin* (微信), is a free application launched by Tencent on January 21, 2011 to provide instant messaging services, social media and mobile payment for smart phones. (Han, 2023) The product team of Tencent Guangzhou R&D Center led by Zhang Xiaolong created this invention. WeChat supports cross-communication operators and cross-operating system platforms to quickly send free (requiring a small amount of network traffic) voice text messages , videos , pictures and texts. (Han, 2023) At the same time, you can also upload pictures and share your thoughts with your friends on its social media part, called “*Moments*”.

As of the second quarter of 2016, WeChat has reached more than 94% of smartphones in China , with monthly active users reaching 806 million, with users covering more than 200 countries and regions and more than 20 languages. (Han, 2023) In addition, the total number of WeChat public accounts of various brands has exceeded 8 million, the number of mobile application dockings has exceeded 85,000, advertising revenue has increased to 3.679 billion yuan, and WeChat payment users have reached about 400 million . (Han, 2023)

WeChat provides public platforms, friend circles, message push and other functions. Users can add friends and follow public platforms through "shake", "search number", "nearby people", scan QR codes, and share content on WeChat. Share the exciting content users see with friends and WeChat Moments.

In December 2020, WeChat on iOS was updated to version 7.0.20. At the same time, several new features were added to the personal profile page. On January 21, 2021, WeChat came out with version 8.0. (Han, 2023) In July 2021, in the latest version 8.0.8, WeChat can not only log in to mobile phones and PC/Mac devices at the same time, but also added the simultaneous log-in function of tablet devices. (Han, 2023)

As we know, WeChat is the most popular super-app with several useful functions and mini-programs. Users can manage their personal life with the text and call functions, follow the daily life of their friends with the social media part, pay at the shops with the help of *ePay* and *Wallet*, but also order food, book an appointment, reserve a table at a restaurant, read the newest articles and use WeChat for businesses at work. Moreover, citizens of China usually pay for their utilities, book a flight and hotel, or just play some games in their free time on WeChat.

To investigate the importance of WeChat have a look at current statistics and the general ranking of the apps. With 1.3 billion monthly active users in 2023, WeChat is ranked fifth among the most widely used social media applications globally.

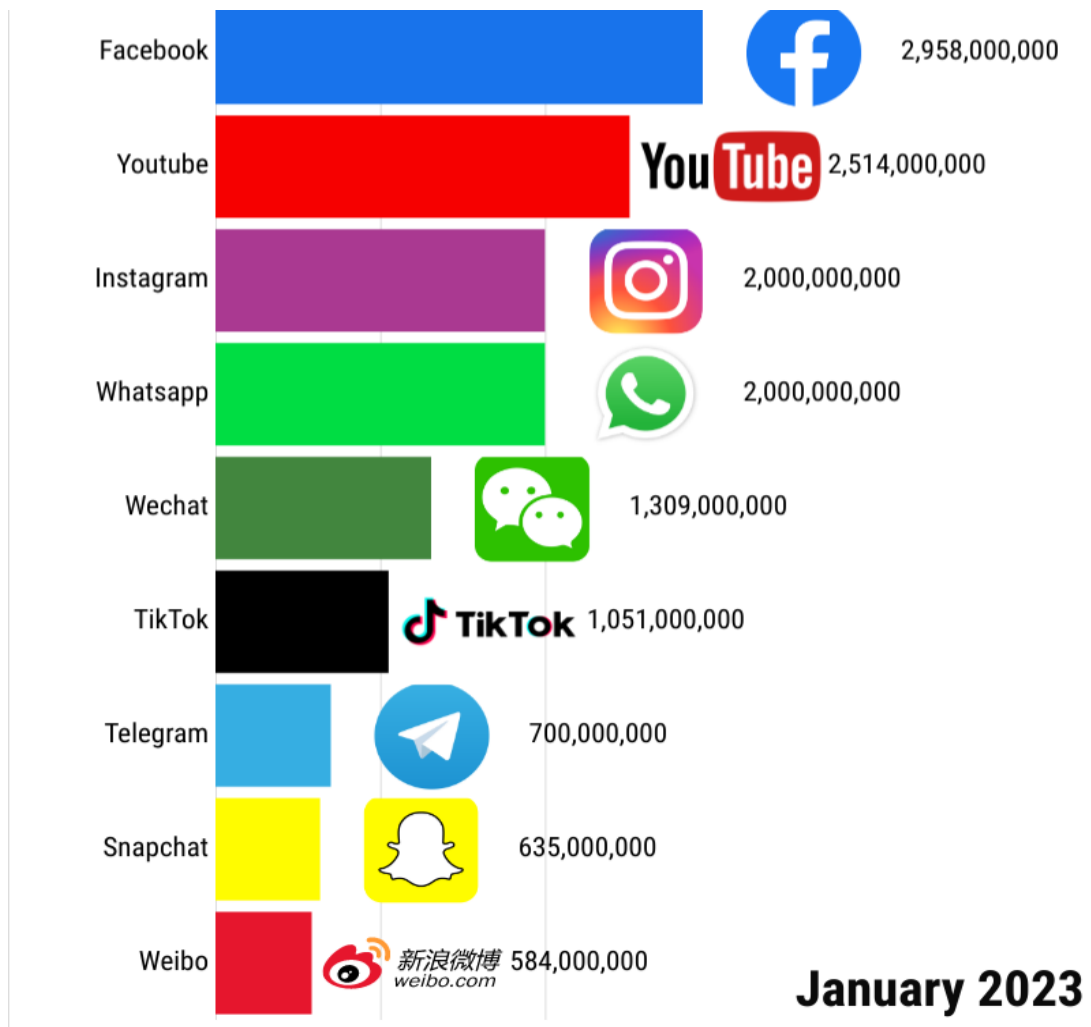


Figure 1 General ranking of the apps globally (2023)

(Statistics & Data)

Seeing this tendency, we expect it to increase by 7.79% by 2025 which would mean 107 million more active users. (Turner, 2022) If we talk about one of the best features, “Mini-apps”, the number of monthly users are around 930 million. The other convenient feature is the WeChat Pay, which numbers are projected to increase by 16.32% between 2023 and 2025. In the field of business, the WeChat Work is predicted to have 102 million users by the end of 2023 and 185 million additional users by 2025. (Turner, 2022)

In 2018, only seven years after its debut, WeChat reached its first billion users from all around the globe. When we talk about the growth of the annual number of active WeChat users, we have to consider the fact that the majority of Chinese smartphone users already have an account, and had over the last several years, so the growth has been and expected to be lower.

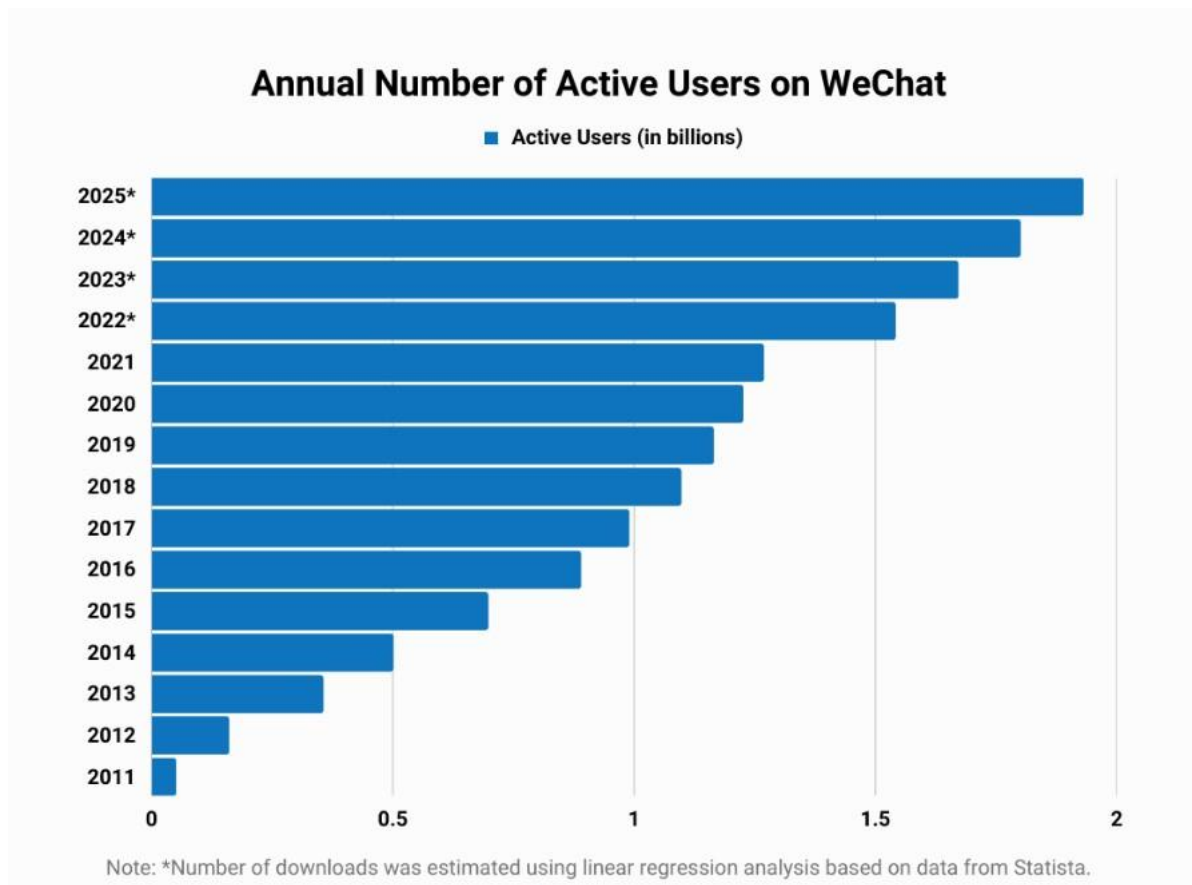


Figure 2 Annual number of active users on WeChat
(Turner, 2022)

Given that it is headquartered in China, it is not surprising that the vast majority of its customers are also situated there. Nonetheless, WeChat continues to enjoy widespread use outside of China, with many individuals using it to stay in touch with friends and family who live in China. This social media networking site is utilized by over 1.5 million people in the United States. This platform is used by only about 25% of all Americans who are between the ages of 18 and 24, so we can say that not only the younger generation is using it. In the US, it is one of the primary rivals of Facebook and Instagram, two other significant social media networks. (World Population Review, 2023)

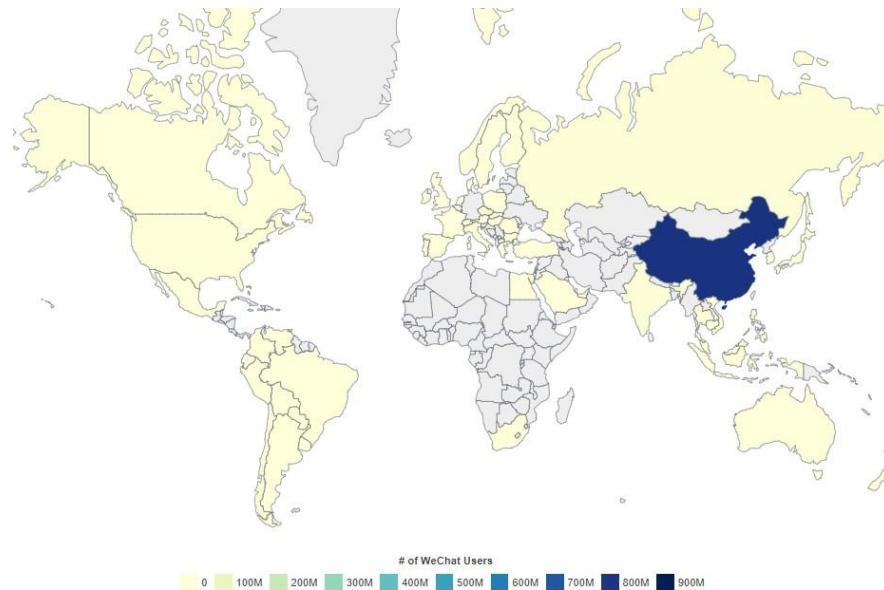


Figure 3 Number of WeChat users by country

(World Population Review, 2023)

If we have a look at the following statistics, we can see the top countries that use WeChat and also the number in million of the app users. Without doubt, we can say that China has the first place with 810 million, but we can notice a huge difference between China and the other ranked countries. After it, Malaysia comes with 12 million, then India (10 million), Russia (9.5 million), Japan (5.5 million), South Korea (5 million), and the USA with 4 million. Except Russia, the European countries are not even in the top ten. (World Population Review, 2023)

China	810M
Malaysia	12M
India	10M
Russia	9.5M
Japan	5.5M
South Korea	5M
United States	4M
Indonesia	3M
Mexico	2.5M
Thailand	2.5M

Figure 4 Ranking of the WeChat users by country in numbers

(World Population Review, 2023)

2.2.2. Why can WeChat be big in China?

There are several factors that contribute to the fact that WeChat could gain this much of popularity in China. One of them is that China became so advanced that even in the smallest village they do not really use cash, they highly prefer to just scan the QR code with the help of their smartphone and pay with their WeChat account. Many locals are saying that you could not survive without WeChat in China since they completely switched to this form of daily life.

Big population equipped with smartphones

The real communication in today's society takes place online, which is another effect of living in an age that moves quickly and of trying to find creative ways to save time and money. China, one of the most powerful nations and societies, aspires to join the global integration process in every sphere of life.

We can identify the main worldwide developments based on a 2018 study titled *The Relations between Chinese and English in the Era of Globalization*. (Iakovleva, 2018) The first is the advancement of contemporary technology, which makes it simple for us to engage and communicate wherever we are in the world. The second aspect to be noted is the growth of international communication through information technology in a variety of spheres of life, including social, political, environmental, and economic. The data from Lai Lin Thomala's statistic, "Number of Internet users in China 2008–2023," illustrates the changes over time. She said the success of China's fast-growing mobile app market has been boosted significantly by the more than one billion people with Internet access in the country.

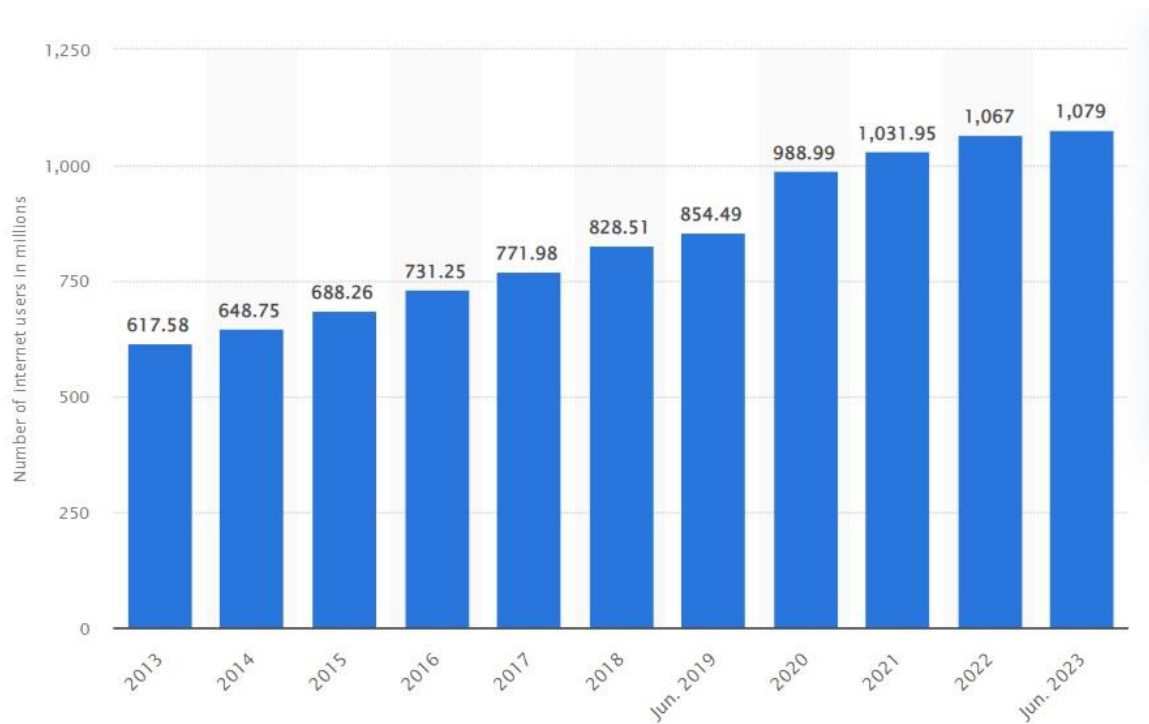


Figure 5 Number of Internet users in China from 2013 to June 2023
(Thomala, 2023)

According to the statistics, the number of total users was 617 million in 2013 and this number had increased by 2023 when it reached approximately 1,079 million Chinese citizens. Therefore, we can say that China represents more than one-fifth of the four billion web users worldwide.

Another statistic titled *The 51th Statistical Report on China's Internet Development* shows that not only does China have the second biggest population but it also has an extremely high percentage of Internet users. (CNNIC, 2023) Recently, India overtook China with the largest population among the countries of the world, with more than 1.43 billion people. (O'Neill, 2023)

“As of December 2022, China had 1,067 million netizens, up 35.49 million over December 2021, and its Internet penetration had reached 75.6%, up 2.6 percentage points over December 2021.” (CNNIC, 2023)

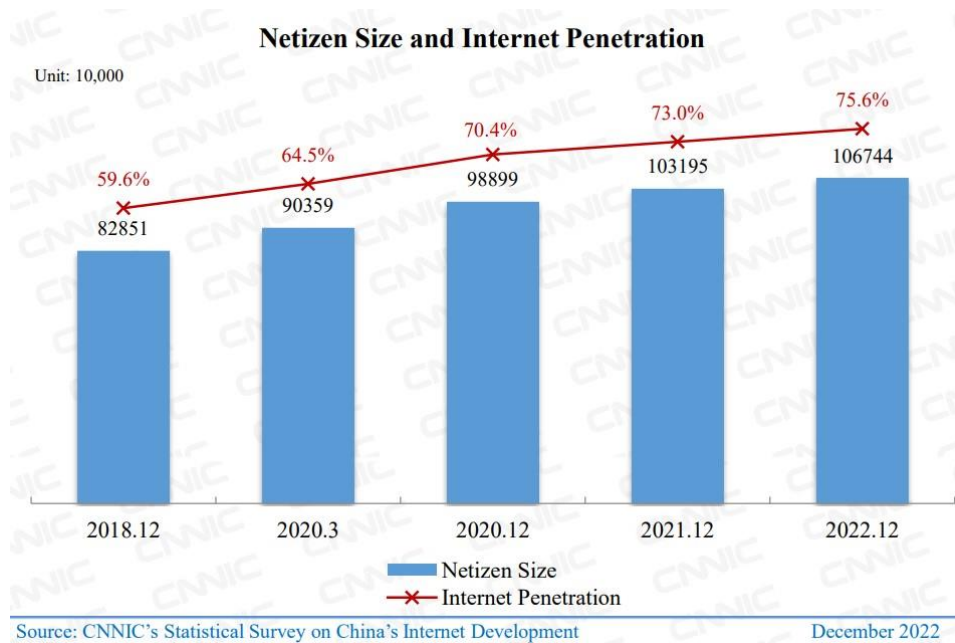


Figure 6 Netizen Size and Internet Penetration

(CNNIC, 2023)

“Up to December 2022, the number of mobile Internet users in China had reached 1,065 million, up 36.36 million over December 2021. The proportion of China’s netizens accessing the Internet via mobile phones was 99.8%.” (CNNIC, 2023)

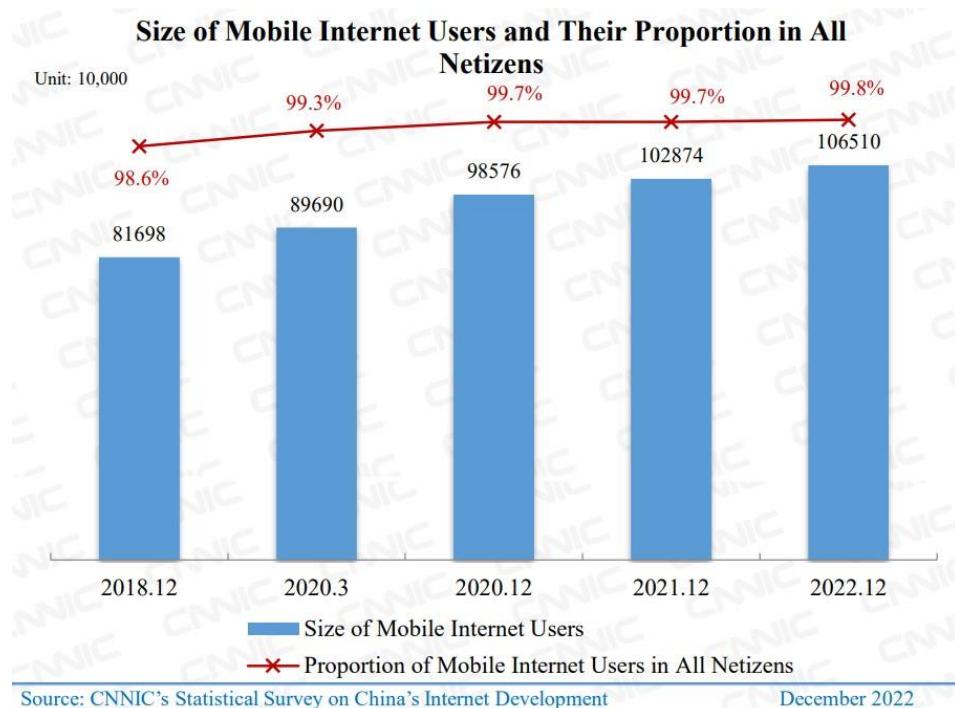


Figure 7 Size of Mobile Internet Users and Their Proportion in All Netizens

(CNNIC, 2023)

The Internet and social media platforms are a regular feature of China's lifestyle, as per DaxueConsulting website. (2021) The first wave was the birth of Internet cafés, the second wave was the dramatic increase in the number of computers in homes and offices, and the third was the raised access to information via the widely adapted smartphones.

A closed but unique country

The rapid growth of mobile Internet in China had a significant impact on the country's entire national structure across various sectors, including politics, international relations, education, law, and community activities. All these technological advances have forced the government to change old tactics in managing the Internet. Prior to this, the media was tightly monitored to establish political stability, and these new regulations now involve a multitude of steps to filter banned content from the Internet. As a result, the Chinese government exercises complete control over the new, media and Internet.

In Mainland China, it is estimated to be around 10,000 websites that they shut down.

Just to bring up some examples to illustrate how important these banned sites are; *Google*, *YouTube*, *Facebook*, *Instagram*, *Twitter* and *TikTok*. As a consequence, the *People's Republic of China* created an entirely different version of each web site and only allow its citizens to use those. They use *QQ.com* (腾讯网), a social networking site that resembles *Facebook* but offers more services to users, such as shopping, games, music, news, and email. *Baidu* (百度) is their alternative search engine to *Google*. They also have their own versions of *TikTok*, which is used by all generations, called *Douyin* (抖音), they have *Weibo* (微博) as the alternative of *Twitter*, and the Chinese website for *Youtube* is called *Youku* (优酷). (Written Chinese, 2018) WeChat being a super-app, it includes almost all the features of these websites and applications. In this way, we can see that WeChat has less and also different type of competitors in China.

How essential is WeChat for Chinese on the daily basis?

Building relationships with the audience around them is what brands imagine when they think of social media. However, social media has gained huge popularity worldwide, providing brands with additional possibilities to expand their global reach. Businesses now have more opportunities than ever to reach a wider audience thanks to the growth of social media in China. Chinese social media has many of the same features and functions as their counterparts in the West. WeChat can easily get into the Chinese market through discussions, business reviews, instant messaging apps, blogs and forums. In addition to being the largest social media market in the world, China has an extraordinarily rich and varied online world.

“With a population of over **1.4** billion people, China is still one of the most “connected” countries in the world, with 79% of its population being active social media users (vs. 71% last year) and spending on average **5-6** hours on the internet per day. **89%** of its population watch videos, **71%** watch streams, **53%** play live-streamed video games, and **74%** shop online using their mobile phones.” (Chernavina, 2023)

More than 800 million Chinese internet users are searching for a platform to interact with others, exchange ideas, and request product recommendations. (Kiely, 2022) WeChat is one of the biggest of the many creative new social media platforms that have emerged in China, while Facebook, Instagram, and Twitter still hold power over the western world.

WeChat has a great advantage with its built in features and mini programs. Users can reach everything inside of one application, they do not have to download multiple apps. We can easily send text messages, voice messages, photos, videos, any type of files, even money to our friends, colleagues, or a group of people. Anyone can use the camera to take pictures or to scan QR code. There are numerous features inside of WeChat which aim to help the everyday life of the users. The application itself is free of charge, but naturally the citizens have to pay for the Internet traffic.

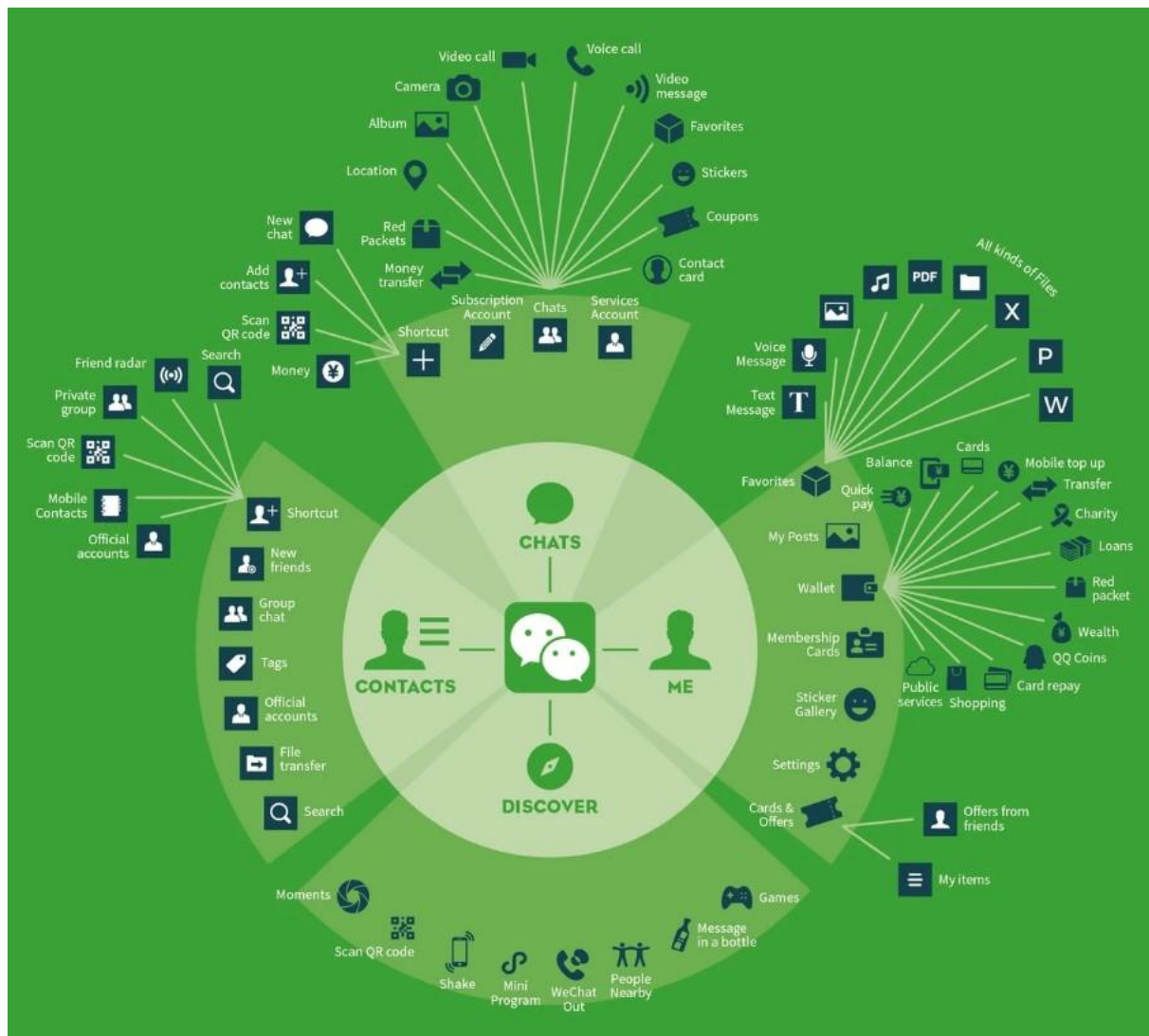
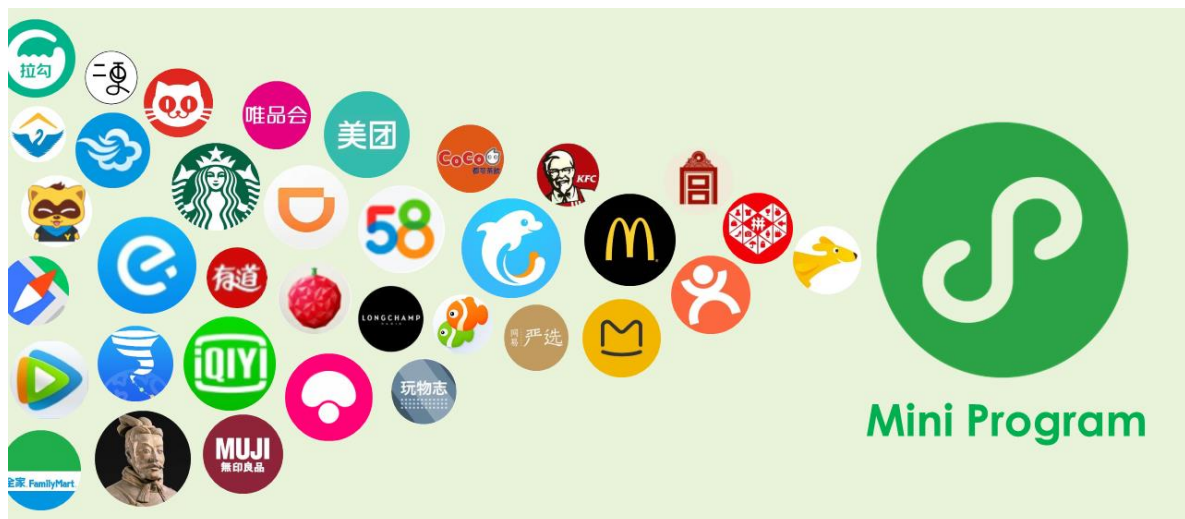


Figure 8 Map to the functions of WeChat
(Pattinson, 2019)

To support each other, many brands and companies have agreements with WeChat. Let us have an example, a food delivery company has its own application but they do not have as many users as they would have with the help of WeChat. Therefore, they create a mini version of their own app and build it in WeChat. After this procedure, they WeChat users will have the opportunity to order food with this mini program without having to download the original app. WeChat lets a serious number of mini programs in the application and in this way both of the apps can profit. These inbuilt apps can be about banking, utility payments, food delivery, movie tickets, transportation, ecommerce, games, etc.



*Figure 9 Illustration of mini programs
(Digital Crew, 2019)*

Not many of the competitors on this field can say that they have a separated function just focused on bank accounts and your credit cards. WeChat was innovative when they came up with this unique function ahead of its time and revolutionized the payment method in China. Inside the app, people can pay for goods and services using the new QR code payment system in which with the help of WeChat camera customers scan the code of the store. Today, this method is so widespread that there are almost no usage of cash. Furthermore, this way usually attract no additional fee. (Lee, 2016)

One of the main differences between the Western social media apps (Facebook, Instagram and Tiktok) and WeChat is that companies have to pay for the promotion of their content even among their followers. Nowadays, with the new regulation, even if a business has many followers they still have to pay to reach a big percentage of the followers. In the case of WeChat it is different. It lets the firms to open an official business account and gain followers who can see the posts of the company without restrictions and fees. (Lee, 2016)

According to Hongda, some of the main reasons why companies are likely to choose WeChat are the followings: the businesses can create an official account which is like a mini webpage for them inside of WeChat, and they can post blog entries, videos, pictures, basic updates. When the followers like the service or the product, they can easily pay for it with the help of Wallet function. (Lee, 2016)

2.2.3. Why isn't WeChat already popular in Europe?

In the 21st century social media sites have become an integral part of our daily lives, connecting people from all around the world. In Europe, the use of social media apps has witnessed significant growth, shaping the way people communicate and share information with each other. Based on their culture and level of advancement each country has different preferences when it comes to social media sites. However, when we dive into the statistics we can agree that most of the websites and apps Europeans use are coming from the USA. Based on the previous statistics of “Ranking of the WeChat users by country”, I have generated the statistics for the top European countries who use WeChat, and their numbers in million.

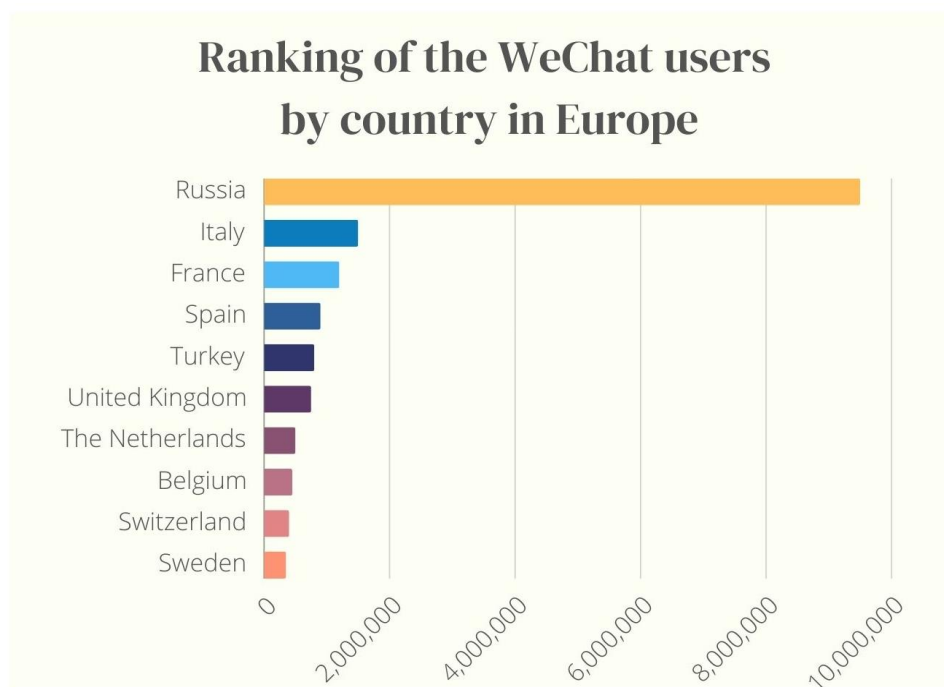


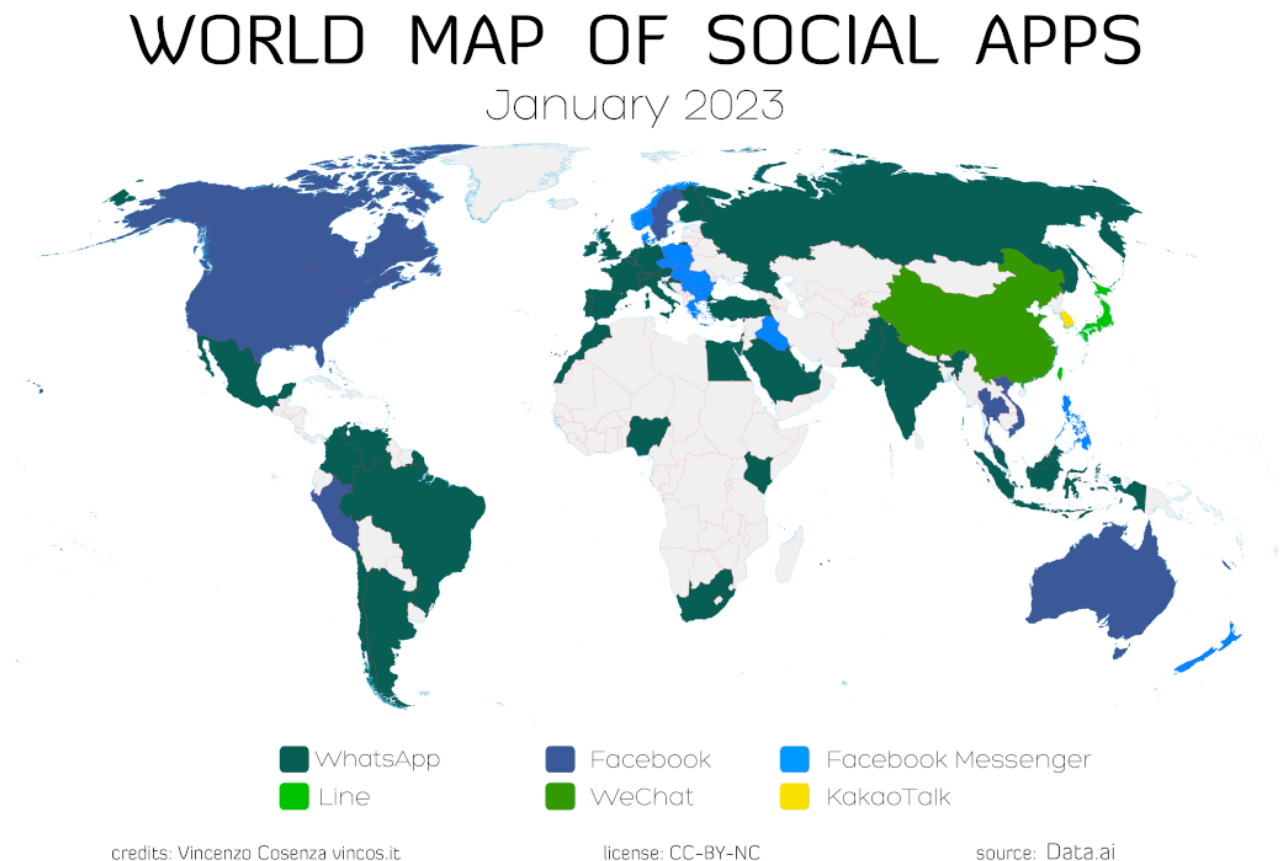
Figure 10 Ranking of the WeChat users by country in Europe

(World Population Review, 2023)

We can state that compared to China which had 810 million users, and the Asian countries that are following it on the list, have noticeably bigger numbers than the European countries. Taking into account the location, Russia is in first place, where relatively many people use the app. After another huge gap in numbers comes Italy, France, Spain, Turkey and the UK with more than 500 thousand users.

Competitor apps in Europe

China is a unique country since with governmental regulations it cuts out a huge part of the competitors in the field (WhatsApp, Facebook, Instagram, Twitter). However, this is not the case in Europe and in the USA where the competition is fierce between the giant tech-companies. The most popular applications worldwide are usually based in America. If we just take the well-known apps Instagram and WhatsApp they are both owned by Facebook, META , also used by millions in Europe. (Reiff, 2020) In the following map, World Map of Social Apps 2023, we can see that each continent and country has its own preferences in social media apps. Southern, Western and big parts of Central Europe prefer WhatsApp, meanwhile the other part of Central Europe, the Nordic countries and the Balkans use Facebook and Messenger.



*Figure 11 World map of social apps
(Vincos, 2023)*

Furthermore, have a look at the newest statistics about the Most used social media apps on a weekly basis where we can investigate top trendy social media applications in Europe. The statistics show that the first one is WhatsApp, then comes LinkedIn, owned by Microsoft, X, formerly known as Twitter, and Youtube owned by Google LLC and Alphabet Inc. (Hosch, 2023) After closely following them Facebook and Instagram and both are part of META. We can agree that all the leading social media sites we use in Europe are governed by Americans.

Most used social media apps on a weekly basis

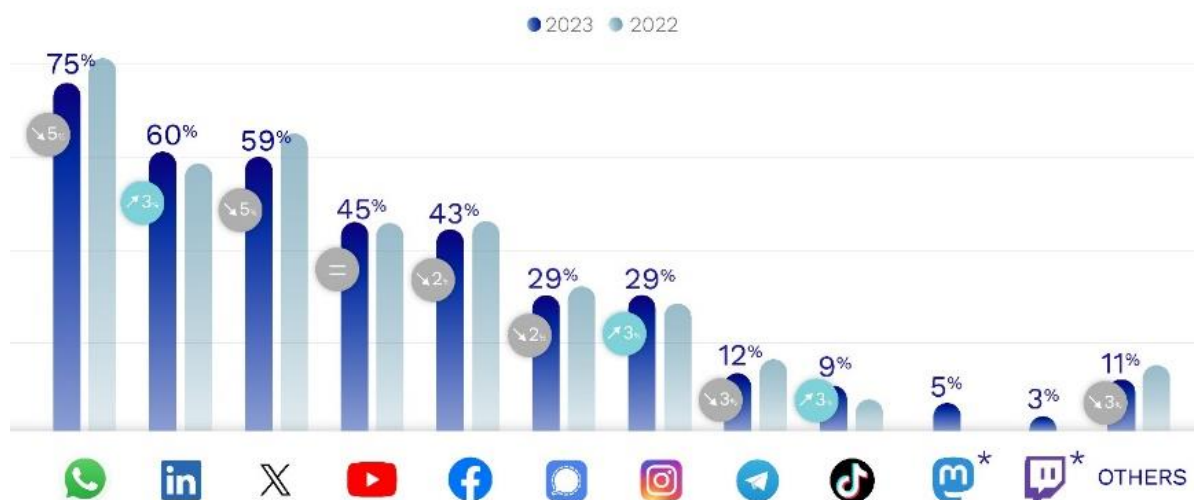


Figure 12 Most used social media apps on a weekly basis in Europe
(BCW, 2023)

Another important factor, connected to the definitions we use, that in the USA and in Europe the market is still about the capability of the smartphone, iPhone, laptop, computer or hardware, because everything is on that one tool. However, if we have a close look at Apple's strategy, in the beginning they have started their company focused on the inbuilt features of the device, and now they put effort into the services of the brand. When you are an iOS (iPhone operating system) user only then can you benefit from the services and features like the iMessage, Apple Wallet, Apple CarPlay, Apple Music, Apple TV App, and many more. Later on, the customers are more likely to choose the other type of Apple products and accessories, just like Mac, iPad or Apple Watch. In the case of WeChat it is different, because there is no device product connected to the company while Apple or Microsoft own the hardware platform. WeChat, as a superapp, has the unique ability to fit into any phone

system, therefore, naturally it has access to user data. We can see that the Western market is more about superphones and not super apps. (CNBC, 2021)

Also, the American companies came to Europe years before Tencent started WeChat. Originally, Facebook launched in 2004 and became Facebook.com in 2005 (Phillips, 2007), WhatsApp was formed in 2009 (Wikipedia, 2019), while Tencent created WeChat in 2011. In conclusion, we can say that WeChat was late for the market.

Data regulations and privacy in Europe

Today's modern technology turned the world into a new direction where collecting data of the customer is a vital part. Since these IT companies rely on data of the user, privacy is a constant issue. The new business models are usually based on the analysis of collected data, companies profile the customers to provide them personalized advertisement to make money. Each country has its own regulations and approach to data protection and data privacy.

The same rules apply for WeChat and Alibaba's e-commerce sites. They rely on consumer's data and habits of purchasing, then generate a profile and customize the ads to meet with the buyer's preferences. With the new data protection laws in China we can raise the question: How much data will Alibaba and Tencent be able to gather and how much of it can they share across their own services now that China has new data privacy laws? (CNBC, 2021)

Regardless of location, all companies are required to secure consumers data. In the People's Republic of China this law is called the Personal Information Protection of Law, while in the European Union the *General Data Protection Regulation* (GDPR) is responsible for it. (LeapXpert, 2023)

Among all the international privacy regulations, GDPR is undoubtedly the most significant and strict. Also, it continues to have an impact on current and new legislation. According to Usercentrics "The General Data Protection Regulation (GDPR) is a privacy law that requires organizations to uphold privacy rights of "anyone in EU territory", if offering them goods or services, as well as safeguarding personal data that has been collected or processed." Not only companies with headquarters in the EU, but also foreign businesses who manage operations there must apply the GDPR regulations. (Usercentrics, 2016)

Customers have rights on how businesses gather, store, use, and share their data in these where data privacy rules are used. Additionally, customers have access to modifications to the right to be forgotten, which allows them to ask for completely delete their personal information in an application or on a website. Businesses must pay attention to keep this regulated otherwise any failure could lead to millions in fines. (LeapXpert, 2023)

The GDPR regulation is stricter compared to the Chinese laws and it gives more control to the collection method of data on websites and apps. If companies would like to use the WeChat app in Europe they might need to reassure the employees before using it that their private data is well-protected.

2.3. Consumer acceptance of digital payments in Europe

In recent years, we have experienced that the landscape of the consumer payments has changed significantly. This constant transformation is driven by the new technological advancements and a great shift in consumer preferences. The sudden shift from traditional payment methods to a wide variety of digital methods, including mobile wallets, contactless cards, shows how fast the development is in financial exchanges. In today's increasing digital economy the key of keeping up with the trends is to understand consumer acceptance of these digital payment systems, since it directly influences both consumer behaviour and strategic approaches. Businesses must adopt quick if they want to remain competitive.

These changes in payment systems driven by the newest innovations, such as near-field communication (NFC), biometric security features, blockchain technology, QR-code system, are upgrading the level of convenience and security of digital payments. The modern advancements are clearly more appealing to consumers so they are highly motivated to try out new features. Moreover, the growth of e-commerce industry has been helping to adopt digital payment solutions easily which can be used in daily transactions. The constant evolution of these technologies can create new opportunities, but also challenges which will require careful analyzation of consumer attitudes and preferences in the future.

“Today, customers perceive a variety of different options to pay: cash (banknotes), credit transfer, credit cards, PayPal, payments via iTunes accounts, iDEAL in the Netherlands, Faster Payments and Paym in UK, Swish in Sweden, Alipay or Tenpay in China, M-Pesa in Kenya, vouchers at the canteen, loyalty reward points at some merchants, Open Metaverse Cent (a system for payments in different virtual worlds), virtual currencies based on decentralised consensus systems (such as Bitcoin) and so on, depending on the situation.” (Górka, 2016)

As we can see, the list of various payment methods is getting longer and longer. The boom of smartphones is playing a crucial part of this improving tendency. Customers are getting more familiar with online platforms where they must use digital payment methods while purchasing. “From banking point of view this list seems to be a strange mixture.” (Górka, 2016) “Carl-Ludwig Thiele, a member of the board of Deutsche Bundesbank, described the future of payments as: ‘colourful and manifold’” (Thiele, 2015, as cited in Górka, 2016)

2.3.1. Overview of new payment systems in Europe

Decline of cash payments in Europe

Looking back in history cash has always been the dominant payment method. The reason behind that is that it was easy and widely accepted in personal payments and in retail. However, after the 4th revolution the improvement of technology had an even sharper increase. Another important fact which was distributing to this change was the COVID-19 pandemic which motivated people seek digital alternatives. The pandemic started to alter everyday life when many institutions needed to use online methods for work and education. There has been a noticeable change in cash usage. The European Central Bank (ECB) has conducted the “Study on the payment attitudes of consumers in the euro area” (SPACE) in recent years to follow closely the ups and downs of different payment methods.

“The results show that in 2016 around 79% of all payments at POS (point of sale) were made with cash, 19% with cards and 2% with other payment instruments.” (Esselink & Hernández, 2017) According to the European Central Bank (ECB), the number of cash transactions was 79% in 2016 but it dropped to 59% in 2022. “However, cash remained the most frequently used method for payments at the POS in the euro area.” (European Central Bank, n.d.)

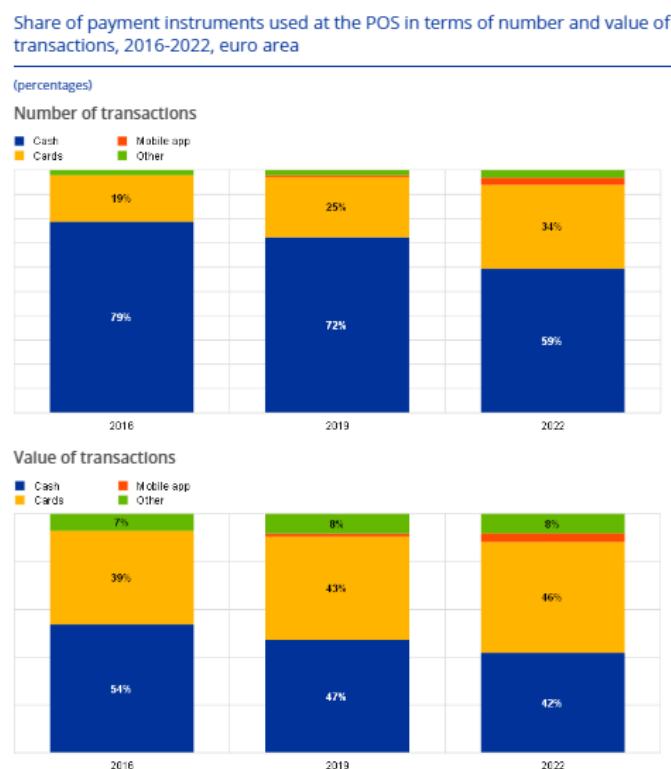


Figure 13 Share of payment instruments used at the POS in terms of number and value of transactions, 2016-2022
(European Central Bank, 2022)

There are several factors which are simultaneously causing the decline of cash usage. One of them is the increased access to digital banking worldwide. Nowadays, the competition is fierce between banks, they all want to offer up-to-date banking apps to their customers. In this way, they have greater access to check on their finances through their smartphones, but also makes transactions easier and quicker compared to cash.

If we look at the newer generations, we can detect another reason for the decline of cash usage. There is a big shift in consumer preferences since younger generations, Gen Z and Millennials, prefer using digital payment methods (contactless payment, mobile wallets). (Statista, 2024) Another major player in this tendency was the COVID-19. During the pandemic, handling any type of physical money was associated with risking our health, therefore consumers started to adopt cashless payment methods quickly. “Even traditionally cash-heavy countries like Germany and Italy show solid signs of adoption with a quarter of respondents indicating in-store use of a digital wallet in the past 12 months.” (Varadarajan et al., 2024)

Rise of digital wallets

One of the most popular alternatives of cash are the digital wallets. The biggest advantage of this application is that users can store their payment information securely and only use their phone when paying. This way, completing transactions from smartphone or smartwatch are convenient and quick. Also, this method works both online and in physical stores. Nowadays, the key players in this field are Apple Pay, Google Pay, and there are also local variants like *Swish* in Sweden and *iDEAL* in the Netherlands.

The main reasons behind the upturn in digital wallets are high functionality, newer security features and integration with e-commerce. Today, digital wallets became popular, especially for the younger generations. Their smartphone is stuck to their hands all the time, therefore they can take more advantage of the convenience and integration programs with other apps online. Over 60% of younger Europeans (ages 18-35) rely on this payment method when completing everyday transactions. (PayOp, 2024)

“It’s easy to see why – integration of mobile wallets with loyalty programs, online stores, and even government services makes them an obvious choice. With countries like Sweden and Finland leading Europe to a near-cashless society, digital payments will continue to gain popularity.” (PayOp, 2024)

Another benefit of the wallet function is the innovative security features. Security is always a major concern among people, they remain critical when new technological developments are introduced. However, these new wallet applications usually apply the most advanced security technologies (biometric authentication, tokenization) to strengthen the safety of transactions compared to traditional cash payment. (Corytech, 2024)

We can add another significant player which further drives the adoption of digital wallets, and that is e-commerce. “E-commerce has emerged as a cornerstone of the EU’s digital economy, experiencing exponential growth in recent years.” (Corytech, 2024) If we look at the statistic of Eurostat, from 2010 to 2023 the growing of e-commerce in Europe is fast and we can expect this tendency to continue in the future. (Eurostat, 2024)

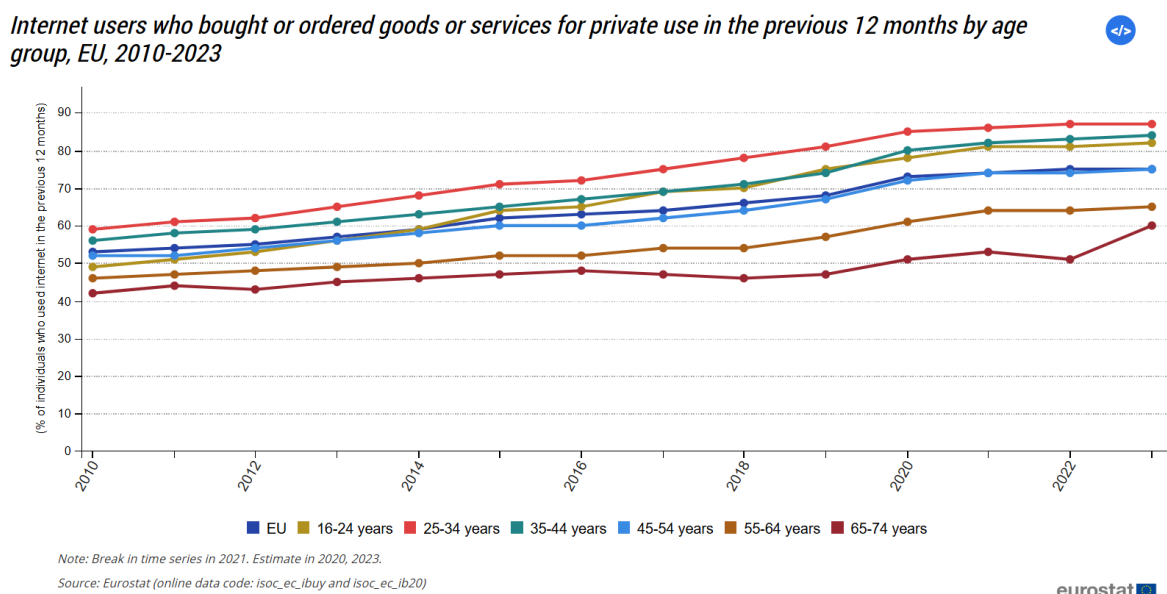


Figure 14 Internet users who bought or ordered goods or services for private use in the previous 12 months by age group, EU, 2010-2023
(Eurostat, 2024)

Rise of QR codes in payment innovation

In addition to digital wallets, we also use a different type of digital payment method; QR code payment method. This is another new option for customers which gained popularity worldwide. If we scan these two-dimensional barcodes we can reach various stored information. There are many different types of barcodes. “1D barcodes hold up to 85 characters, while QR codes can store up to 4296 alphanumeric characters or 7089 numeric characters.” (Ricson, 2024)

During the COVID-19 the usage of QR codes skyrocketed. The change was significant from the first quarter of 2020 to the last quarter of 2021 when the downloads had 750% increase. (Ricson, 2024) Later, this new popular technology started to evolve into daily life and had new purposes as entertainment, coupons, container of information, education, payment method. Nowadays, it is well-known all around the world, however, in China QR codes are essential. Statistics show that Chinese people use QR code 10-15 times daily. (Ricson, 2024) The QR code-based payment system is the most widespread in China, nevertheless a different form of QR code use is currently dominant mainly in the USA. According to statistical report generated by QR Tiger, in 2024 the top ten countries with the highest scanning activity were the USA with almost 40%, India with 9%, and then we can see European countries as well such as France (3.86%), Spain (3.14%) and the United Kingdom (2.10%). (Ricson, 2024)

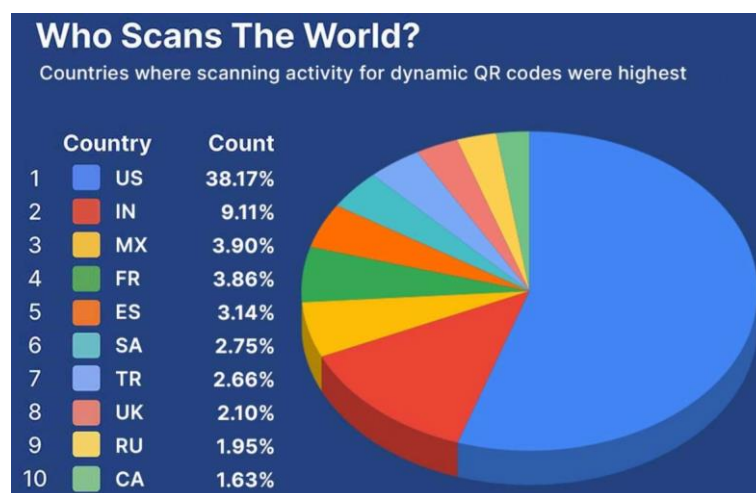


Figure 15 Countries where scanning activity for dynamic QR codes were highest
(Ricson, 2024)

There are several key factors that help to grow the popularity of QR codes around the globe. Firstly, QR codes are convenient and easy to use, also they are further eliminating the need for cash or cards. Secondly, they can be used as container of information, so this way QR codes can be used in multiple fields. For instance, in the US the general public voted for keeping QR codes in the daily life and continue using it for different purposes like menus, tickets, medical records and many more.

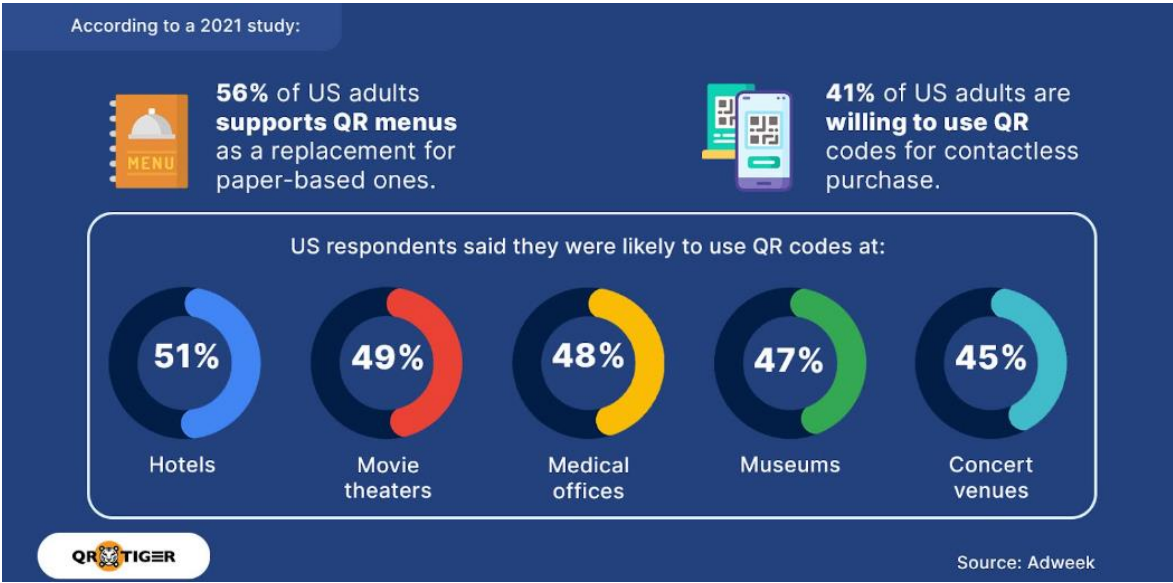


Figure 16 Usage of QR codes based on US respondents' answers
(Ricson, 2024)

2.3.2. Payment system in Hungary

The Hungarian payment system has experienced significant changes in the last decade. The increase of digitalization and the development of technology around the world powered a great transformation in Europe, therefore Hungary needs to keep up with the new payment methods as well. In Hungary, cash-based transactions remain strong, however the rise of digital payments are visible. There is a wide variety of payment methods such as cash, contactless payment like card, digital wallets and now the new QR code-based “Qvik” system.

We experienced a significant increase in online banking and many banks created their own applications, even have their bank-specific digital wallet features similar to Google Pay and Apple Pay. Nowadays, more and more people, especially the younger generation, use their smartphone or smartwatch to pay with the digital wallet function thanks to its quickness and simplicity.

In this year’s September, even a new payment system was introduced by Hungarian National Bank (MNB). This so-called “Qvik” system offers an instant, fee-free payment method which was designed to act as an alternative to card payments both in store and online. (Hetzmann, 2024) “In order to ensure that qvik services can be widely used as soon as possible, the MNB expects banks to introduce acquiring services at low cost for merchants and issuers.” (Magyar Nemzeti Bank, 2024)

Chapter 3.: Methodology

To examine the level of consumer acceptance of QR code-based payment systems in Hungary I used quantitative research design. I believed, this approach might be the best to test my hypotheses about consumer behaviour and preferences. I decided that my focus will be on Hungarian population, because if I would have chosen Europe my research would be less representative due to the lack of answers from all countries. Therefore, my target population for sampling included only Hungarians above 18 years.

For this online survey I picked convenience sampling method and primary data were collected via social media platforms. The online survey consisted of 18 questions, including demographical, 7-point Likert scale, yes-or-no and multiple-choice questions to gain information from Hungarians of all generations to prove or disprove my three hypotheses. A total of 264 respondents participated anonymously in my 5 minutes long online survey. The data collection period was two weeks long.

I used the Google Forms to create my survey and then used Excel to analyse the collected data for descriptive statistics. As participants in my survey were selected through convenience sampling, I am aware of the fact that the sample may not reflect adequately the population of Hungary.

Chapter 4.: Research results

4.1. First hypothesis

Younger consumers (18-34) are more likely to accept and adopt QR code-based payments compared to older groups.

To prove my first hypothesis, I had two important question in my survey. One of them was about age where they could choose from six type of age groups (18-24, 25-34, 35-44, 45-54, 55-64, above 65) and the other one was “How open are you to using QR code-based payment methods for your daily purchases?” on a 7-point scale where 1 is "not at all" and 7 is "very open". The age distribution of the total respondents can be seen on the following chart.

Age distribution of the Hungarian respondents

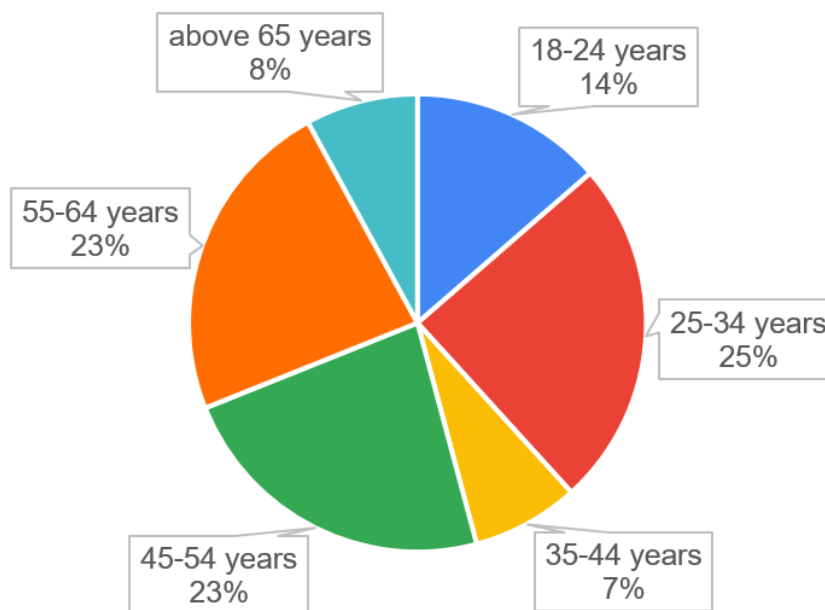


Figure 17 Age distribution of the Hungarian respondents

To have more visible charts for comparison I have considered the possibility of creating even bigger subgroups, therefore I created three groups: Younger Hungarians (18-34), Middle aged Hungarians (35-54), Older Hungarians (55-65+). After having these three groups, I have calculated what was their response on a 7-point scale to my question “How open are you to using QR code-based payment methods for your daily purchases?”.

Young Hungarians (18-34) answered the question "How open are you to using QR code-based payment methods for your daily purchases?" on a 7-point scale where 1 is "not at all" and 7 is "very open".

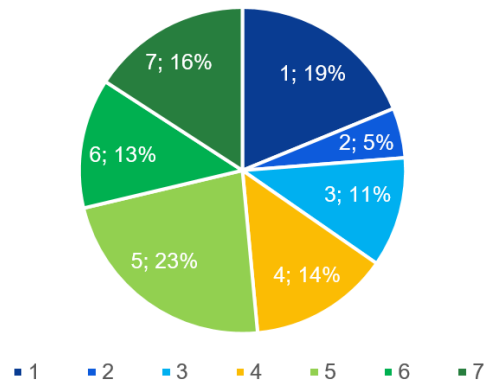


Figure 18 Answers of the young Hungarians group

More than half (52%) of the responses of the younger age group was 5, 6 or 7 which indicates openness to the usage of QR code-based payment system. 14% of the respondents remained neutral, 11% said that they are somewhat open and 24% answered 1 or 2.

Middle-aged Hungarians (35-54) answered the question "How open are you to using QR code-based payment methods for your daily purchases?" on a 7-point scale where 1 is "not at all" and 7 is "very open".

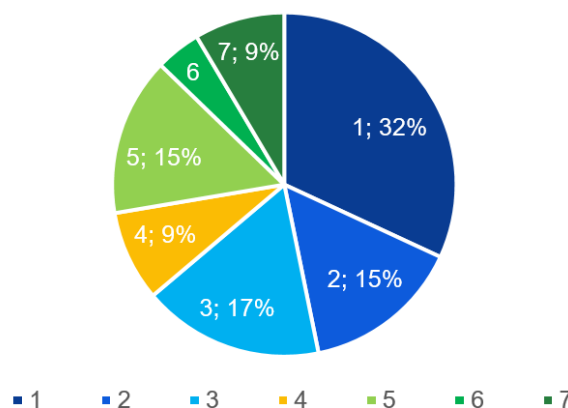


Figure 19 Answers of the middle-aged Hungarians group

The 35-54 age group answered that they are more sceptical with this new QR code-based payment method. As we can see, around 25% of the middle-aged Hungarians voted for openness, 9% remained neutral in this topic, 17% said that they are slightly open and 47% chose 1 and 2 on the scale.

Older Hungarians (55-65+) answered the question "How open are you to using QR code-based payment methods for your daily purchases?" on a 7-point scale where 1 is "not at all" and 7 is "very open".

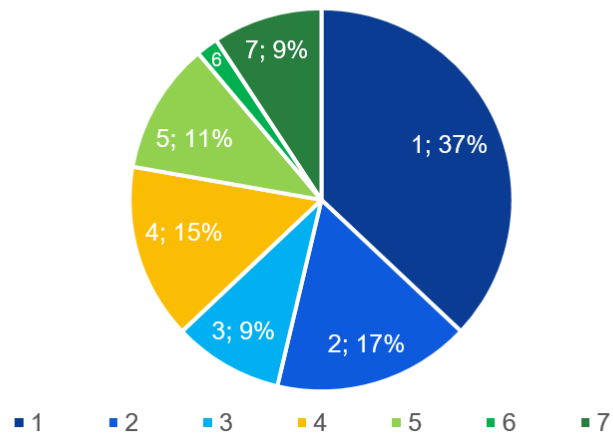


Figure 20 Answers of the older Hungarians group

The last subgroup was the older Hungarians from 55 years to above 65 years. Their rating is similar to the Middle-aged group. Around 20% thinks that they would be open to this new payment method, 15% stays neutral, 9% is slightly open to this new technology and 54% answered with 1 and 2 options.

4.2. Second hypothesis

Consumers who are more familiar with mobile payment platforms (Google Pay, Apple Pay) are more likely to adopt QR code-based payments.

The aim for my second hypothesis was to analyse Hungarians whose familiarity with the digital wallets are on different levels. To be able to compare the familiarity with the willingness of adoption of QR code-based payment I created 4 different subgroups based on the answers of the question “Have you ever used Google Pay, Apple Pay, Wallet, or other mobile payment apps for making payments (using your phone or smartwatch as a bank card)?”. There were four options to choose from: Regularly, Sometimes, Hardly ever, Never. After, I generated the four groups based on previous familiarity with the digital wallet applications I analysed their answers for the question “How open are you to using QR code-based payment methods for your daily purchases?” using a 7-point scale, where 1 represents 'not at all open' and 7 represents 'very open'. To make the data more visible on the chart I merged some answers into one, therefore 1, 2, 3 are blue, 4 is yellow and 5, 6, 7 are green in the pie-chart.

Hungarians who regularly use digital wallet applications were asked the question: "How open are you to using QR code-based payment methods for your daily purchases?" using a 7-point scale, where 1 represents "not at all open" and 7 represents "very open".

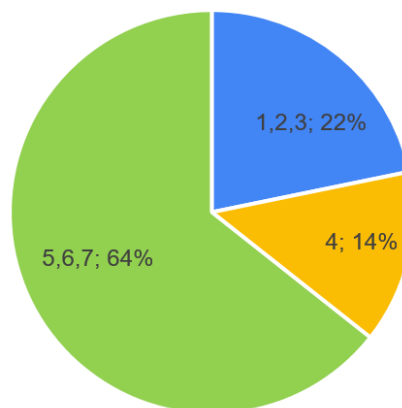


Figure 21 Answers of Hungarians who regularly use digital wallet applications

If we examine the first group, those who answered “Regularly” to my question, we can see that the majority of people (64%) answered that they would be open to accept QR code-based payment, 14% was neutral and 22% chose 1, 2 and 3.

Hungarians who sometimes use digital wallet applications were asked the question: "How open are you to using QR code-based payment methods for your daily purchases?" using a 7-point scale, where 1 represents "not at all open" and 7 represents "very open".

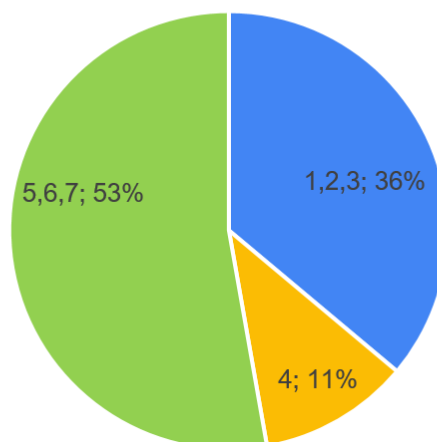


Figure 22 Answers of Hungarians who sometimes use digital wallet applications

In the second group, where people sometimes use digital wallet applications, the answers were the followings: 53% of them chose 5, 6, 7 options, 11% remained neutral and 36% said that they would be slightly open or not at all open for this payment method.

Hungarians who hardly ever use digital wallet applications were asked the question: "How open are you to using QR code-based payment methods for your daily purchases?" using a 7-point scale, where 1 represents "not at all open" and 7 represents "very open".

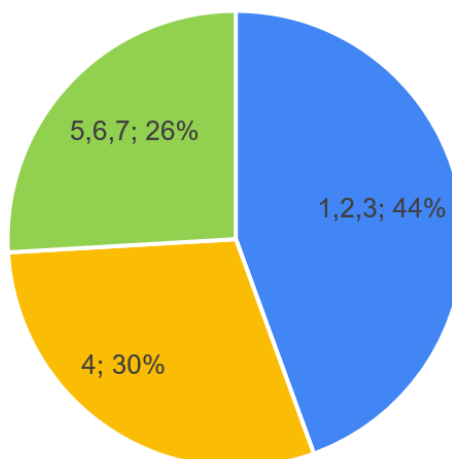


Figure 23 Answers of Hungarians who hardly ever use digital wallet applications

Here, we can sense that the green colour, 5-6-7 rates, is getting smaller; only 26% and the neutral answer is also greater with its 30%. The dominant colour is the blue, 1-2-3 rates, with its 44%. Almost half of the people who are hardly ever using digital wallet apps are less positive about a possible change in digital payment system.

Hungarians who never use digital wallet applications were asked the question: "How open are you to using QR code-based payment methods for your daily purchases?" using a 7-point scale, where 1 represents "not at all open" and 7 represents "very open".

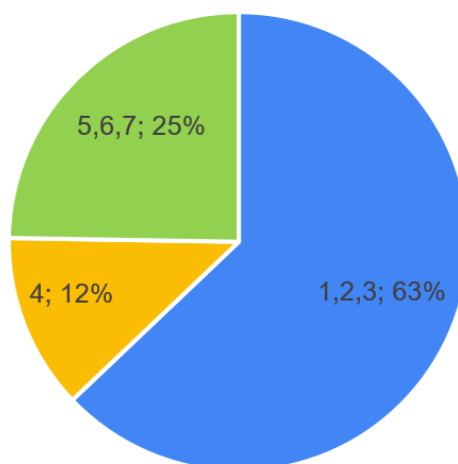


Figure 24 Answers of Hungarians who never use digital wallet applications

Among the last group, where Hungarians never use digital wallet applications, the 1-2-3 answers are dominating the chart with 63%. Some people (12%) stayed neutral in this question and only 25% chose to be open about the adaptation of the new QR code-based payment method.

The four groups of Hungarians were asked the question: "How open are you to using QR code-based payment methods for your daily purchases?" using a 7-point scale, where 1 represents "not at all open" and 7 represents "very open".

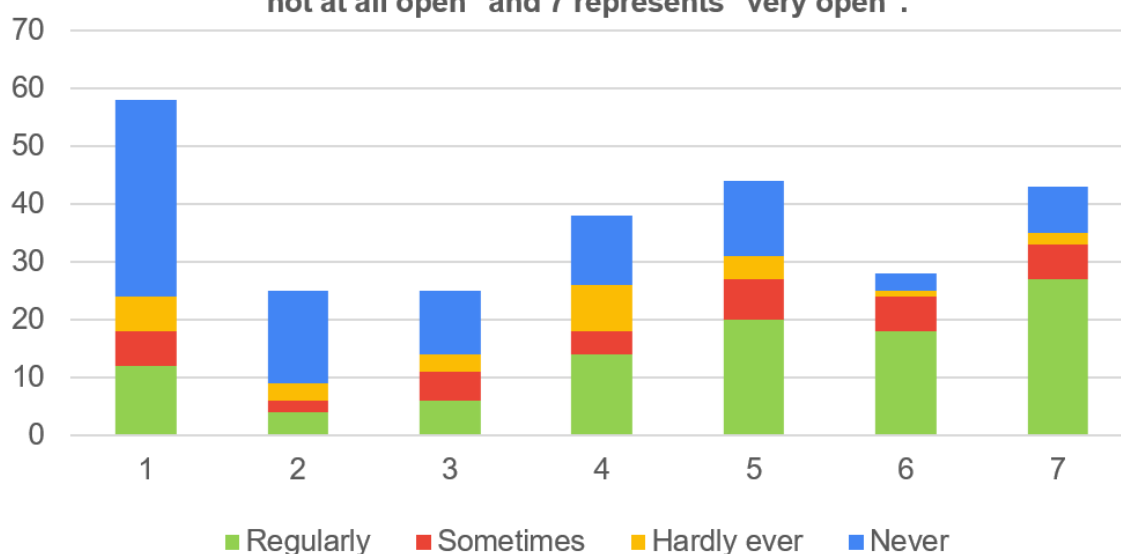


Figure 25 Answers of the four groups of Hungarians

On this chart we can see the total of Hungarian responses for the 7-point scale question. The four colour indicates the four subgroups (Regularly, Sometimes, Hardly ever, Never) based on their level of familiarity of digital wallets. Analysing all answers, it is clear that those who never use such applications (blue colour) responded the most with 1 and the Hungarians who regularly use digital wallets (green colour) chose mostly 7, 6 and 5.

4.3. Third hypothesis

The people who are already using smartphone or smartwatch to pay would trust QR code-based payments more compared to those who have never used it.

To prove my third hypothesis, I divided the respondents into two groups by asking a yes-or-no question: “Have you ever used a smartphone or smartwatch as a payment method?”. After having two subgroups, Hungarians who have previously used this digital payment method and Hungarians who have never used it, I analysed their answers on a 7-point scale where 1 represents “do not trust at all” and 7 represents “trust completely” to the question “How much would you trust QR code-based payment system?”

Hungarians who have previously used a smartphone or smartwatch to pay were asked the question: “How much would you trust QR code-based payment system?” using a 7-point scale where 1 represents “do not trust at all” and 7 represents “trust completely”.

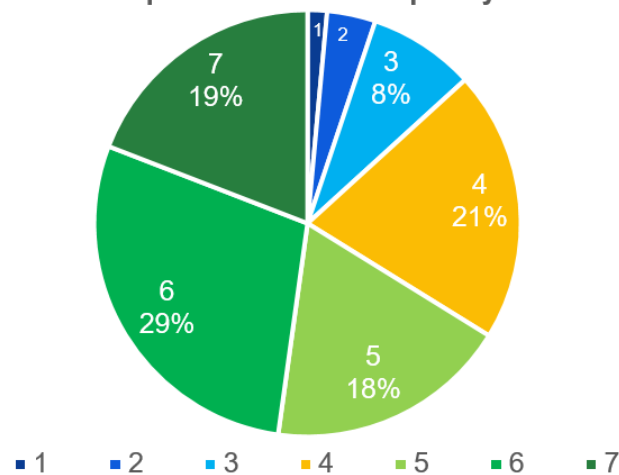


Figure 26 Answers of the Hungarians who have previously used a smartphone or smartwatch to pay

First, I measured the answers of those people who have previous experience with this digital payment method. 66% of the people who have previously used smartphones or smartwatches for purchasing said that they would trust the QR code-based payment system, 21% remained neutral, 8% would trust little and less than 5% chose 1 or 2 option.

Hungarians who have never used a smartphone or smartwatch to pay were asked the question:
 "How much would you trust QR code-based payment system?"
 using a 7-point scale where 1 represents "do not trust at all" and 7 represents "trust completely".

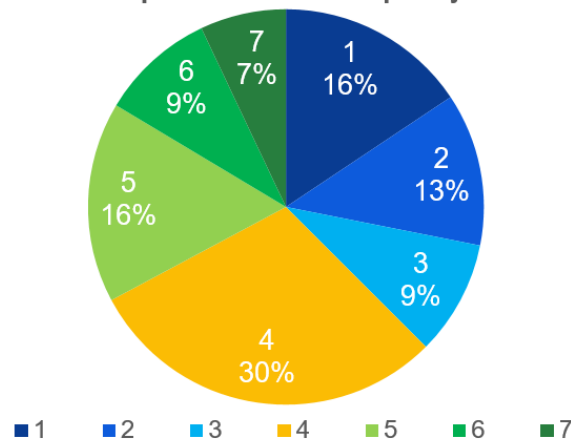


Figure 27 Answers of the Hungarians who have never used a smartphone or smartwatch to pay

32% of the people who never used such digital payment before answered that they would trust this new innovation, 30% thought that they would be neutral, and 38% said that they would trust very little or not at all the QR code-based payment method.

Hungarians were asked the question:
 "How much would you trust QR code-based payment system?"
 using a 7-point scale where 1 represents "do not trust at all" and 7 represents "trust completely".

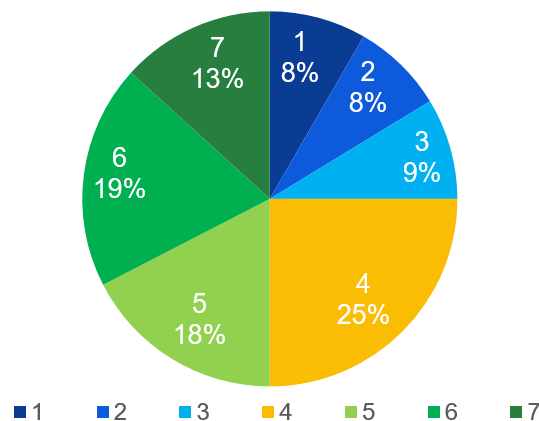


Figure 28 Responses of Hungarians on how much would they trust QR code-based payment system

In total, 50% of the Hungarian respondents voted for "high" or "complete trust" when it comes to new QR code-based payment system regardless of their experience with transactions via smartphone or smartwatch. 25% stayed neutral about this question and 25% said that they would be less trustful or would not trust this new function at all.

Chapter 5.: Conclusion

As I mentioned at the beginning of my paper, staying up-to-date with the rapid changes of technology can be difficult. We can see that people across the globe aim to find the perfect solution that could simplify the process of keeping and building connections. In China, this advancement is called WeChat. In my thesis statement I asked these questions: Does WeChat have a chance in Europe? How Europeans, Hungarians would feel about the QR code-based payment system? Would Hungarians fancy the QR code-based payment method? How willing would they be to adapt such a technology in Hungary? How much would they trust such technology with QR codes? Conducting my research on this topic I have found interesting answers for the questions. Therefore, I had three hypotheses in focus while doing my research.

First: *Younger consumers (18-34) are more likely to accept and adopt QR code-based payments compared to older groups.* The information I gathered through my survey showed that the younger consumers are more likely to adopt QR code-based payment method compared to the middle aged and older age groups. 52% of the younger group, 25% of the middle aged groups and 20% of the older group said that they would be open to this new technology. Looking at the other side, 24% of the young people, 47% of the middle group and 54% of the older group answered “slightly open” or “not at all open”. As we can see, the younger consumers (18-34) would be much more open to the QR code-based payments, compared to the middle aged and older consumers who similarly to each other remain rather sceptical.

Second: *Consumers who are more familiar with mobile payment platforms (Google Pay, Apple Pay) are more likely to adopt QR code-based payments.* For this hypothesis, the answers that I have collected show that 64% of the people who already use mobile payment platforms regularly, 53% of sometimes, 26% of hardly ever and 25% of never said that they would be open to the QR code-based payment. In contrast, 22% of the “regularly” group, 36% of the “sometimes” group, 44% of the “hardly ever” group and 63% of the “never” group answered that they would be less open or not at all open to this innovation. If we analyse the percentages, we can detect that those people who has been familiar with such digital payment methods proved to be more open to the QR codes than those who hardly

ever or never had used it before. Those respondents who have no previous knowledge about the digital payment methods even reacted more negatively to this new idea of paying with QR codes.

Third: The people who are already using smartphone or smartwatch to pay would trust QR code-based payments more compared to those who have never used it. The data from my survey shows that 66% of the people who previously used such digital payments and 32% of the people who never used it would trust the QR code-based payment method. On the other hand, 13% of those who are using smartwatch or smartphone to pay and 38% of those who have never used it would feel less or not at all trustful. In summary, the majority of those who has already adopted digital payments would trust much more the QR code-based payment more than those who has no previous experience with such digital payment system. All things considered, 50% of the total respondents would be trustful, 25% would stay neutral and 25% would be less or not at all trustful.

We have now reached the limitations of my current research and to get further in this topic additional studies and researches are needed to be done to achieve more representative results. In conclusion, the hypotheses that I stated proved to be right in Hungary, however to be more precise there could be more respondents in my following studies.

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