Mini App Platform for EasyPaisa

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This project is based on my understanding for such a platform on the basis of secondary data available publically. As the concept is already adopted by different companies across the globe, it is highly likely that some of fintech companies in Pakistan are perusing for such sort of development. This may or may not be the actual implementation of such a platform by any Financial Technology company in Pakistan.

Abstract

Digital transformation is the biggest phenomena of today's world. Digital transformation is actually the penetration and integration of digital technology in all areas of life whether it is business, household, education, sports, health, finance, agriculture or any other area in the life of human beings on this planet earth. Like any other area, digital technology has not only transferred but also revolutionized the finance industry as well. Today, we can see that there are more and more financial technology (Fin-techs) companies emerging and becoming integral part of our daily life. These companies are not only providing easy digital financial management solutions to their customers but are also facilitating them to interact digitally with multiple billers, sellers, merchants and beneficiaries to complete their financial transactions. In this way, these fin-tech companies have made this lifecycle very easy for both consumer and producers.

In Pakistan, financial technology companies are also playing same role to digitalize financial management and transactions. A number of micro financial technology companies are currently doing successful business in the country. Top of the list are EasyPaisa, JazzCash and UBank. These companies are providing services like digital wallets, digital transactions, online purchases and digital money transfers. These companies also provide easy payment methods on number of sellers, billers and service providers for which they need to get integrated with respective partners to provide services to the customers of these fin-tech companies.

For this business project, an idea has been shared for Fintechs in Pakistan to develop a platform where they can provide a framework to different partners and merchants for them to get easily integrated with their main platform or mobile application. In this way, not only the Fintech application will be able to facilitate its customers with a lot more services and products from different vendors and service providers, but this will also help other merchants and service providers to get easy access to millions of those particular Fintech application users as potential customers for their services and products. And finally, it will increase the subscribers and usage of the App by providing more and more services to the end customers. For this dissertation, only EasyPaisa and JazzCash will be discussed since these are the biggest Fintech brands in Pakistan.

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List of Acronyms

Abbreviation	Explanation
COVID	Corona Virus Disease
CSS	Cascading Style Sheets
EP	EasyPaisa
FinTech	Financial Technology
GSMA	Global System for Mobile Association
IBFT	Inter Bank Funds Transfer
JC	JazzCash
MAU	Monthly Active Users
MFI	Microfinance Institution
MFS	Mobile Financial Services
MMU	Mobile Money for Unbanked
MP	Mini Programs
PoV	Point of View
QR Code	Quick Response Code
SBP	State Bank of Pakistan
SDK	Software Development Kit
SKMCH	Shaukat Khanam Memorial Cancer Hospital
TMB	Telenor Microfinance Bank
USD	United States Dollar
USSD	Unstructured Supplementary Service Data
YoY	Year on Year

1. Background

In the 2008, almost half of the population of Pakistan i.e. over 80 million had savings; but only about eight percent of that population was availing any services from formal financial institutions [1]. This means that the country was rich ground for the companies who can take financial inclusion initiatives, and telecom service providers were all geared up to take the responsibility. In March 2008, before any real action could be taken, the State Bank of Pakistan (SBP) issued regulations regarding non-branch banking that only allowed existing financial institutions to provide financial services outside of regular banking branches through other mobile-based agents and delivery channels. By such regulations on mobile banking from the State Bank of Pakistan, it became obvious to interested telecom services providers that if they are to become part of the financial services business, then they either have to go for a license from SBP to establish a new bank altogether or to look for a partnership with an existing bank.

Telenor Pakistan and Tameer Microfinance bank had a very close discussion on these options back in 2007. This ultimately led to an agreement that builds the terms and conditions of their partnership and what the new relationship is expected to bring, the consumer market and their key businesses. This partnership can be thought of as the story of a mobile operator who manages a small money bank to run his payment strategy in Pakistan. For others, it is the story of a visual financial institution that builds a smart partnership with a mobile operator who is determined to change his profile in Pakistan.

After this initiative from EasyPaisa to launch digital payment system and microfinance banking, a number of other players also started same services. Details of some key players in the current Pakistani digital and fintech market is mentioned below. But as already mentioned, to keep this dissertation simple and precise, the discussion and elaboration will only be included for EasyPaisa and JazzCash since these two are the biggest fintech companies in Pakistani market. There are number of more companies as well but only major ones are listed below to understand how rapidly digital financial technology is getting popularity in Pakistan.

FinTech	Function	Description
Telenor Bank	Payment Gateway	Telenor Microfinance Bank (TMB) Limited, is the 1st scheduled microfinance bank established in Pakistan. It

	Lending Easypaisa TILL Virtual DebitCard	provides micro-finance and other related financial services to those who are less privileged and the unbanked segment of the country with an mission to contribute towards poverty eradication under the Microfinance Institution ordinance, 2001.
JazzCash	Payment gateway Branchless Banking Solutions Lending Corporate Solutions	JazzCash offers branchless banking solution with the partnership of Waseela microfinance bank. JazzCash has a mission to enable society with complete financial liberation that the people have always needed in life. Users can transfer money to Bank account, CNIC, or JazzCash account.
Finja	SIMSIM Wallet Payroll software Payment solutions for merchants	FINJA is a zero cost payment platform with an integrated loan and E-Commerce market place, founded by veterans of tech and banking industry. A Pakistani fintech with a mission to make payments free, frictionless and real time.
HBL, HBL Konnect	Payment Gateway Bank Debit API Wallet	HBL provides payment gateway for emerchants, mobile bank account, over the counter services and home remittance account via their Konnect app. Konnect by HBL is a complete financial services solution that provides easy account opening, instant funds transfers, seamless payments at retail outlets and e-commerce websites and access to a variety of financial services.
Ufone Pay/Upaisa	Mobile Financial Services	UPaisa's mobile account functions just like a normal bank account, however it has the added advantage that it can be used anytime anywhere. You may get your own mobile account by going to any Ufone Sales and Service Centers, Ufone Franchise or UBank branch. UPaisa's Mobile Account is fast, secure, convenient and innovative. It is the solution to all your banking needs.
Keenu	Digital Wallet	Keenu Wallet is a Free Digital Wallet application, introduced by Wemsol Private Limited. Keenu Wallet helps you make quick, secure and rewarding payments. With this wallet, you can make a purchase at your favourite retail outlet, shop online, request and share money with friends, pay utility bills from home and more. No need to worry about carrying cash or credit card anymore.
Tajir	App-based Marketplace	The company's platform allows users to procure inventory for their stores through its Urdu-only app-based marketplace and offers FMCG products including soft drinks, biscuits, shampoo, and food staples like rice and wheat, thereby empowering clients with world class logistics and

		information tools and simplify the transaction processes.
SadaPay	Digital Branchless Banking	SadaPay is registered in Pakistan as SadaTech Pakistan Pvt Ltd. SadaPay doesn't have any costly physical branches like a traditional bank, which lets us pass those savings onto our customers. Free Mastercard debit card No annual fees or minimum deposit Free, instant transfers to any bank or wallet in Pakistan Free cash withdrawals at any ATM in Pakistan (3x per month)
UBL Omni	Mobile Financial Services. Branchless banking	UBL Omni Mobile App aims to facilitate customers with an all-round access to their Omni Accounts, whenever and wherever they want. With this app you can do fund transfers, pay bills, check banking and transaction details all hosts of banking services.
Tez Fin	Digital Lending	Tez Financial Services is a fintech company that provides instant access to financial services through a mobile application. You can use Tez Financial Services to borrow, save, insure and invest money.

Table 1: Digital Banking and Fintech Companies in Pakistan

<u>Source</u>: https://www.apnapakistan.pk/top-10-fintech-companies-in-pakistan/ **&** https://startups.secp.gov.pk/Startup/fintech/

1.1. EasyPaisa the Pioneer

EasyPaisa is the Pakistan's largest mobile financial service platform with more than 20 user base and more that 8 million monthly active users (MAU). EasyPaisa also manages Pakistan's largest retailer network with more than 60 thousand retailers across the country. EasyPaisa was founded in 2009 by one of Pakistan's leading telecom service provider company Telenor Pakistan in collaboration with Tameer Bank and was later renamed as Telenor Microfinance Bank. With company's head office situated in Karachi, EasyPaisa has its regional offices in Islamabad and Lahore.

EasyPaisa was initially launched for a mobile to mobile transfer service using the USSD (Unstructured Supplementary Service Data) technology. Later in 2016, EasyPaisa launched its

mobile application as well. With this, EasyPaisa also evolved itself as mobile payments, mobile wallets and other branchless banking service provider and started providing number of other financial transaction services which was the need of the customers.

EasyPaisa was started by Telenor Group in 2009 in partnership with Tameer Bank. Tameer Bank was later changed and became Telenor Microfinance Bank in 2017. Telenor Group is one of the world's largest telecommunication service provider companies and operates largely in the region of Asia and Nordics. The overall customer base of Telenor Group is more than 187 million subscribers across the globe with annual sale of around USD 14 billion as of 2020 [2]. Telenor Group has its operations in Denmark, Sweden, Norway, Finland in the Nordics while in Asia, it is providing services in Pakistan, Thailand, Bangladesh, Malaysia and Myanmar.

1.2. EasyPaisa Today

EasyPaisa is the leader of financial technology in Pakistan and is also the only certified service by GSMA mobile money in Pakistan. The company also holds highest number of subscriber base for mobile financial service's users. EasyPaisa is the brand of choice for over 20 million users who have created account for EasyPaisa services with more than 8 million monthly active users. EasyPaisa also holds the largest retailer network with more than 60 thousand retailers across the country.

In March 2018, Ant financial services group (the investment wing of the global Alibaba Group) reached a strategic agreement with the Telenor Group (owners of Telenor Micro-Finance Bank and EasyPaisa) to invest US$184.5 million for a 45 percent stake. Over the past 10 years, the service has changed, the number of customers has increased and investors have grown significantly. In 2019, EasyPaisa completed a decade of transforming the digital financial space in the country. On completion of ten years in market, EasyPaisa completely revamped its image coming out with a new identity with an updated logo in 2019 November.

Company Mission [3]
"Transform Pakistan into a cashless and financially inclusive society by creating value through the power of collaboration and technology".

Company Vision [3]

"Creating a transparent economy that all Pakistanis can participate in".

Company Values [3]

- Integrity and Honesty – demonstrated by transparency, commitment and truthfulness.
- Extreme Ownership – demonstrated by taking responsibility and accepting accountability for all outcomes.
- Collaboration and Teamwork – demonstrated by working collectively and helping each other succeed.
- Customer Focused – demonstrated by always keeping customers first. All actions and decisions should bear in mind the impact on both our internal and external customers.

1.3. EasyPaisa Awards

EasyPaisa has been conferred various awards and achieved milestones those include [5]:

SR.	EasyPaisa Awards List
1	Best mobile money launch award of 2009
2	Mobile money transfer entrant award of 2010
3	Global mobile money best new entrant of 2011
4	Mobile money sprinter recognition by GSMA MMU in 2012
5	GSMA award for best mobile money service in 2014
6	GSMA award for best mobile money service in emerging markets in 2014
7	People's choice award in Dow Jones and Wall Street Journal's in 2015
8	Financial innovation award in 2016
9	Pakistan banking award for Bank the Unbanked in 2016 and 2017
10	Global mobile awards for best mobile payment solution 2017
11	Only Mobile money service in Pakistan to get GSMA mobile money certification in 2018
12	Innovations in payments awards by Global Finance Magazine in 2019
13	Most innovative MFI award in 2019 by City-Micro Entrepreneurship

Table 2: EasyPaisa Awards List

Source: https://www.pakistangulfeconomist.com/2020/10/26/EasyPaisa-transforming-digital-financial-space-in-pakistan/

1.4. JazzCash the Market Penetrator

JazzCash was launched in 2012 as MobiCash by Mobilink (now Jazz) in partnership with Waseela Bank, which was later renamed as Mobilink Microfinance Bank. In 2016, MobiCash was renamed as JazzCash.

In 2020, JazzCash partnered with Payoneer to provide freelancers with a solution that would allow them to withdraw funds from their Payoneer account through their JazzCash wallet. Currently, more than hundred thousand such accounts have been linked to JazzCash.

1.5. JazzCash Today

JazzCash, formerly known as MobiCash, is a Pakistani mobile wallet, mobile payments, and branchless banking services provider. It was launched in 2012 as MobiCash by Mobilink (now Jazz) in partnership with their subsidiary bank Mobilink Microfinance Bank. It has a market share of 64 percent in mobile money activity. It also provides digital payment service through QR code in partnership with MasterPass.

<u>Company Mission</u>
"Mobilink Microfinance Bank aims to provide financial solutions to the economically underprivileged for their economic freedom by using innovative ADC's and promoting micro businesses through an ethical and passionate team, which strives to deliver beyond expectations."

<u>Company Vision</u>
"Mobilink Microfinance Bank aims to alleviate poverty and promote financial inclusion by providing innovative solutions."

<u>Company Values:</u>
Mentioned below are the company's values:

> ➢ Customer-Obsessed
> ➢ Innovative
> ➢ Entrepreneurial

➢ Collaborative

➢ Truthful

1.6. JazzCash Awards & Recognitions

JazzCash has been conferred various awards and achieved milestones for its contribution and services for mobile money and financial services. Some of them are mentioned in the below table.

SR.	JazzCash Awards List
1	Green Office certificatoin by Jazz HQ
2	CSR award by Shaukat Khanam
3	CSR Excellence award
4	Innovation award by WWF
5	Pakistan center for philanthropy
6	Global mobile award by GSMA
7	Green office certification by World Wide Fund for Nature
8	WSIS award for JazzCash and Payoneer partnership to facilitate Pakistani freelancers
9	GLOMO award by GSMA for best mobile product and application

Table 3: JazzCash Awards List

Source: https://jazz.com.pk/media-center/

1.7. EasyPaisa and JazzCash Services

Mentioned below are some of the main services that EasyPaisa and JazzCash are providing to their customers [4]:

Tohfa Service

EasyPaisa offers Tohfa service using which a customer can send a Tohfa to family or friends on some special occasions like Eid, birthdays, or any other special day.

Mobile load & Bill Payment

Respective customer can purchase online prepaid top up and can also pay postpaid bills for different telcos including Jazz, Telenor, Ufone and Zong.

Other Mobile Wallets Top-up

Customers can top up other mobile wallets as well like Daraz or Motorway etc.

Invite a friend

Both companies offer prizes and cash for invite a friend offer. If an existing customer gets a new customer on boarded, both of them get some cash or some other benefits.

QR Code Service

Both of the companies facilitate customers to make swift payments by scanning QR Codes on a number of outlets and merchants. They also offer discounts to the customers using this service.

Mobile Offers and Bundles Activation

The companies facilitate their customers to subscribe different offers and bundles including Data, SMS, Call or any combination from different teleco operators. Not only they can purchase these bundles for themselves, but can also make a purchase for some other person, family member or a friend.

Make Donations

Customers can donate to their preferred charitable organization through the app with just a single click. Following are some of the organizations available on respective apps.

- Prime Ministers Relief Fund
- Shifa Trust
- Eidhi Foundation
- Shaukat Khanum Hospital
- Cyte Foundation
- SOS Children's Village
- Sahara trust
- Redcresaid
- Care Foundation
- Saylani Trust

- Citizens Foundation
- PM & CJ Dam Fund
- Akhuwat Foundation

Money Transfer

Customers can transfer funds from one wallet to another wallet or can also send funds to any other bank account (IBFT). Customers can also send money anywhere in Pakistan on any phone number or on a valid CNIC.

Utility Bill Payment

Easypaisa and JazzCash users can pay all of their utility bills with an ease by just the application or via USSD service. Following utility bills can be payed:

- Electricity bill for LESCO, IESCO, KESC, MEPCO, PEPCO, FESCO, K-Electric, HESCO, GEPCO, QESCO
- Natural Gas bills for SSGC and SNGPL companies
- Internet and broadband bills for Nayatel, PTCL EVO, SCO, Qubee, World Call, Wateen, Wi-Tribe, PTCL and many more.

Add Cash to your Account

Both EasyPaisa and JazzCash customers can add cash to their wallet either by linking debit or credit cards from any bank their JC or EP wallet or by visiting any specified agent near them. EP customers can also request a Bykea rider from the app on their doorstep and get their cash added to the account.

Book Bus Tickets

Customers can get bus tickets booked using EP and JC apps and can also get discounts. Booking can be done for Bilal Travels, Daewoo, Bilal Travels, Skyways, Q-Connect, and may more.

Insurance plans

Customers can ensure secure future for themselves and their families with the insurance products and plans for all their needs.

➢ Get health insurance plans for themselves on different daily or monthly plans and get coverage according to that plan.

➢ Get mobile screen insurance plan which can provide for different durations on the basis of daily, monthly or yearly plans.

➢ Get life insurance plans for the customers and the loved ones. Multiple options are available to be selected which suites you the best.

2. Problem Definition

Digital technology and digital transformation are the biggest phenomena of today's world. Digital transformation is actually the penetration and integration of digital technology in all areas of life whether it is business, household, education, sports, health, finance, agriculture or any other area in the life of human beings on this planet earth.

Like any other area, digital technology has not only transferred but also revolutionized the finance industry as well. Today we can see that there are more and more financial technology (Fin-techs) companies emerging and becoming integral part of our daily life. These companies are not only providing easy digital financial management solutions to their customers but are also facilitating them to interact digitally with multiple billers, sellers, merchants and beneficiaries to complete their financial transactions. In this way, these fin-tech companies have made this lifecycle very easy for both consumer and merchants/service providers.

2.1.   Backdrop

In Pakistan, there are a number of financial technology companies that are playing key role to digitalize financial management and transactions. A number of micro financial technology companies are currently doing successful business in the country. Top of the list are EasyPaisa, JazzCash and UBank. These companies are providing services like digital wallets, digital transactions, online purchases and digital money transfers. These companies also provide easy payment methods on number of sellers, billers and service providers for which they need to get integrated with respective partners to provide services to the customers of these fin-tech companies.

To address the low level of investment in the country, these fintech companies are focusing on new technologies and extensive research and development. As the leader of fintech services in Pakistan, Telenor Microfinance Bank and Jazz Microfinance Bank offer high quality services to millions of customers across the country. These companies continue to work to equip Pakistanis

financially through a strong portfolio of credit solutions and their flexible digital payment platform, EasyPaisa and JazzCash.

The COVID-19 epidemic has served as a powerful reminder to businesses and individuals not only in Pakistan but around the world that the digital payment system is a necessity. These fintech companies have been working to improve investment rates in the country by introducing technological services and a range of new financial solutions that are easily accessible to a large number of people.

2.2. Problem Definition

Now to achieve these goals and become more and more attractive for the customers not only for the inclusion of financial transactions, there is a need for a platform to provide the customers with services beyond just pure financial transactions. So once the customers in market are aware that this app is not only providing the money transfer services, but a lot more for their ease and benefits, they will definitely increase their usage of these platforms by changing their habits to adopt digital lifestyle. But to provide all these services and to make the platform more attractive and useful for the customers, there are some challenges as well:

1. These fintech organizations do not have the resources and bandwidth to develop each and everything by themselves. There are many use cases like ride hailing, food ordering and e-commerce where they need dedicated teams and infrastructure to develop and maintain these services. Practically, it's not possible to allocate resources to such diverse and deep use cases. In such case, the logical route will be to partner with companies who are dedicatedly and successfully working in these domains and have them build these use cases customized for EasyPaisa and JazzCash customers. If the fintech is to go for the development by itself, it has to spend lot of money and/or other resources even for very small services or value additions.

2. The companies do not have any standardized integration framework for 3rd parties. Whenever a partner is on boarded, it comes with its own product design and customer experience that is often not aligned with EasyPaisa app experience. Some partners have

API based solutions, some have Web View and others have SDK's (Software Development Kit) for integration. Each of these options has its own pros and cons. Also, it takes a lot of time to understand the design and integration requirements of each vendor or service provider and then adopt and develop it for the main App. This development requirement can be on fintech's App side, or on vendor side or on both sides. But it doesn't matter who is developing and adopting whose framework, there is a lot of time that gets wasted in this. So, it's very important to have an integration framework in place where any 3rd party can come and integrate without opening a development project with the fintech main platform.

3. It's quite a challenge for customers to download so many apps. It's much more convenient for them to have one super-app where all key use cases are offered and customer just have to have one app from where he can access all these use cases without switching from one app to another app. So with the bombardment of hundreds of thousands of mobile applications, it has become very difficult for customers to choose the best one for them especially when each application can only provide a limited functionality of the daily requirements for the users.

As mentioned in above points, fintech companies in Pakistan are on the path to integrate multiple vendors and services with their main App. There are requirements from internal as well as external environments to include more and more use cases and facilities for their users. These companies are already offering the highest number of integrated services to their customers for whom details have already been shared, but these services are still not enough to satisfy the demand of today's users who have all time increasing demands and needs with the passage of time.

Specially after the COVID-19 pandemic, mobile application businesses are all time high and more and more users are now switching to this medium in their daily life. What was once available only in the markets and mega stores, they are now available on the palm of your hand with lot more options, qualities, verities and details. Due to this, the expectations of the customers are also growing each and every day. To meet these expectations, digital platforms and especially mobile applications have a lot of pressure on them to facilitate the users in best possible ways.

3. WeChat Mini Programs Platform – The Case Study

Since we have defined the problem, and now we also understand the requirements of the problem, we can look for a good success story which can help us solving the problem in hand. For this, the most appropriate case will be of WeChat mobile application which initially launched as a messaging platform but later on emerged to be as world's first super app. With the introduction of Mini Programs platform, they not only increased their customer numbers, their retention and the app revenue to many folds, but by this, they also provided their customers with more convenience and easy approach to fulfill their daily needs.

Figure 1: WeChat Logo-1

<u>**Source:**</u> https://www.pymnts.com/digital-payments/2018/tencent-wechat-pay-malaysia-money-transfer/

3.1.   WeChat Application History

WeChat app was introduced and launched in January, 2011 initially with the name Weixin, which in Chinese translates into 'micro-message'. Like the name depicts, it was initially launched only for messages and photo/video sharing app, i.e. a WhatsApp equivalent for the people of China. The app was developed by a Chinese technology giant company Tencent, which is also one of the biggest tech giant in the world. Other major platforms or apps owned by this company are Tencent Music app and QQ Messenger app. Originally only introduced as a simple messenger platform, the WeChat app is now much more than that. Through its small apps platform, WeChat has actually become the home screen for most Chinese smartphone users, as almost all functions can be completed within the app. Since the launch of this platform, WeChat has revolutionized the way Chinese people communicate and spend using this digital platform.

Figure 2: WeChat Logo-2

Source: https://play.google.com/store/apps/details?id=com.tencent.mm&hl=en&gl=US

Today, WeChat is one of the most used app in the world. It is also the world first super app. With more than 1 billion daily active users, to provide services like messaging, payments, social features, virtual doctors, travel booking, and much more, WeChat application is only surpassed by Facebook, WhatsApp and YouTube.

To better understand the evolution of WeChat application, we can look on following stages in this respect [6]:

- ➢ WeChat 1.0 was launched in January 2011 which was a copy of "Kik" mobile app.
- ➢ Launch of WeChat 2.0 in summer of 2011 enabling voice notes in chat. This feature was also a copy from "Talkbox" mobile app.
- ➢ By October 2011, WeChat 2.1 was launched with desktop connectivity and a user base of 30 million.
- ➢ WeChat 3.0 was launched in later October 2011 with "Shake" and "Drift Bottle" features. "Shake" feature was to find people nearby.
- ➢ By the end of 2011, WeChat 3.5 was launched with the introduction of a very important feature of QR code assignment to each account on WeChat. User base grew to 50 million by this time.
- ➢ On March 2012, WeChat subscriber base crossed 100 million users.
- ➢ Version 4.0 was launched in early 2012 with the addition of "Moments" feature to share your status and photos with your friends on WeChat.
- ➢ At the same time, WeChat decided to go global. It changed its name from "Weixin" to "WeChat".
- ➢ In May 2013, version 5.0 was launched which included B2C offerings along with monetization. Segregated official and public accounts, games, updated QR codes and payments were also part of this new version. Integration with some external parties was also part of this release like China Southern Airlines for membership info and weather forecast, Best Express for package tracking and other services and China Merchant Bank for account info and other bill and transaction related services. These were mostly digital services from the integrated 3rd parties.
- ➢ At this point, partnership also got initiated with the businesses that provide physical goods. One of them was McDonalds and another one was a departmental store.
- ➢ By 3rd quarter of 2013, WeChat had 600 million registered users including 100 million users from outside China. Also about 272 million monthly active users.
- ➢ In December 2013, version 5.1 was released with more payment options where users could pay for in-app game purchase, digital lottery, phone bills, vending machine

purchases, online retailer shopping, and make payment for some famous restaurants in China. Group chat was also part of this release.

➢ In January 2014, WeChat and Didi (biggest ride hailing service in China) announced partnership and payment through WeChat was made available for Didi with a discount offering via WeChat payment. 60% of Didi users moved to this payment option in big cities.

➢ During Chinese New Year in 2014, Red Envelop service was launched where users can send small money to loved ones. This increased users of WeChat Pay from thirty million to a hundred million. On the New Year of 2015, one billion red envelops were sent and for 2016, this number reached about eight billion.

➢ In 2014, WeChat allowed brands to setup stores within WeChat service page (WeChat Little Store) where they could showcase their items, receive payments and ship the products to users. This made WeChat a commerce search engine. This got so popular that entrepreneurs started to build their Apps solely for WeChat store instead of iOS and Android.

➢ In April 2016, WeChat Enterprise (WeChat Work) was launched offering all of the basic features as well as work related features. By February 2020, WeChat Work was being used by 60 million users from 2.5 million organizations.

➢ In early 2017 one of the biggest product "mini-programs" was launched. At the moment WeChat had 846 monthly active users and 768 million daily users. Small apps are "simple apps" that lived within the WeChat app. The number of small apps has grown to 580,000 in one year with 170 million daily active users. At the end of 2018, small programs were worth 600 million every month. WeChat-enabled integration of these small apps will have all the other advanced features of the app including payments, live / video streaming, interactive capabilities and offline QR codes, geo location, social networking, notifications, and much more. By 2019, the transaction volume for mini apps exceeded 800 billion RMBs.

➢ In January 2019, version 7.0 was launched (after 4 years of 6.0) with only few improvements and adjustments in the overall app.

The simple messenger of WeChat evolved as "Social App" to Platform and then an Operating system. Today, this platform is not just an app but is a lifestyle for people in China. The idea of 'Super App' was not invented by WeChat, but they are the first incarnation of this concept.

3.2.   WeChat Mini-Programs (MPs)

WeChat mini apps (also called Mini Apps) are small apps within the larger WeChat application. They can be used immediately without installation or download. Users only need to find them on main WeChat app to access them. They provide advance features and usage to the customers such as online groceries, e-commerce, coupons and other entertainment or user services. A very large number of people use Mini Apps in their daily life. Whether the customer need to play game, need some online voucher, order some grocery, hire a taxi or to book a doctor's appointment, there is a mini app for each and everything.
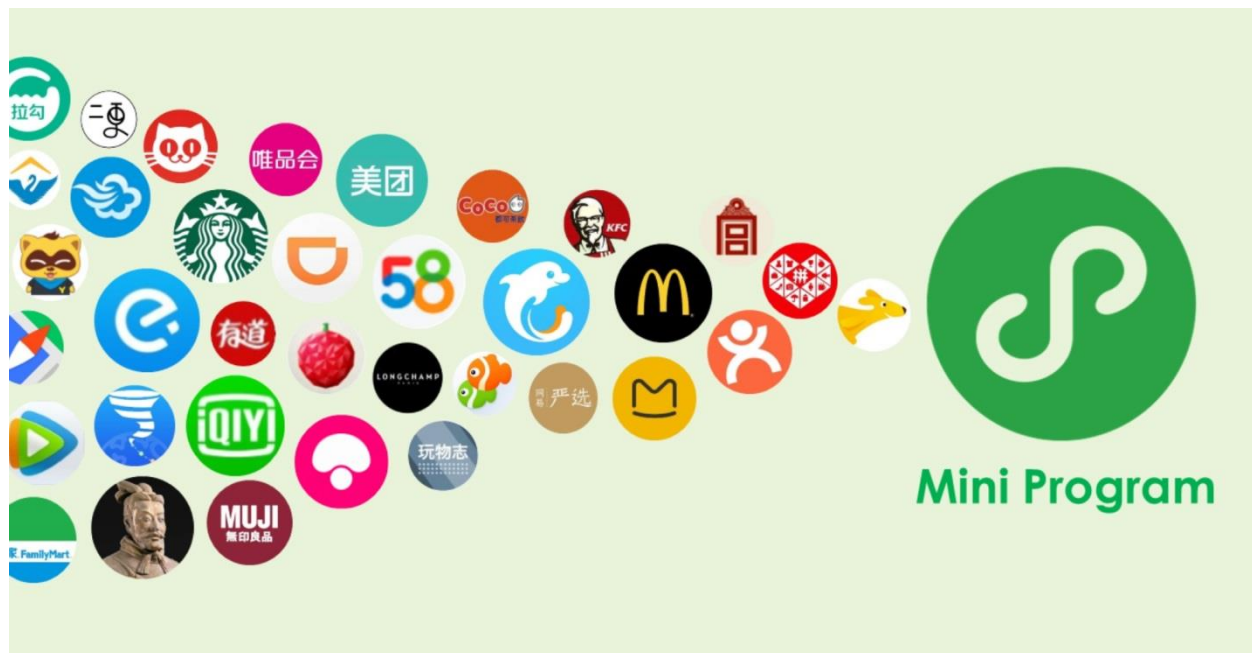

Figure 3: WeChat Mini Programs

<u>Source:</u> https://pandaily.com/wechat-mini-programs-shift-offline-business-online-amidst-coronavirus-outbreak/

Small applications, also known as mini-apps, are sub-applications built within the WeChat system. Launched in early 2017, the Mini App program was launched to provide seamless services by sharing information and capabilities within main application, web and OS. Without downloading or installing any additional apps, users only needs to swipe down to the WeChat home page to select from a list of smaller WeChat apps and after registration, users can enjoy the services instantly. As of now, thousands of mini apps are already in use including various industries and activities, which are used to expand the business, share information and social media to name a few. These programs have allowed users to access a large number of applications or services without leaving WeChat. Many companies have used these programs as an inexpensive way to promote online business. For example, Mobike, the largest Chinese cycle hailing company, has launched its own mini program for its users.
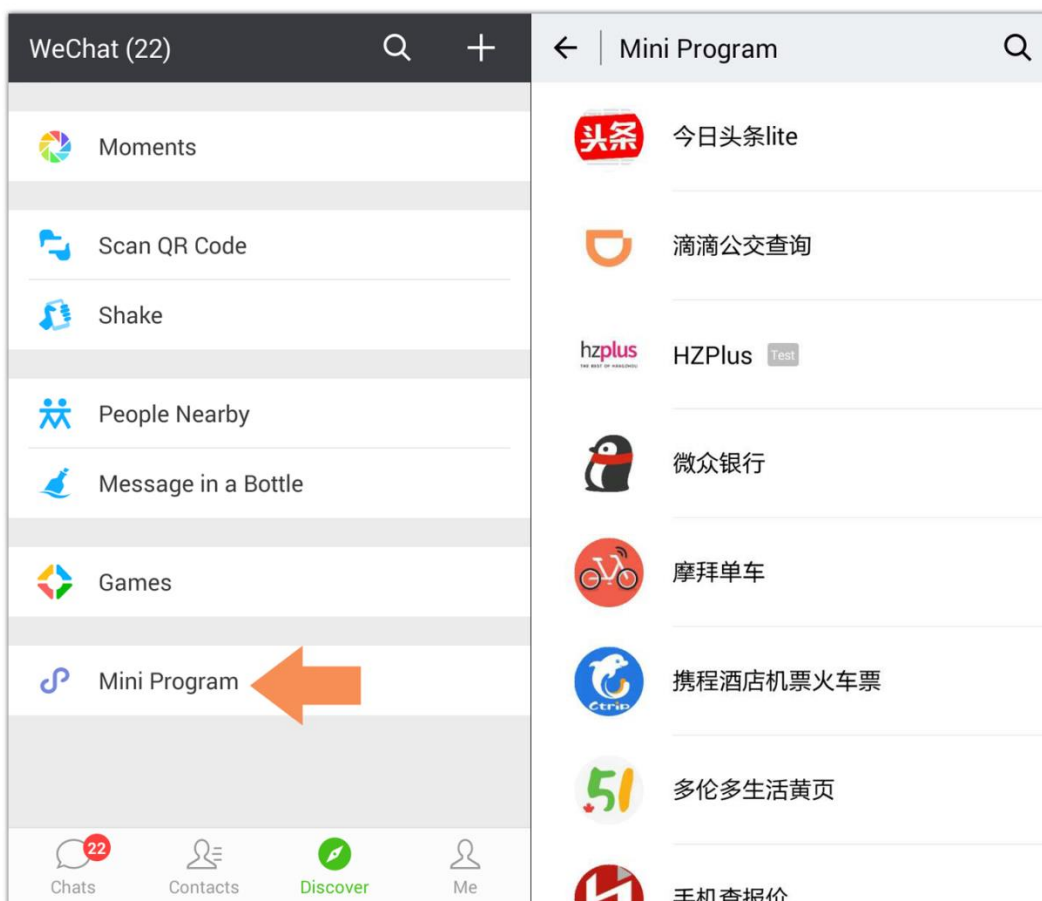

Figure 4: Mini App Access Screens on WeChat

WeChat mini programs have lower development costs. Unlike traditional applications, developers do not have to build these mini apps for multiple OS platforms. They can be built on the WeChat framework using CSS, JavaScript, and HTML. WeChat mini programs are simple and take very little time to develop. Due to the small size, the offered features are somewhat lesser than the complete app but still fully serve the purpose.

With the availability of Mini Apps with in the native app of WeChat, there is a lot more convenience for people to perform all sorts of daily activities and fulfill their needs using just 1 super app i.e. WeChat. This has not only increased the user count on the platform but has also resulted in increased revenues. A snapshot of YoY revenue is mentioned in below table.

Year	Annual transactions
2017	210 billion RMB
2018	440 billion RMB
2019	800 billion RMB
2020	1.6 trillion RMB

Table 4: WeChat Mini Programs Annual Transactions

Source: https://walkthechat.com/%c2%a5800-billion-wechat-mini-program-transaction-volume-in-2019-tencent-annual-report/

With so much popularity there are now millions of mini apps which currently exist in native WeChat app and the number is only growing. Companies have started developing only for the WeChat Mini App platform instead of going for original Android based or iOS based applications.

Year	Mini programs
2017	0.58 million
2018	2.3 million
2019	3 million
2020	3.2 million

Table 5: WeChat number of mini programs

Source: https://walkthechat.com/%c2%a5800-billion-wechat-mini-program-transaction-volume-in-2019-tencent-annual-report/

3.3. Why Mini Apps are Popular

To understand why mini apps are so popular, we can understand this by getting to know what are the issues and challenges in creating a full scale Android or iOS based app.

Expensive: Applications are expensive to create and manage. The cost is not only for building the Android and iOS applications but also for making changes to the app on a regular basis. When you create an e-commerce application, you need to develop a booking engine, then define a process flow and finally integrate it with the payment gateway. Payment GWs should be upgraded regularly. In short, it is not a onetime project to do. Infect it is an ever changing project type. All of this makes it very expensive to build and manage. Also, it requires having a complete technical team. And if the company is to outsource it, it is still very difficult to manage a team without technical knowledge. Generally outsourcing cost is 1.5 times higher than an in-house team. Hiring and managing technology team has its own downside points.

Higher Time to Market: While developing a full scale app (Android or iOS) or a complete website, it takes a lot of time to create the platform. With so much competition in market, a company cannot afford to invest so much time developing and perfecting a single platform that the competition launches the same product in market. Also, once launched, there can be countless post launch issues. In case of commerce apps, integration with payment platforms is another hassle which is to be taken in consideration.

High marketing costs: Customers do not like to download many applications for different use cases. Due to limited space and a huge number of notifications, they choose to keep only those apps which they use all year round. This makes it difficult for companies to get the consumers to download and not uninstall the app. Online platform companies spend a huge money and efforts to get customers download their apps.

Consumer PoV: Customers desire to download a single application that they can purchase from and engage with several businesses. These super apps are rarely removed from phones because they have thousands of partners and merchants on single platform. Consumers can search for a business name, find respective Mini App and simply tap '+' to add that mini app on their home-screen which takes less than a second.

4. Research Methodology

For this project, our goal is to search and identify a process, a procedure or a framework which can be used by financial technology companies in Pakistan to not only reduce the resources and development that is needed in order to onboard a new service or merchant or a partner but also to make time to market as little as possible. Pakistan is a growing market with respect to information and technology and the development of different applications and web based services but it is yet to achieve maturity in innovation and creativity in building these services not only for the domestic use but also to set examples for the whole world.

In order to identify the required framework, the research for this project is solely based on the proven technologies and platforms which are already successful across the globe and a number of other companies and services are already using the same and have become successful. These proven examples are being used as a case study that how such a platform was developed by one of the world's highest used application i.e. WeChat, what they achieved by the development and availability of such platform and how Pakistani financial technology companies can adopt the same procedure to achieve the defined goals.

Mostly secondary data is used which is publically available in order to meet the required goals. Case studies of the most successful platforms has been taken into consideration but to make this dissertation precise, details of only the world lead (also the innovator), i.e. WeChat, of this program have been mentioned here.

5. Solution to the Problem

As we have defined and understand the problem, it is clear that the problem in hand can be described in following points:

1- Reduced integration cost for new products and services
2- Reduced time to market by minimizing time required for development at both fintech and partner's/merchant's end.
3- Increased footprint and revenues by making the fintech to become a lifestyle with the inclusion of verity of service providers and products vendors under a single big app of the Fintech.

Before getting into the solution details of the platform, it's pertinent and very critical to further understand the concept of Mini-App. This section of the dissertation explains this concept by curating content regarding Mini-Apps, primarily from the successful initiatives like WeCaht. Mini-App is a latest setup of mobile applications, a hybrid platform which is based on Web technologies, like JavaScript and CSS (Cascading Style Sheets), but also fits in with capabilities of main Apps. Mini-apps, also known as mini-programs, are small apps with limited features that exist in a bigger app. They're often developed or co-created by brands that partner with the main app's company.

Mini-Apps are best known for their use in a few super-apps, as they are born with a number of characters that help fill the gap in the Web and the main app. Some of these characters are listed below:

➢ No installation is required.
➢ Improve performance using multiple web views.
➢ It provides mechanisms to access the OS capabilities via main app.
➢ The content is generally more dependable because of the reason that min app requires to be authorized by the main platform.
➢ A Mini App can be divided into several Mini App platforms (a main App, the Web and even the operating system). These platforms also provide access to the Mini App to make sure it is easily discoverable by the consumers.

Now one of the most appropriate solutions will be to have standardized procedure or platform or a framework which we can use to integrate new partners and service providers with the main App. This platform should be built on such rules and framework which are very common in market, easy to understand and very quick to be implemented. As we have seen such a success story with WeChat, fintech can also proceed to develop a Mini App based platform to overcome the issues as mentioned above. In this case the fintech's main app will be a platform that shall "host" variety of apps. The main app will be called as "Host" or Master App or Super App that will hosts different mini apps developed by 3rd parties, software companies etc. The fintech will provides a framework and a guideline for the developers to develop their services accordingly and submit on the the Mini App platform and ultimately after review process they will be "published" on native app.

Mini App platform should be designed with the mind to target for mini-apps from Tier 2 and Tier 3 merchants who are operating in variety of industries. This includes Food, Ride Hailing, Online Grocery, Education, Marketplaces, Investments and many more. Once the platform is ready, there will be practically no limitation to who can come onboard as mini-app. As long as the fintech company sees a value for its customers and the merchant complies with guidelines, EasyPaisa company can have that merchant on-boarded as mini-app on EasyPaisa platform.
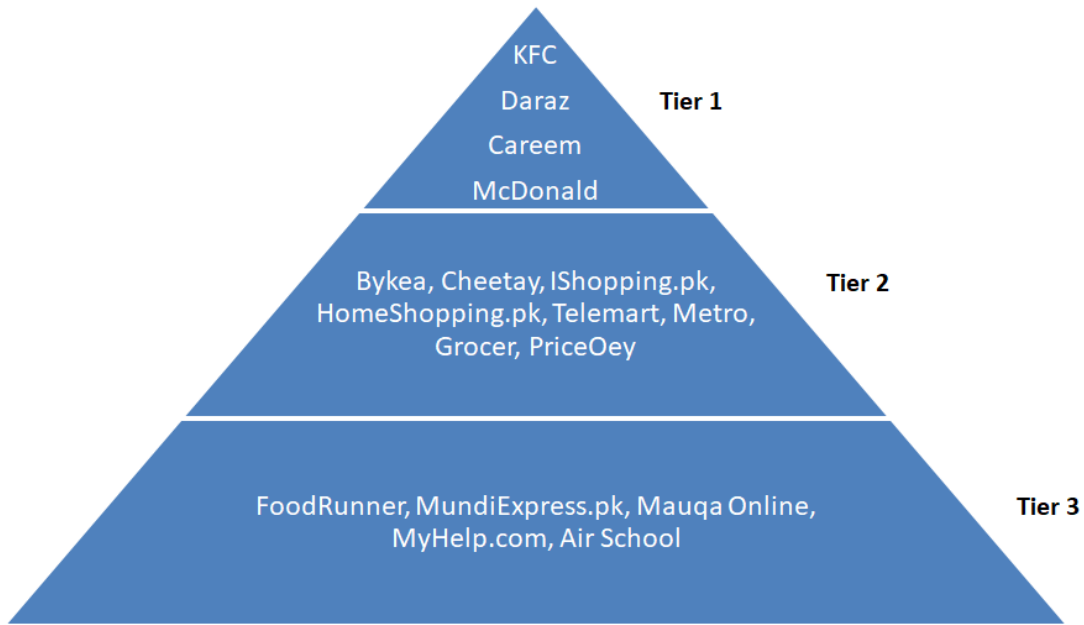
Figure 5: Tier Based Division of Different Known Merchants

Above diagram shows some examples of merchants categorized in tiers. It is more likely that merchants falling under Tier 2 and Tier 3 will be complying with fintech's guidelines and developing min-apps for the company vs. Tier 1 merchants. Tier 1 merchants usually have their development wing located outside Pakistan and their product pipeline is global that takes long time for prioritization whereas Tier 2 and Tier 3 merchants are located in Pakistan and they are keener for the opportunity to work with big brands like EasyPaisa and JazzCash.

Following table categorizes merchants based on industry and type of service. The purpose of this table is to have a reference for kind of use cases that fintech can potentially offer w.r.t. their mini app platform.

Industry	Type of Service	Delivery Time	Ticket Size	Order Tracking	Complaint Handling	Engagement Level	Geographical Limitation	Potential Partners
Food Delivery	Tangible consumable product	Within an Hour	Medium Size (Rs. 400 – 1,000)	Not very critical	Not very critical	**Medium** (Twice a month)	Area Bound (2-3 Km)	FoodPanda, McDonald's, KFC, PIzHut, CHeetay
E-Commerce	Tangible products like phones, clothes, gadgets	3-4 days	Big Size (Rs. 1,000 +)	Critical	**Highly Critical** (wrong shipment, broken products etc.)	**Low** (once very quarter)	Ranging from few cities to nationwide	PriceOey(Phone selling), daraz, CheezMall (Miniso online platform)
Grocery Delivery	Tangible consumable product	1-2 days	Big Size (Rs. 1,000 +)	Moderately Critical	Moderately Critical	**High** (Once a week)	City Bound (specific to one or 2 cities)	Metro, eGrocer
Ride Hailing/Car Rentals	Service	20 to 30 minutes (arrival of rider)	Medium (Rs. 200+)	Moderately Critical	Not very critical	**Medium** (Twice a month)	City Bound (Each player is specific to one or 2 cities)	Bykea, Roamer
Financial Services Info	Informational Services	Real Time Data sharing	NA	NA	NA	**Very High** (Every day)	NA	TMB and other banks with no mobile apps
Games	Service	Real Time	Small	NA	NA	**Very High** (Every day)	NA	EasyGames, CornerStone
Gaming Vouchers	Service	Real Time	Small	NA	NA	**Medium** (Twice a month)	NA	MSN Gamers Free FIre
Wallet Top-Ups	Financial Service	Real Time	Medium Size (Rs. 400 – 1,000)	NA	**Highly Critical** (Funds not transferred scenario)	**Medium** (Twice a month)	NA	ARY,
Bill & Fee Payment	Service	Real Time	Medium Size (Rs. 400 – 1,000)	Moderately Critical	Moderately Critical	**Medium** (Twice a month)	NA	EPay (Government Fees) School Fees, Internet Company Fees, Club Membership Fees etc.

Table 6: Merchants Based on Industry and Type of Service

6. Discussion and Conclusion

Digitization is a global phenomenon which literally has converted the dream of world as a global village into reality. Today, digital revolution is a reality from which there is no escape. Everything and every sector of today's lifestyle are becoming digitalized. There was a time when people had to use multiple sources just to accomplish one single task, like sending a mail to their loved ones. But with the advancement of technology, especially the advancement in mobile and computer technology, everything is now on your finger tips or just a few clicks away. Not only this, but there are now hundreds and thousands of applications and websites for your computers and mobile phones which have made life very easy. Customers are also becoming addicted to these applications and the facilities provided by the application developers or the actual vendors or service providers who manage these apps for their business.

Since the disruption of the Corona virus pandemic, the digitalization waves along with the rapidly growing industry for the mobile applications and its development have played a crucial role to contain the world from a bigger disaster. Latest and better mobile applications have largely been helping to manage daily routine of people on track with respect to consumption of items, shopping, socializing, and work mechanisms with their disruptive innovations and involvements. People throughout the globe already have smartphones available which have served the purpose of these mobile apps. Social media, digital payments, online grocery, online banking, gaming, healthcare, dating, e-learning, and messaging applications are playing important role in helping people to re-adjust in their lives digitally which they once knew prior to the pandemic. If we look at the Google trends w.r.t. Android and iOS download, mobile apps and digital platforms are getting a lot of pull under the harsh conditions of shutdowns, home quarantines, and lockdowns. Imagine how extremely challenging life would have become if there had been no mobile applications in these harshest times.

There are no doubts that these applications have played exceptionally important role in such difficult situations. They have not only helped to keep the routine intact for a lot of users, but have also make lives easier for the billions of users around the globe. But with the availability of millions of applications for almost all walks of life, it has now become cumbersome for the users to find the right application for their needs. There are multiple applications available for each and

every aspect. So now there is a lot of confusion that which application to be used. Also, most of the applications which are currently available do not address the cross functional needs of customers. For example, if a customer wants to purchase some apparel from a particular mobile application, but he also wants to buy some grocers as well, he/she would need to download at least 2 different applications in normal circumstances. Also, with so many of the applications which will be serving the same purpose, it will still not be easy to select the best one.

To counter these issues, a new concept of super App has already been emerged. World has already seen the success story of WeChat app which is launched in China. As mentioned in case study, this app was initial launched in China to facilitate local population with a native, easy to understand and quick messaging or chat platform. With the launch of this platform with a standard integration framework on WeChat, the application has already managed to successfully following 3 objectives:

1- **Reduced integration cost** for new products and services by distributing the burden of development among all the merchants and services providers where they get the development done to get integrated with the main WeChat app.
2- **Reduced time to market** with the availability of a standardized framework where merchants and partners can get themselves integrated with WeChat with very minimum efforts and developments. No need to develop complete new apps for their products. No need for complete development teams. Just to integrate their existing platform with the standardized framework of WeChat.
3- **Increased footprint and revenues** by making the WeChat application a lifestyle with the inclusion of millions of service and products offered by hundreds of vendors and service providers under a single big app of the WeChat.

Mini App is a new concept in Pakistan. However, this has been successfully implemented in different parts of the world. The most popular example is WeChat. In March 2020, there were daily 450 Million Active Uses of We Chat's Mini-Apps. It's important to have a look at We Chat program stats to understand what direction we are setting for ourselves and why. Following graph highlights why We Chat customers are using its Mini program.
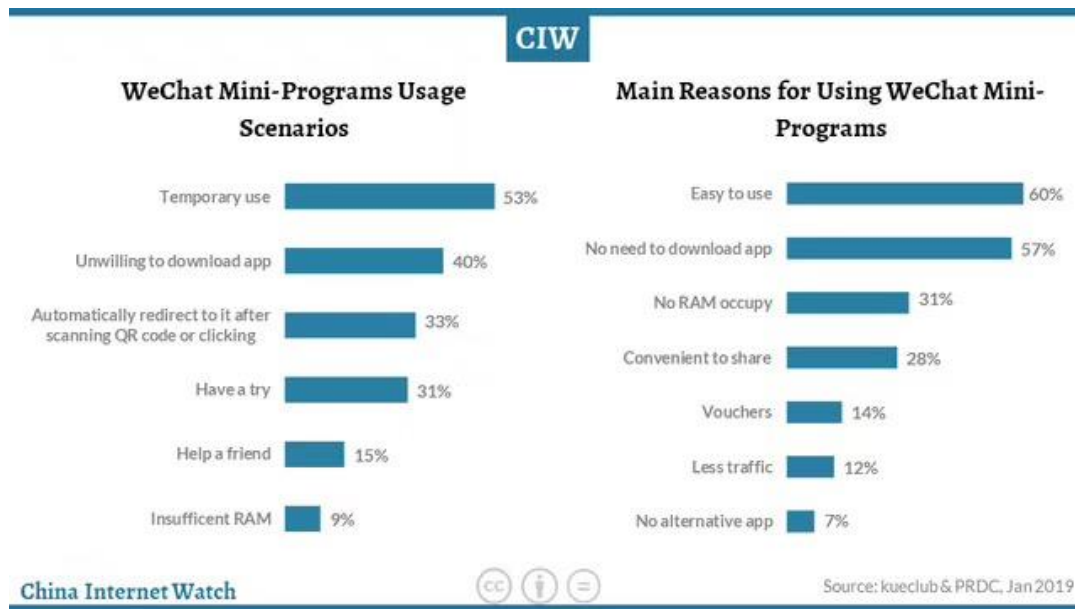
Figure 6: WeChat Usage w.r.t Mini Apps

Source: https://chinachannel.co/top-10-wechat-mini-programs/

Following graphs shows popular types of mini apps within WeChat. Local fintech companies can use this information to identify what types of services are most popular and how they should proceed with their development and launch statistics. An important factor would be to check the local market trends for the customer base in Pakistan.
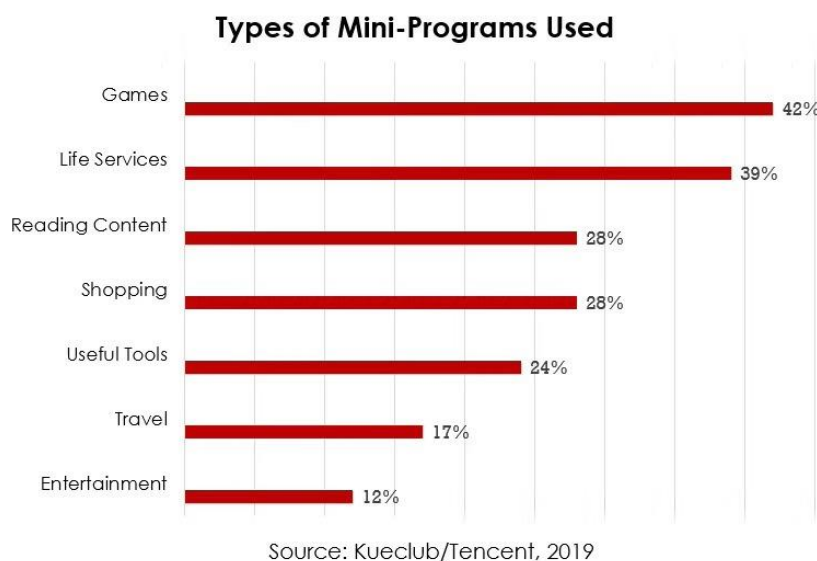

Figure 7: Types of Mini App Programs in WeChat App

Following information can be used to understand trends in Pakistan digital and ecommerce market w.r.t. spending habits and the change in such habits from the last year. Fintech companies can use this information to identify that what is the current position of ecommerce spending and how the trends in this as being changed specially after the Corona virus. In this way, companies can easily strategize what platforms can be launched at first, what merchants can be on boarded to start with and how further services and products can be added on mini app platform.
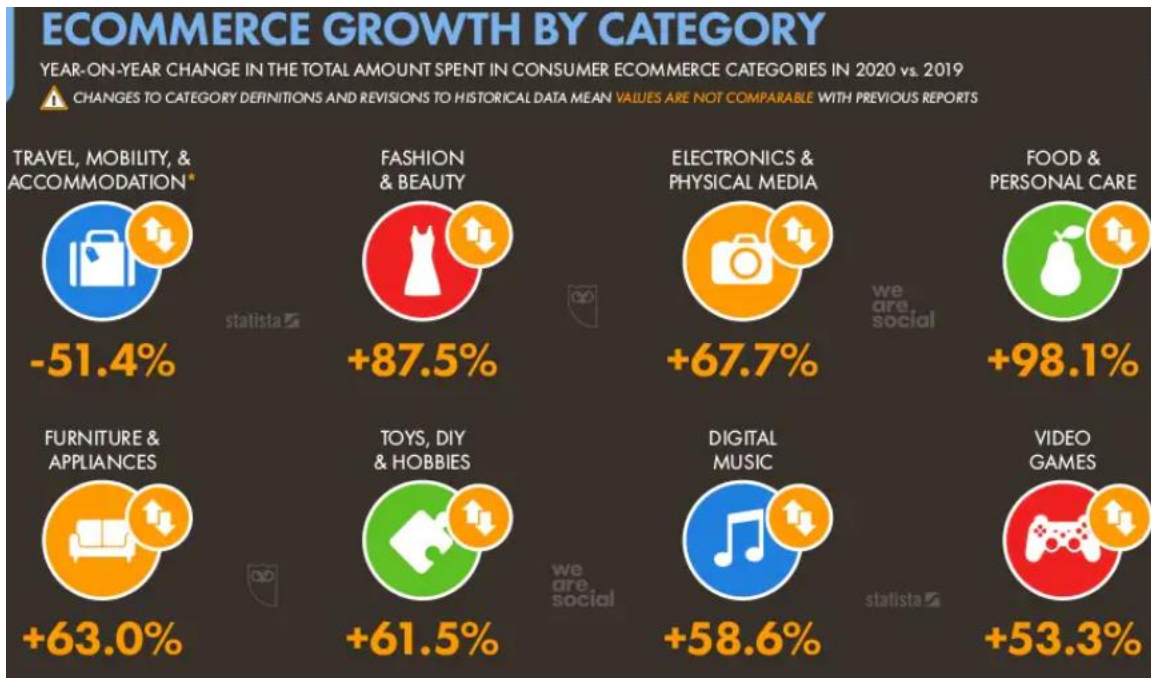

Figure 8: E-Commerce Spending by Category

Source: https://datareportal.com/reports/digital-2021-pakistan

Figure 9: Change in Amount Spent w.r.t. Categories in 2020 vs 2019

Source: https://datareportal.com/reports/digital-2021-pakistan

5.1. Conclusion

Digital payment platforms are the most preferred and convenience methods of payment in this time where COVID-19 pandemic situation has changed the world dynamics. It is also a very easy, secure, and safe option for its users. The digital payment apps have shown tremendous growth in their download as normal banking activities are not possible due to restrictions. People are using these apps to make payments of their essential purchases from grocery stores to doctor's payments. People are dependent on apps that help remote work, productivity, and usability to make the best out of work from home. In short, industries are looking for a reliable enterprise mobility solution, thus, it's the right time to create a mobile app for the remote work lifestyle.

There are no other words that the fintechs like EasyPaisa and JazzCash are working day and night to provide users with nothing but best, but as describe in the problem definition section, there are a lot of hurdles in this path. We are aware of the success story of WeChat Mini App program where now there are millions of mini apps by different partners, vendors and service

providers which are being accessed by hundreds and millions of people in China. Also, mini app program is one of the main reasons that users get logged into WeChat app on daily basis. WeChat is only one example. There are hundreds of other examples as well across the globe.

Although it's a newer concept in Pakistani market as currently no company is offering the same platform of framework within the country. So going into this can be a tricky or risky idea but this can also be proven as a huge success. And with the first mover advantage, EasyPaisa or JazzCash will be in a place to attract more and more customers as once it will become successful, other companies and competitors will sure want to launch the similar products in the market.

So proceeding for such a platform which will not only provide financial solutions to the users, but can also provide a complete lifestyle echo system which will undoubtedly be one of the best steps that Pakistani fintech company, like JazzCash and EasyPaisa, can take to fulfill its mission and vision of a financially enabled and inclusive community of Pakistan.

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