Vol 5, No 1, January - June 2020, pp: 59 - 84
License: CC BY 4.0
Faculty Publications
ISSN: 3008-1017
Title DOI: https://doi.org/10.62458/021024

FINTECH BUSINESS MODELS IN CAMBODIA

DISRUPTION, CHALLENGES AND OUTLOOK

Varabott Ho*

ABSTRACT

Today, as over the last decade, Cambodia has witnessed a paradigm shift in the financial services sector, from traditional financial services into brand new internet and mobile applications, popularly called the Fintech revolution. However before the emergence of the new Fintech companies, the regulatory developments in Cambodia and still underway and which is not completely applicable due to permanent development of the Fintech Ecosystem, due also to the countryless status of Fintech companies, which can be located and operated anywhere in the world. The report will try to understand and illustrate the business models taking place in the world and in Cambodia and how it will affect our daily life. Also we will also look at the regulatory side, in order to understand how it is affecting the Cambodian traditional, old-fashioned and overcrowded financial services sector and how consumer could be protected despite continuing innovation.

A SHORT FINTECH HISTORY IN CAMBODIA

The Cambodian financial system seems to be today oversaturated in 2018, with 43 commercial banks, 14 specialized banks, 81 MFIs (7 are MDIs). 2729 Money Changers, 15 Leasing, 16 PSI (Payment Services Institutions) All these institutions are regulated by National Bank of Cambodia (NBC), the central bank, whose responsibility is to supervise banking activities and regulate the payment system through Prakas (decrees). The majority of business transactions done by these institutions are settled in USD (US Dollar) and the KHR (Khmer Riel). The cheque is the most commonly used non-cash payment instrument and, they are expensive as they are processed through the payment clearing house (PCH). Cash and cheques and money transfer have dominated transactions for the last 10 years. The Cambodian commercial banks have implemented a package of services including credit card (visa, union pay, master card) linked with extensive network of ATM machines and internet banking and mobile applications. But still international money transfers (Money-Gram, Western Union. SWIFT System) and interbank Money transfer systems are expensive. Wing Money have started to disrupt the market by using the mobile phones as means to transfer the money at low cost form one point to another point, But Wing model is close to a logistics company and is now competed by new entrants in Cambodia.

And then comes in 2017 a series of new FinTech companies and its Association in 2018 (CFA), while the term “Fintech” seems to enter the public awareness. “FIN” stands for Finance and “TECH” for Technology, FinTech is the intersection of both industries with different shades of grey. Today this is globally synonyms with innovative financial services using Hi-Tech or IoT (internet of Things) and innovative technologies, but also associated with technology and banking giants listed in the Stock Exchange and some Start-ups and Unicorns from the Silicon Valley.

In Cambodia, new consumer develops new habits while consuming finance and technologies. The penetration rate of mobile is even high (one of the highest in ASEAN, the combination of broadband network, Wi-Fi and 4g, all available facilitate the deployment the Internet mobile banking through multiple devices such as smartphones, pad and PCs. Traditionally an industry dominated by the banks, new comers has entered the market, especially form the telecommunication et media sector, using their technical knowhow in order to expand their services. And the consumers have now integrated in the daily life, new works like Bitcoin, Blockchain, and Dataminers besides big names such as Facebook, Uber, and Grab. The Disruption is under way.

* Varabott Ho, MSc, MBA, CEFA. Professor, CamEd Business School.
Email: hvarabott@cam-ed.com

DISRUPTION IN BANKING MODEL

The Banking Industry is entering a new digital age and to face the new coming challenges as for their business model abut also in their traditional jobs as the providers of financial services. The global banking sector, have to rethink in terms of innovation in banks and in line with a tougher regulation since the financial crisis,

Innovate and comply complying with the new regulatory sounds sometimes paradoxical, but some new model star to disrupt the whole financial ecosystem. Those new comers might come from any other industries, from such as telecommunications or hospitality, services.

TOWARDS A CASHLESS AND BRANCHLESS SOCIETY

First driver: Impact of Demographics

According to a recent survey done by Business Insider, about 47% of the US consumers stated that they preferred digital payment for their transactions, while cash remains at 45% (figure 1). And the percentage is even close to 49% for millennials whereas baby boomers generation still prefers cash rather than digital. In the USA and most of the rest in the world, the young consumers (age 18-24y ear-old) are often the most intensive users of mobile banking, and smartphone ownership rate can be more than 82% of all the population who are using mobile banking. The penetration is also reduced inverse proportional to the age. Merely 29% of smartphone 65+ owners are using mobile banking.

Fig1a. Demographic Shift: US Consumers prefer digital to cash[1]

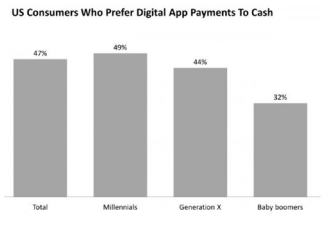


Fig1b. Demographic Shift: US Consumers[2]

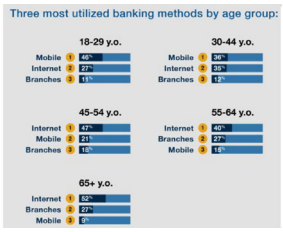
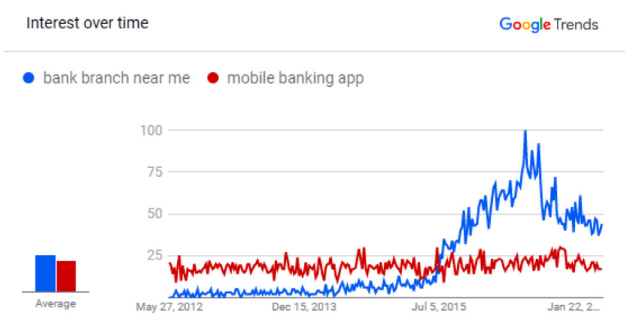


Fig2. Branch vs. mobile[3]



This new paradigm will lead the financial sector to rethink about their organization and distribution channels, and would need the support of ICT (Information Communication Technology) to be able to analyses the growing sophistication of data and database, data for analytical software, analyzing demographics (age and income, consumer behavior, product, lifestyle). And the trends are expected to accelerate (fig 2)

Second driver: Branchless Bank is the New

As digital payments become the preferred payment for transactions, the banks have to rethink the whole classic branches organization. The figure 3, show the new segmentation of branch concept. For instance in Cambodia has a flagship branch like Canadia Bank at Canadia Tower and ACLEDA at the HQ, and many medium size one. FTB banks also have some small branches inside the central market. As far for the box branch, there is pilot in a coffee shop initiated by PPCB, and many mobile booth during special events at Koh Pich Exhibition Centers.

According to PwC, the branches will continue to be an important distribution channel despite the decreasing volumes of physical transactions, and due to new variety and additions of services and for "customer experience". But the declining frequency of branch visits, and the reducing use of classic physical means of payment like cash and cheques, do not have a big influence on traditional activities such as opening a new account, customers still want to learn about the fees and the new services, and understand the savings options, and how to apply for a house loan or mortgage, all these activities requires mostly face to face meeting. And these activities are the best target for disruptors.

Banks are aware of the cost gap, and according to PwC "On average, branches cost banks $4.00 per transaction, according to PwC. On the other hand, online (PC) and mobile banking cost $0.09 and $0.19 per transaction, respectively". As observed I Thailand from 2011 to 2017, bank branches are shrinking and cost to income ratio as well (consequence of reducing number of staff) in figure 4.

Fig3. New Branches Segmentation[4]

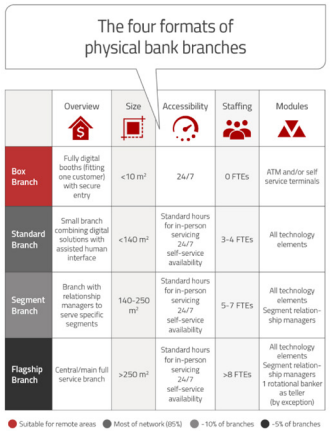
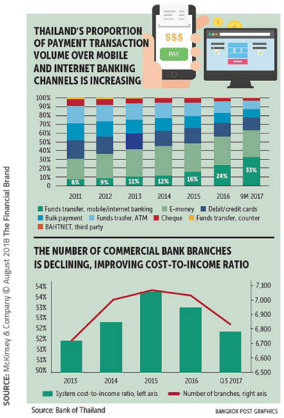


Fig4. Thailand internet vs. online[5]



Third Driver: Online Operations Rock

Thanks to current technologies, pluri-digital customers ("omni-digital" in fig 5) will tend to use more services and then generate p more revenue. These consumers prefer to have self-service applications from their PCs, mobile, laptop, tablet, and the new demand in terms of apps has also changed the dynamics. Therefore, the traditional branch which usually operates with Cheque, Cash, Deposits, Teller Services, Foreign Exchange services, Funds Transfers, Bills/Fees Payments etc., will have to shift to digital channels. The exponential volumes of transactions in Thailand (fig 6) also emphasize and reflect the rapid progress of mobile banking versus internet banking in Asia in general, and comparable to Cambodia

Fig5. Rise of Omni digitals[6]

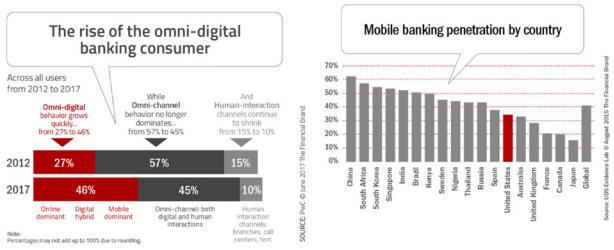
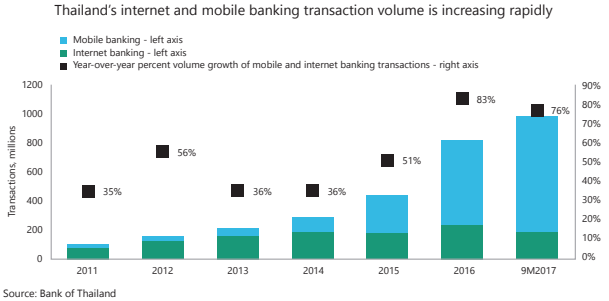


Fig6. Thailand internet vs. online[7]



Fourth Driver: towards a cashless society

In this info graphic (fig from CNN's "Future Finance," is showcasing future trends related to the global financial system. The series analyzed and explore the high speed expansion of a cashless society to high-speed around the world.

Fig7. CNN's Global Future Finance[8]

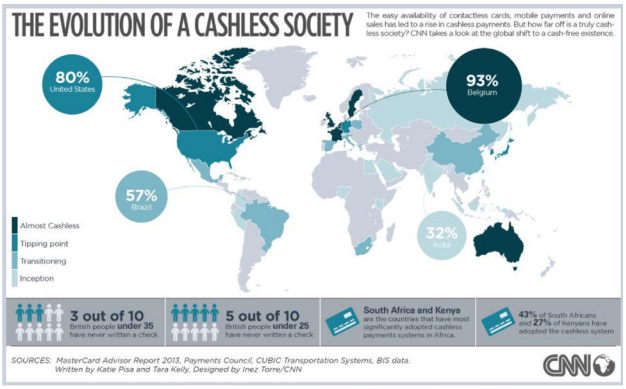
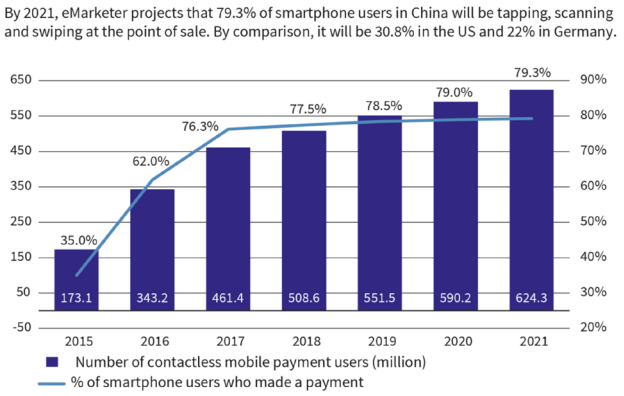
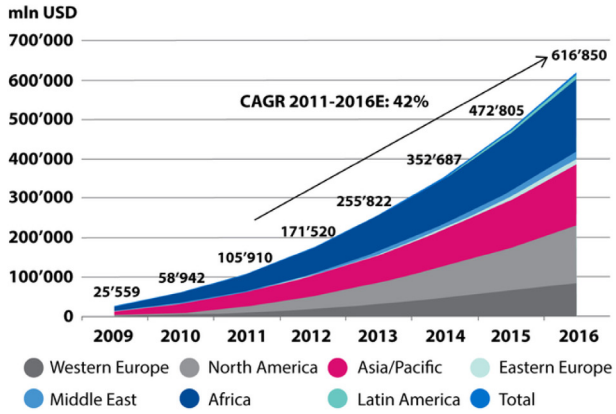


Fig 8. China cashless Society[9]



According to Credit Suisse Research, headed by Uwe Neumann: "the expansion of smartphones allowed new players on the market who are eager to exploit the potential of the device and have the know-how to do so". The global research team expects a high growth in mobile payments in the near future. According to the study, the global value of mobile transactions will grow "on average by 42 % year on year (fig 9 below) and is expected to reach USD 617 Bn by 2016. Moreover, the expansion of this method of payment will be particularly fast in developing regions, such as emerging markets (Africa and Asia), where the mobile transaction systems are needed while the growing demand contrast with insufficient banking services and expensive domestic fees.

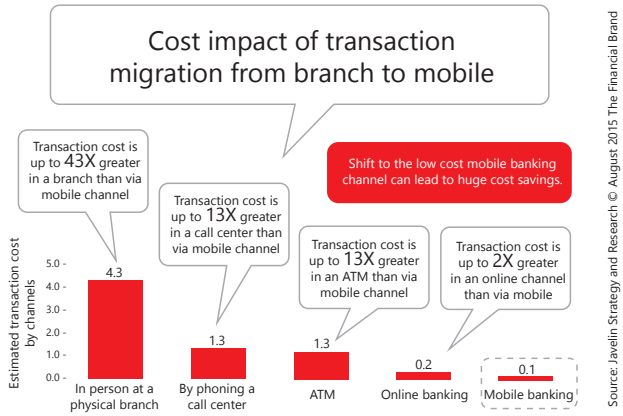
Fig9. Credit Suisse's Noncash Transactions Forecast[10]



BENEFITS AND DISADVANTAGES OF ONLINE BANKING

Advantages	Disadvantages of internet banking
• Cost (figure 9) • Convenience • Better rates: savings, Mortgage, loan • Better services like savings,credit cards, tax (like MAYBANK) • Mobility • Convenient transfers • Ease of use • Fast (ABA in 1.3)	• Lack of relationship • Transitions issues • Services issues • IT Security , Cybersecurity, hackers

Fig10. Costs impact[11]

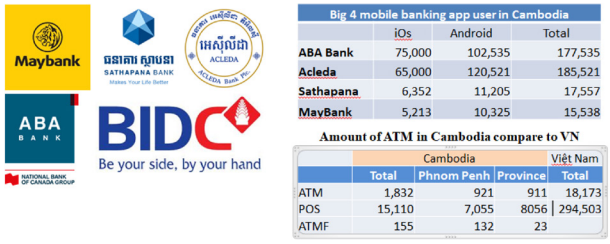


EXAMPLES OF INTERNET BANKING CAMBODIA

In Cambodia, ABA BANK is the most praised bank in mobile banking and internet banking. The banks provide friendly user application for the individual and the SMEs, and assist in facilitating users in some routine and respective task such as money transfer money between (external, own accounts for salary or savings or current), connection with external online services and ecommerce apps, and pay bills to national utilities (PPWSA water supply, EDC electricity and internet ISP providers, to top-up telecoms). ABA also possesses an extensive network of ATNM located in highly frequented district in the city and have also dispatched several ATM machines which enables cash deposits almost 24h a day and 7 days a week, in highly frequent districts.

The ABA banking system seems to be more in advance and keep the technology lead than its direct competitors ACLEDA (dominant bank in Cambodia). Its business model is to provide digitalization banking solutions that match with the current demand of the SME customers and individuals, but remains limited for larger companies who need different level of approval and checking operations. In the E-banking sector for large companies, BRED BANK and MAYBANK, can propose this more supplicated services for larger companies.

Fig 11. Internet and Mobile Banking in Cambodia[12]



The mobile banking has brought new smartphone services to users, and many benefits such as avoiding queues or waiting lines in branches, and the possibility to handle most of the basic banking needs (payment, transfer, checking balance) anywhere and anytime. Most commercial banks, specialized banks and microfinance institutions (MFIs/MDIs) in Cambodia, are proposing mobile applications for their customers. Besides basic services, some mobile platforms also feature the ability to make payments by using a QR code, or to pay bills directly through the app (e-wallet).

EFFECTS ON TRADITIONAL BANKS

The innovation has pushed the banks to transform themselves from their brick-and-mortar model, into digital integrated financial services companies. In the meantime the online and mobile services have contributed to new revenues and reducing costs.

Customers and businesses have liked paying by card since the 1990s, because it is easy and convenient and fast at some point, but nowadays the old plastic card has become digital and somehow "virtual". Not so long time ago, DigiCash (founded in 1990) was the very first digital cash company by David Chaum in Berkeley, but ahead of his time, the company went

he was way ahead bankrupt and was acquired by Infospace in 2002. However the pioneering idea of creating digital payment system dated 30 years ago, and turned into reality now, and payment methods have evolved since (credit card, debit card,, top up case, virtual visa, payment gateway, …) New banks can also open with minimum of branches and leverage on Fintech (strategies pursued by PPCB or ABA bank for example in Cambodia)

Saving costs, reducing overheads cost permits to pass the benefit to customers: higher savings interest rates lower loan interest rates, and reduced services and transactions fees.

Know you customer (KYC) challenges.

The traditional banks have also to enhance their ICT as technology updates are more and more required. But the consequences are banks have more and more data and details of the account owners, information, documents, consumption, habits, and may also store financial information for credit rating and credit risk management purposes from examples:

- Overdraft, limit authorized, security check
- Financial statements check
- Operations authorization, internet services
- Cheque books, ATM cards. Credit or debit card preferences
- Power of attorney, Authorized signatures, procedures, governance
- Savings and Investment of short term liquidity frequency

Positive and Negative Effects.

Positive effects	Negative effects
• Reduced interest and competitive frees • Accessibility, Mobility • Financial inclusion • New services (tax, vat, …) • Intensive use of ICT, better services • Big data, statistics, credit scoring • Rationalization, process, control • Cost reductions, new distribution channels • Environmental friendly	• Oversupply on internet banking, overbanking • Lack of revenues for banks, no clear model for some banks • Cannibalization of traditional services • Decrease in confidence as no face to face or growing incident an issue bad for reputational risk • Face-to-face is required for complex situation (authorized signatures, …) and international transactions

NEW BARRIERS TO ENTRY

The New Barriers to entry

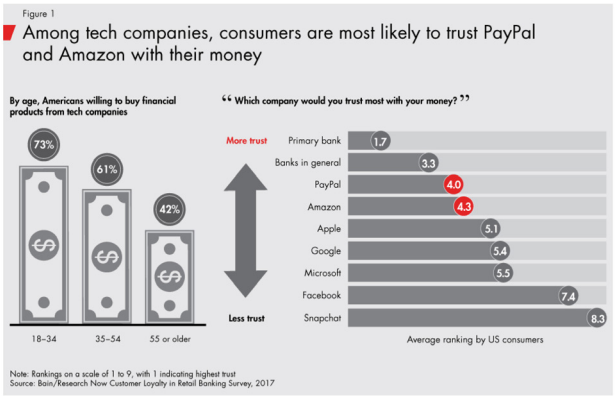
Besides the basic banking applications, some apps have also developed additional non-banking services and features to retrain the customers. Internet and high speed broadband (mostly LTE, 4G, and Optic Fiber) have enhanced daily connectivity and consumers can access to a wider range of non-core services. For example, PiPay enables chats and some others include games, photography, video, and or can even make free telephone calls. Some of the applications have also developed partnerships with popular e-commerce platform such as Tripadvisor or Agoda. Similarly, Wing has some agreement with Grab in Cambodia. This new model is adding more disruption into the traditional model, not only for the bank but also for taxi industry. At some point the most recent technological advances by suing "AI" (artificial intelligence), robots, and big data will further reinforce the barrier to entry for newcomers, as it will require more investment in new technology and skills.

Mastering "IoT" (internet of Thing) will be crucial in with financial and investment services. The Fintech Company has to be able to deploy systematically IoT technology such (a) verification of identity (by ID card upload, webcam, telephone, emails, postmails, password generation), (b) reporting tools in order to comply with regulators.

In summary, Fintech companies are developing new Competitive advantages such as:

- Segmentation, new group of customer
- Big Data, Machine Learning, AI (Artificial Intelligence)
- Credit rating, internal scoring system
- Advance utilization of IoT (Internet Of Thing)
- Concentration of profitable products and services
- Proactive design of new project design based on profile of clients
- and finally : cost efficiency

Fig12. Competitive advantage of Paypal[13]



PayPal was established in 1998 as Confinity by Peter Thiel, Luke Nosek, Max Levchin and Kenhowery, later in March 2000, the company merged with X.com which is an online banking company founded by Elon Musk. The company later changed in 2001 to PayPal. They went IPO (PYPL) in 2002.As of today; they provide online services such as money transfer, online payments and electronically clearance. In 2002, PayPal gained their popularity with eBay (70% of auctions). In 2005, PayPal partnered with VeriSign security solutions and in 2007 with MasterCard to develop a developing a unique payment platform. Soon after that, PayPal acquired Bill Me Later (online company with over 9000 online merchants in the US). By 2010, PayPal had over 100 million user accounts through 25 different countries, and continue to develop major partnerships (Discover Card,) did a spinoff from eBay and acquired a P2P platform XOOM in 2015. Furthermore in 2019, PayPal partners with Instagram.

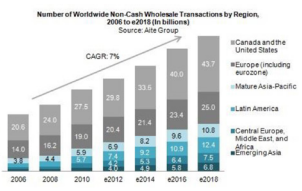
DISRUPTION IN THE PAYMENT SYSTEM

TRENDS IN INTERNATIONAL MONEY TRANSFER

Empirically, remittance is the capital flow between sent by migrant workers back to family in their home countries. And according to recent statistics (fig 13a), the total remittance market is more than of $622 Bn in total flows, and according to the World Bank, 80% of which are within emerging markets, Because of globalization, the volume of remittances has increased worldwide 5 times from 2000 to 2018. And sometimes, remittance can represent as high as ⅓ of the recipient country GDP (even more than FDI) and becomes a significant contributor to the GDP. The global average amount is USD 200 $ worth between countries, and the average cost is around 7%%, which means that about USD 50Bn is charged directly and indirectly by intermediaries fees (banks, central banks, financial institutions, agents …). These fees and rates are different from region to region depending on the volume (fig 13b) below

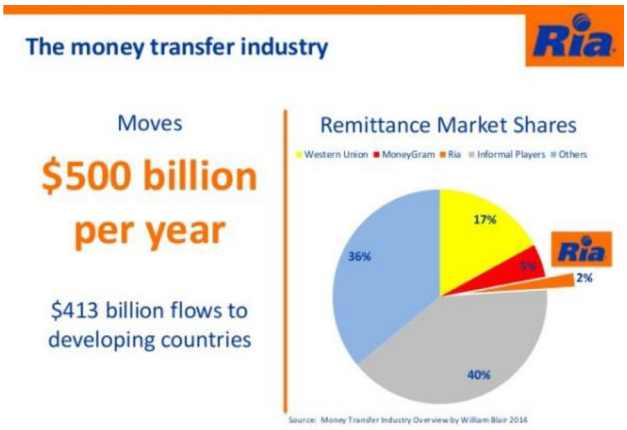
Fig13a. Global Money Transfer[14]

Fig13b. By region[15]



The traditional key players of the market are Western Union (13-17%% market share), MoneyGram international (5%-9%) and RIA (2-4%). These firms are called "Money Transfer Operators" (or MTOs) and have made a huge volume of fees through cross border transactions, but now are they are with the Banks under pressure, as remittance fees are too expensive, and with the merging Fintech (Transferwise, Paypal, ..). These new entrants are in a serious position to disrupt the existing markets with lower remittance fees (one tenth of the classic fees) and with differentiated services.

Fig14. Market dominated by WU, MG and RIA[16]



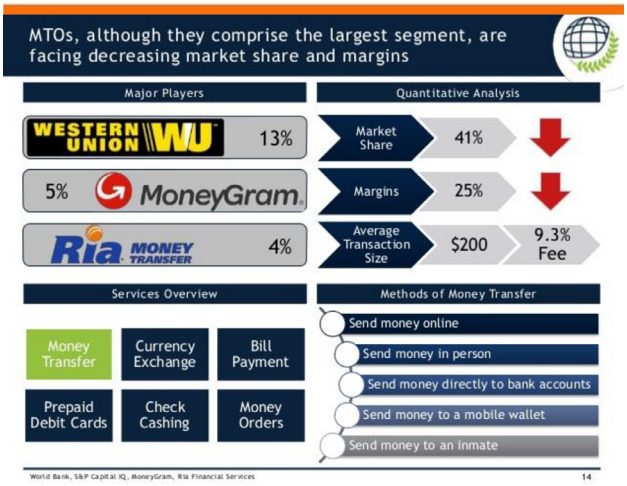
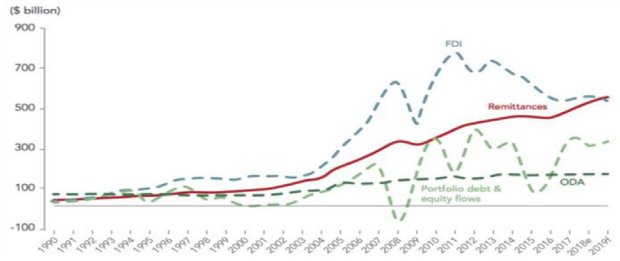


Fig15. A quick Glimpse at WU, MG and RIA[17]

Company	Market Cap	Market Share	Volume	Countries Served	Comments
WESTERN UNION	$8B	14%	$80B	200+	550,000 agent locations and 150M customers served.
UAE EXCHANGE	~$5B+ (private company)	5%	$47B	31+	9,000 employees in over 31 countries.
Ria MONEY TRANSFER	$500M (Acquired in 2006)	3%	$20B	144+	Serves customers through more than 314,000 locations worldwide.
MoneyGram	$122M	4%	$23B	200+	Global network of about 347,000 agent offices

And because of the macroeconomic forces such globalization and migration, remittances growth is expected to stay at level of 10% on average and worldwide (fig 16). This growth (faster than worldwide GDP) can be explained by three reasons: (a) the growing population of migrants around the world, (b) Migrants earn higher incomes as they obviously relocate higher earning countries, (c) remittance fees getting cheaper (falling from average 10% to about 7% and will continue to decrease with competition).

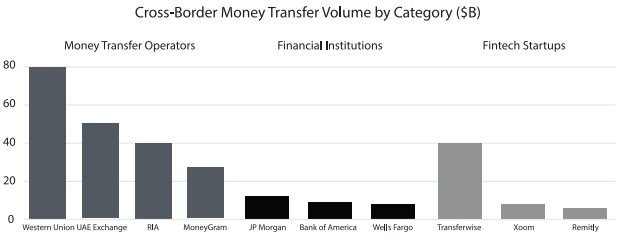
Fig16. Worldwide Remittance Volume Growth[18]



FINTECH IN MONEY TRANSFER

Fintech startups have well understood the remittance market due to the market opportunities, and the Fintech such as TransferWise and Xoom, followed by new unicorns are clearly disrupting it. The Fintech target digitally and savvy customers, who traditionally works with bank and MTOs (fig 19).

Fig17. Monet Transfer by Channel[19]



Transfer wise

TransferWise is was launched in 2011, in UK and is one of the most successful startups at that time, by having raised $117m in funding from investors such as Andreessen Horowitz, Sir Richard Branson, Valar Ventures and Max Levchin from PayPal. Co-founded by Hinrikus and Käärmann, the company has focused their model on the growing frustration of banking high fees, banks charge excessively on international money transfer. The model of TransferWise is to use the real exchange market rate, and make the transactions costs 8 times cheaper. Sending money abroad will be much cheaper and faster compared to a traditional bank. Today, over USD 1.25 Bn of money is transferred across the globe every month using the TW platform.

www.transferwise.com

Clearly the new Fintech platform can allow customer to pay new fees sometimes 1/10 cheaper than traditional remittance cost, and consequently, new startups will join this cost reductions money transfer arena (fig 18). The benefit of sending money worldwide through these platform is also giving ideas to new comers form different industries such as international banks, retailers (amazon, eBay, Starbucks, …), but also from the post office and the telecoms sector). MoneyGram are western union are obviously good candidate for short selling. The fig 18 gives a quick overview and comparable view of TransferWise versus others

Fig18. Disruptors in Money Transfer[20]

Company	Market Cap	Market Share	Volume	Investors	Comments
TransferWise	$3.5B (Private Company)	7%	$40B	Andreessen Horowitz, Index Ventures, Valar Ventures, etc.	49 countries supported.
xoom	$890M (acquired by Paypal)	1.5%	$9B	Sequoia Capital, Fidelity, etc.	38 countries supported.
Remitly	$600M	1%	$6B	Silicon Valley Bank, IFC, PayU, DFJ, etc.	44 countries supported.
WorldRemit	$670M	0.3%	$2B	Omidyar Network, JP Morgan, Accel, etc.	3M users, 140 countries supported.
azimo	$100M	0.1%	$1B	Rakuten Capital, Silicon Valley Bank, Greycroft, etc.	180 countries supported.
transferGo	$75M	0.1%	$800M	European Development Fund, Vostok, Hard Yaka	1M customers, 42 countries supported.
INSTAREM	$100M	Unknown	Unknown	Ripple, Vertex Fund, Rocket Internet, SBI	60 countries supported

PayPal and XOOM

Xoom which a PayPal service, is also a significant contestant of TransferWise, as not only it provides worldwide money transfers, but belongs to Icon PAYPAL, who is well known in the disrupting industry. XOOM allows (through electronic funds transfer or remittance) consumers to send money, pay bills, top up mobile phones from the United States to 131 countries. The company, founded in 2001 in San Francisco, was acquired by PayPal in 2015 (about USD 1.09 billion). These services are complementary with the business model of in your PayPal, and may accelerate cross fertilization transactions through both existing accounts.

https://www.xoom.com/

AML AND KYC RISKS

The tremendous growth of Fintech has also generated new debates and questions about AML (Anti Money Laundering), KYC (Know your Customer), and CTF (Combatting Terrorist Financing). The regulators are taking seriously these new potential threats facing the Fintech industry. Similarly, as cryptocurrency assets become also a means for storage of value and medium of exchange, and represent a risk of carrying large values of money across borders, impossible to detect by regulators. The Regulatory framework across the ASEAN region are setting up more and more compliance guidelines (not a law) with financial community and associations of banks in order to detect earlier suspicious and non-compliance risk which can affect negatively the consumer confidence and the reputation risk of the financial system. Fintech operators clearly integrates theirs strategies, even they don't have a banking license, they do conduct their own KYC tests (own big data) and enable rigorous due diligence on their customers. Furthermore, some banks also go further through KYC, by implementing the KYT (Know Your Customer's Transactions), though checking invoices and nature of the transactions

Min Zhu, Deputy Managing Director of the IMF quotes: "Effective anti-money laundering and combating the financing of terrorism regimes are essential to protect the integrity of markets and of the global financial framework as they help mitigate the factors that facilitate financial abuse."

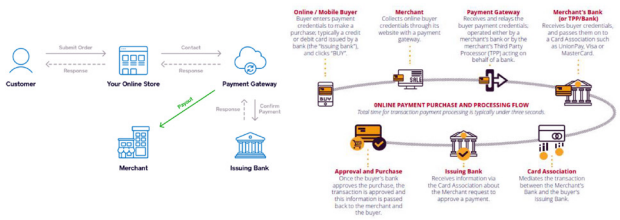
Money laundering requires an underlying, primary, profit-making crime (such as corruption, drug trafficking, market manipulation, fraud, tax evasion), along with the intent to conceal the proceeds of the crime or to further the criminal enterprise. These activities generate financial flows that involve the diversion of resources away from economically- and socially-productive uses—and these diversions can have negative impacts on the financial sector and external stability of member states. They also have a corrosive, corrupting effect on society and the economic system as a whole. Because of the negative consequences of these forms of financial abuses on our members' economies and financial systems, the IMF has been very active for over ten years in the AML/CFT area.

AML/CFT controls, when effectively implemented, mitigate the adverse effects of criminal economic activity and promote integrity and stability in financial markets.

INNOVATION IN PAYMENT

With the plethora of payment cards and giant banks around the world, but the other innovation takes place in the ecosystem surrounding the payment gateway (figure 19). A payment gateway is: "a merchant service provided by an e-commerce application service provider that authorizes credit card or direct payments processing for e-businesses, online retailers, bricks and clicks, or traditional brick and mortar".

Fig19 – What is a gateway payment?[21]



Currently there are few payment gateways available in Cambodia, as few Banks (Acleda, Cathay United, Canadia and ABA) do offer Application Programming Inter faces (APIs) payment. The most famous one, PAYPAL, also called TPP (Third Party Processor) as and merchants can directly use its TPP systems. Several TPP are interested in entering the Cambodian market but are concerned about regulations, risks of fraud and legal enforcement.

Moreover, the ecosystem (fig 20) is getting more and more complex with new intermediaries in the ecosystem such as the acquirers/processors (provide technology, allowing to receive information, check and authorize transactions prior to settlement) and ISO (Independent Sales Organization, term used within the payment industry to identify an individual

or organization that is not Visa and MasterCard Member) and MSP (Member Service Providers which differ between the card associations and are defined as a non-member)

Fig20 - ecosystem[22]

This Innovation makes transactions faster, cheaper, and easier and provides quick services and early response to change, as customers are more demanding and have higher expectations. As almost all Fintech operators rely on technology and the internet, the protection the data and privacy of consumers remains the main issue for the regulator (consumer privacy protection). The drawdown will be the misuse of this date like the Facebook Scandal. Also this system as also potentially victims of hackers if the cyber security system is not deployed properly in the organization.

Innovation constantly leads to new "never-seen-before "services (figure 21), which are also pushed and introduced by smartphone manufacturers (Apple, Samsung, Huawei, HTC) which are become a strong and serious competitors for pure internet players such Google (Google Apps), Microsoft Windows (Windows Apps) and Paypal). Combined with an IPhone or I Watch, the Apple Pay can also use the contactless payment terminals and allows payments in some countries. We do expect continuing innovation in mobile solution, with new development between Google and Huawei. Also new platform coming from e-commerce companies will have a major impact on the ecosystem (Alibaba, Amazon, EBay, and Facebook) and from the cryptocurrencies world (Bitcoin)

Fig21. Disruptors in Money Transfer[23]

KEY FINTECH IN PAYMENTS IN CAMBODIA

In the last recent years, we have observed a tremendous soar of "Fintech" companies in Cambodia, with newcomers such of Asia Wei Luy, Dara Pay, and banks such KB, May Bank, RHB, Cathay, Phillip. In the figure 22, we can see the most popular payment companies in Cambodia.

Fig22. Payment Fintech in Cambodia n[24]

Most of them are coming from licensed banks and the majority from Payment Services Institutions sector, they also got the license from the NBC, and they are actually 16 licensed PSI in 2018 (True Money, Ly Hour Pay, PiPAy, Smart Axiata , Asia Cash Express, Seatel

Financial Services, Speed Pay, Canadia Fullerton Mobile Money, Cooolbill, Edeel, Ipay88, Bongloy, Tian Xu International, Huione Pay, e-Money, Paygo SEA). And the most active ones in Payment Fintech are:

PAYGO SEA

Paygo is most popular services, with possibility to make payments (bill, phones, PIPAY) by phones or through special terminals in frequented tourist location and convenient store. PayGo is a kind of e-Wallet and also proposes free virtual Master Card (by ABA Bank). They have as partners in Cambodia: ABA Bank, SmarLuy (Smart Telecom), Tesjor (e-commerce), Truemoney, and eMoney.

https://paygo.com.kh/

TRUEMONEY

TrueMoney is a subsidiary of public listed Thai communication group True Corporation (since 2003 and Cambodia in 2016). TM is a regional player and also provides payment system platform in Vietnam and Myanmar. The direct competitor would be Wing in term of money transfer and agent/dealer network (5,000 in Cambodia), TM is operated by Ascend Money, which is owned by with Ant Financial (Alibaba Group). TM is of the largest financial platform in the region with its mobile wallet application and agent networks across Southeast Asia region to enable access to affordable, secure and convenient financial services, by mobile phone, agents and dealers network, and POS terminals.

https://www.truemoney.com.kh/

BONGLOY

Bongloy is an innovative company that offers a payment gateway through building local API (Application Programming Interface) that enables merchants to make online payments through existing platform. Bongloy's API is inspired by Stripe (a US-based technology company which allows individuals and businesses to receive online payment). There is no monthly fee but success fees of 2.9% per transaction with a minimum of 0.20$.

https://www.bongloy.com

E-MONEY (METFONE)

This service is provided by major telecom incumbent Metfone (45% market share in Cambodia, VIETTEL group) and MB Bank (from Vietnam). The subscribers can have access to financial and banking services (Money Transfer, Phone Top up, Bill payments, deposits etc…) through their smartphones and mobile devices.

https://metfone.com.kh/en/emoney

SMARTLUY (SMART AXIATA)

Like the previous one, SmartLuy has been developed by Smart Telecoms Incumbent (40% market share in Cambodia, subsidiary of AXIATA Telecom). They propose apps which secure way to transfer money, possibility pay utility and any other bills and mobile top up of any operators. Smart is the one of the largest network I Cambodia (like Metfone and Cellcard).

https://www.smart.com.kh/more/smartluy/

DARAPAY

DARAPAY is the one of the recent newest mobile payment company. Established in 2016, through a partnership between Canadia Bank (second ion Cambodia) and Fullerton Financial Capital. This mobile phone apps make promote the use of QR code. Besides that, DARAPAY enables cash payment, as well as payroll, utility payment, phone top up, and money transfer. Like PIPAY and other competitors, they provided some discount to the customers from some food and beverages places and merchants in Cambodia.

https://www.darapay.com.kh/

ASIA WEI LUY

AWL also provides low-cost mobile services such transfer, deposit, payment withdrawal of money in Cambodia to individuals and businesses. They currently cooperate with major banks such as ACLEDA, ABA, Maybank, FTB, Campu, Canadia, and Sacombank.

https://asiaweiluy.com/

PIPAY

Pi Pay is one of the first innovative cashless payment platform. The company was founded by Anco Group and Singaporean businessmen, and Malaysia's CIMB Bank is the custodian of the firm. Its services stretch from discount with merchants (shops, outlets and restaurants in Cambodia, from 10% to aggressively 50%), adding friendly social and lifestyle features with Chat, Maps and Friend Finder, Finger scan, QR code or In-App purchases. Customers use mobile apps or can top up in mini booth or POS in major shopping malls. This Company has reached significant subscriber more than 1 Mn, and expanding partnerships with

brick and mortar banks and many private financial institutions, and merchant network (more than 1000 merchants in their first six month). Their most popular merchants' network includes: retail shops, coffee shops, cinema (Legend), popular restaurants, supermarket and convenience stores. Even if the custody is handled by CIMB Bank, the users can conveniently transfer money from partner bank such as ABA bank or PPCB account to PiPay account.

https://www.pipay.com/

WING

WING was founded by Royal Group in 2009 in money transfer through any phone or smartphones, and am extensive agent network, and become a Specialized Bank is Cambodia with a proper banking license. Wing was the pioneer in Cambodia, by providing financial inclusion and allowing every Cambodian to access to basic but necessary services such local money transfers, bill payments and phone top-ups, now it has extended its services in cards services, online shopping and QR payment, also instant international money transfer from more than 200 countries. Moreover, Wing has the highest geographical penetration within Cambodia present in 25 provinces, via a nationwide agent/dealer network of over 6,000 outlets, a partnership with 25,000 merchants. Wing also partners Mastercard and WorldRemit. Wing also provides services for enterprises, such as payroll and disbursement services, loan repayment. In 2018, WING has more than 3 million active users and approximately 6 to 7 million transactions which amount more than USD 10 Bn dollars or half of the current Cambodia's GDP. Since 2018, Wing has progressed into international money transfer without the support of traditional bank and gas started with Sawasdeeshop, a Thai telecom company, as it firstly targeting cross neighboring money transfer between Cambodia and Thailand (more than 1.2 million estimated Cambodian migrants working in Thailand). These overseas remittances simplifies the custody operations of banks and in April 2019, it also partners HKL (MDI) for loan repayment, direct fund transfer from HKL account to Wing account vice versa.

https://www.wingmoney.com/en/

AMK

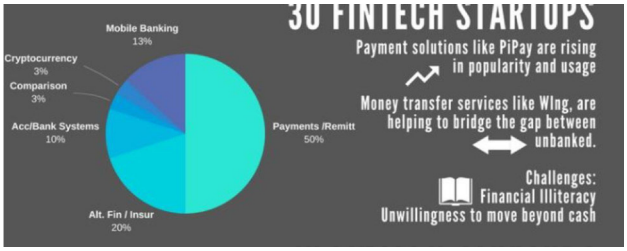
AMK is a fast growing MFI (Micro Finance institutions) in Cambodia, They provide Mobile Money Transfer services with AMK networks of about 3,000 staffs who serve almost 800,000 clients in nearly 13,000 villages across the country, and their penetration arte almost represents 89% of all villages. Offering money transfer service which is fast, affordable and secure, is also the vision of the group to promote financial inclusion, like its close competitor AMRET.

Visit: https://www.amkcambodia.com

ACLEDA UNITY TOANCHET

Despite being the number one bank in Cambodia in terms of staff and branches, and among the first pioneer to launch a mobile app with compatibility with Apple, Google, and QR Code, the application TOANCHET failed to reach the critical size and the expected market penetration. The app is not even connected to the existing internet banking, and banking transactions are made very difficult to execute. Quite often the banking transactions have to be done at the head office (with long lines and waiting time) which does not seem to be disruptive at all. The concept was built on a "brick and mortar" concept for the brick and the mortar.

Fig23. Fintech Revenues in Cambodia[25]



Obviously in Cambodia, the payment now represents more than 50% of the ecosystem. Combined with Mobile banking, about two third (figure 23). Clearly, international companies and advance technology Fintech will definitely survive the competition. It seems that the companies such as Wing, TrueMoney (True Corporation), eMoney (Metfone), SmartLuy (Smart), are the most disruptive in the Cambodian landscape, with strong financial shareholders.

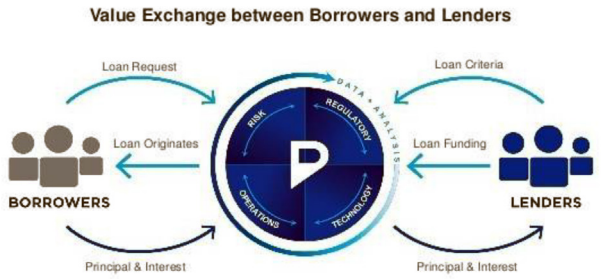
But next what about the potential disruption in the financial services in Cambodia?

DISRUPTION IN FINANCIAL SERVICES

PEER 2 PEER MODEL, DISRUPTION IN LENDING

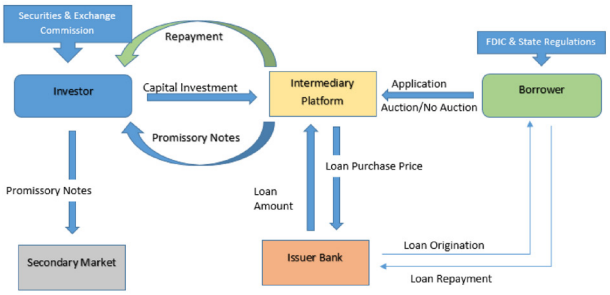
Peer-to-peer lending has spread across various segments of the lending market. Some peer-to-peer lending companies target specific loan types, including Retail Loan, Small Business Loans and home loans. The Types of peer-to-peer lending platforms:

Fig24. How does a P2P Work[26]



P2P platforms – P2P platforms do not actually lend money. Instead, they develop Internet platforms that connect borrowers with investors.

Fig 25. Inside a P2P Platform[27]



This figure above (fig25) illustrates a classic peer-to-peer lending business model where the online platform acts as an intermediary between the investor and the borrower. A borrower visits an online platform and submits the completed application form for a loan. The borrower's risk profile is analyzed using the loan-issuing bank's underwriting guidelines, and the application is approved. The borrower's loan requirements are usually listed on the platform's website for investors to scrutinize and fund. After obtaining sufficient investor commitments, the loan amount gets transferred to the borrower by the issuing bank. Once the loan is disbursed, proceeds from investors are used by the borrower to purchase the loan from the issuing bank. Investors who successfully bid the loan are technically issued a note by the platform for their value of the contribution. The notary model shifts the risk of loan nonpayment away from the originating bank to the investors themselves.

But who are the players in P2P lending? LendingClub (USA) and ZOPA (UK) are the most representative in the industry.

Business model LendingClub[28] : the loan process can be summarized in the following sequence of steps:

(a) Borrower opens account with Lending Club providing required information

(b) A bank provides borrower the loan (loan terms are based on borrower's FICO score, debt to income ratio, term, purpose of use etc.)

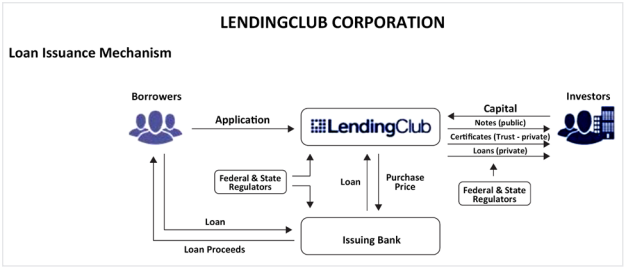
(c) The bank sells the loan to Lending Club

(d) Lending Club keeps the loan on its balance sheet

(e) Lending Club creates an unsecured structured note linked to that loan (notes are obligations of Lending Club not of the borrower, thus investors also stand to lose if Lending Club becomes insolvent even if borrowers continue to service the loans)

(f) Lending Club sells the note to an investor (g) Borrower makes payments on the loan which are transferred to note holder after Lending Club keeps a 1% fee for providing loan to borrower and service fee from investor".

Fig 26. Business Model of Lending Club[29]



FINTECH FOCUSED ON FINANCIAL SERVICES IN CAMBODIA

According to Mekong Strategic Partners report, there are over 300 technology companies operating in Cambodia, but only 50 could be categorized in the Fintech area, those who provide innovative digital payment system, but also nascent peer to peer platform (inside and outside Cambodia) and technology support providers (Banhji or Morakot), the new "brick" and mortar" builders and business tools for Fintech.

BANHJI

Banhji is close to the model of ASP (Application Service Provider) like Google Apps or Xero for accounting. It provides financial technology for Micro, Small and Medium Enterprises in Cambodia (for compliance in tax and accounting and taxes, financial reporting. They currently more than 900 clients (Cambodia and Lao PDR) using their platform using free online accounting software. They have strong partnership with MFIs and banks, which are in their core business for development.

https://banhji.com/

MORAKOT TECHNOLOGY

Almost same as Banhji, Morakot Technology provides Digital Platform for Banks. The company develops software mostly for banks and microfinance institutions (MFIs). For instance, the software, called Morakot VB was developed to provide cost-effective solutions (cloud-based solutions) to Cambodian financial industry, especially for small-sized MFIs, leasing companies, rural credit operator. The applications enable to monitor and control Customer Management, (customer experience), Deposits, Loans (full process from the application, to repayment schedule Teller Function (cash management), Accounting system and also Reporting Tools (need for regulatory and management purposes)

https://www.morakot.it/

On the other hand, there are nascent peer to peer platform completely unknown (maybe no activity) by the public: Komchey, Karprak, BabyLoan amd Kiu

KOMCHEY and KARPRAK are the first online P2P in Cambodia. Komchey aims to provide loan to SMEs through a matchmaking platform and also aims to enhance the accessibility to finance. On the other hand, Karprak is designed as a low cost platform to provide and facilitate loans between borrowers and lenders.

BABYLOAN backed by a NGO, Bred Bank and Credit Cooperatif Bank, Babyloan.org which have about 1,750 lenders financing p2p micro-loans to entrepreneurs in developing countries, such as in Benin, Cambodia and Tajikistan. The Funds are transferred in via credit card payment and they also partner local MFIs. Babyloan charges a compulsory fee of 1 Euro per 100 Euro funded (with a Minimum of 20 Euro)

https://www.babyloan.org/

KIU is somehow interesting as a new disruptive, providing payment and Invoice discounting platform in Cambodia SMEs. Kiu is a cloud-based technology with HQ in San Francisco and present in several ASEAN countries

https://www.kiuglobal.com

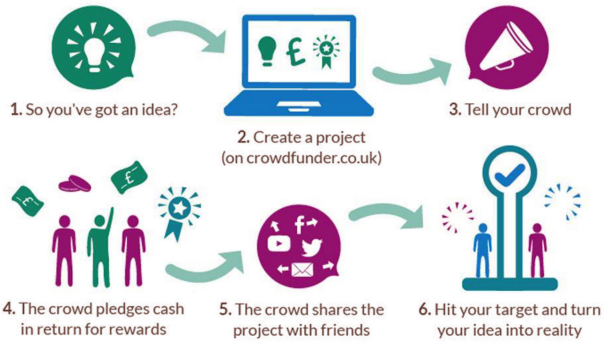
SPEAN LOAN

Spean is at a startup stage in Cambodia. It is not a real Fintech company as the firm provides a platform for loan comparison to help consumers to select proper banks or MFIs. It will certainly facilitate the understanding of the Cambodia credit market but not revolutionized it. Spean charges fees of loans like a broker.

https://spean-kh.com/

CROWDFUNDING MODEL

Fig27. Crowdfunding model[30]



Source: Crowdfunder.co.uk

There are many types of crowdfunding models (fig 27), the popular ones are: donation-based, micro-lending and p2p based, reward based, equity based.

Donation-based crowdfunding

The donation-based structure can be a philanthropic organization, where people pledge through donations, donating and without any expectation in return. The platforms like JustGiving in UK or TOSFund in Cambodia, are for example focusing on causes and charitable events.

Micro-lending

This is a variant of crowdfunding with a financial inclusion purpose such as micro-lending (like MFIs). For instance KIVA[31] , an international nonprofit, founded in 2005 in San Francisco, has reached 2.4 million borrowers, 1.6 million lenders and since. The minimum of lending is USD 25. Kiva can lend from starting or growing a business, or to pay school fees or access to water or clean energy. Typically these platforms are not-for-profit organizations, and donations go directly into funding loans.

Peer-to-Peer Lending

The P2P platforms, like LendingClub in the USA and like Zopa and Ratesetter, both in UK, enable investors to lend to individuals with annualized rates in between 2% and 6%. Although these rates are fluctuating from time to time, with the economics variables, these companies tend to provide enough liquidity, the borrower can for instance a rate of 2% and the lender a yield of 5% during the next five years. Most

of the lenders authorize the platforms to allocate the funds, across multiple and diversified portfolio of borrowers. In the UK, currently more than USD 5 Bn amount has been lent through the domestic P2P platforms. In terms of regulation, these companies should be under the supervision of the Central Bank and have a license.

Reward crowdfunding

Kickstarter[32] and Indiegogo[33] are currently the biggest ones (fig 28). Kickstarter, launched in 2009 in New York is the largest reward crowdfunding platform. It represents an alternative way to rise funding, and the demand is generally for arts, artistic projects, and production but also hobbies, craft and innovative product and services. Kickstarter raised more than USD 3 Bn and achieved more than 125 thousands successful projects. It also has an unique "all or nothing" policy, which means that if projects fail to reach their target, they don't receive any funding and the sponsors/patrons who made pledges don't pay anything. All successful projects pay a 5% commission plus up to roughly 3% transaction charges. On the other side, Indiegogo, launched in 2008 in San Francisco, is also an alternative way to raise funds but has a significant difference: the company allows projects to receive the money that's pledged even if they fail to reach target.

Fig28 Examples of Crowdfunding Companies[34]

Equity crowdfunding

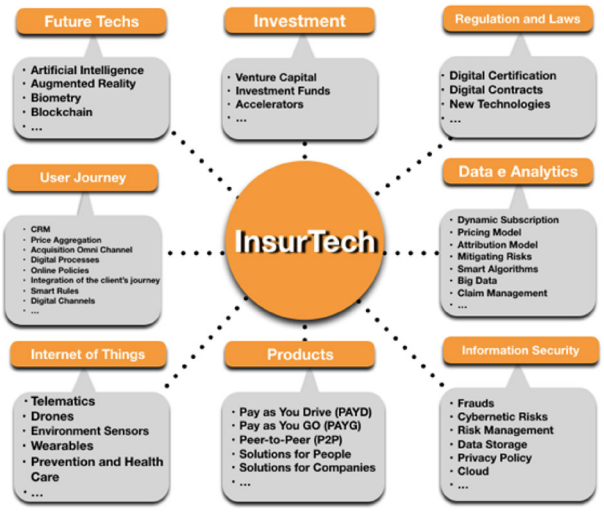
New equity crowdfunding platforms have been launched since 2016, to provide a full online services. These platforms have emerged and targets mainly HNI higher net worth individuals and "qualified investors". Wefunder[35] , one of the pioneer and currently the market leader, was launched in 2012. The minimum investment size is $100. Today, Wefunder members have provided globally 55% of all online equity crowdfunding investments.

The situation in Cambodia is still nascent and limnited with the only example of TosFUND, which is a non-profit crowdfunding organization based donations and rewards. TosFUND aims to raise money through fundraising in order to facilitate development projects and social causes in Cambodia. The projects can thus be financed through donations from the public. The mobile platform, launched in 2015, was the result of collaboration between several NGOs, USAID, and a software company (Alien Dev). It is also have a partnership with Cellcard.

INSURTECH AND OTHERS

Currently only BIMA[36] Cambodia (Swedish Company) is the first Insurtech, combining know-how on technology, insurance and heath expertise. The company uses mobile technology to deliver affordable insurance and health insurance services, and to promote financial inclusion in Cambodia. The Insurtech (see figure 29) in on the rise and the sector becomes more crowded with presently, 30 insurance member companies[37] consisting of 13 licensed general insurers (like Infinity Forte), 9 life insurers (like Manulife, Prudential, AIA), 7 micro insurances (like BIMA and MFIS subsidiaries) and 1 reinsurer (Cambodia Re) operating in Cambodia.

Fig 29. Insurtech Model[38]



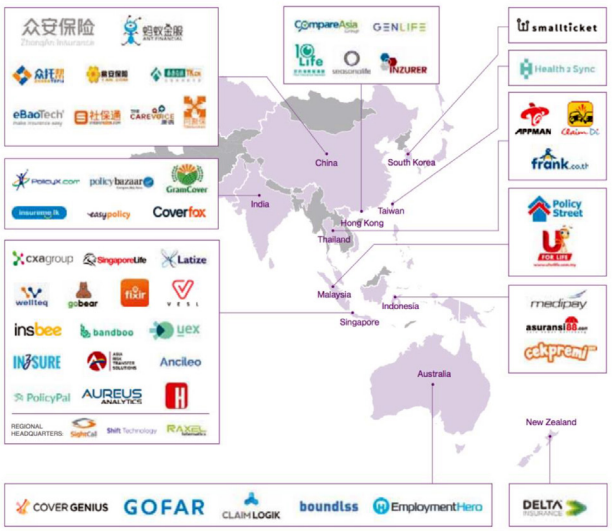
Generally Cambodia and the rest of Asia are attractive from both an insurer and an insurtech, as many opportunities are offered in the context on a significantly underinsured population. For instance in Cambodia the NSSF (national Social Security Fund) has only started in 2016 and provides insurance for occupational injuries but also healthcare system and soon retirement system. Cambodia is still late in terms of insurance coverage, especially for individuals, and as the country experiences rapid growth its population and the recent development of protection Insurtech, alongside traditional insurance, can be the new potential leapfrog for Cambodia (like

from fixed lines into directly GSM technology). The Insurtech model is challenging and complex and has to integrate all the activities which characterized insurance companies from underwriting, sales distribution to claim management and also asset management. Some other disruptive challenges that the existing insurance companies or new startups structures should take into account for the new ecosystem will be the:

- Product sales/ Distribution (online portals, mobile apps, retailers)
- Risk Management Software (Healthtech, Blockchain)
- Fraud detection syetem /prevention system (big data, machine learning, cyber security)
- Claims management (big data, machine learning, CRM, ER, SCM)
- Digital Advance Service management (Chatbots, AI)
- Investment management (portfolio optimization, Robo-advisors)

So far in Asia (fig 30), the major Insurtech comes from China, India, and Singapore, while Japan, Korea, where Cambodia and overall ASEAN overall is lagging.

Fig 30. Insurtech in Asia Pacific[39]



NASCENT REGULATION IN CAMBODIA

The government of Cambodia and like most ASEAN regulators has identified Fintech as a major driver and contributor to economic growth for the next five years, sometimes as a pillar of Industry 4.0. In that perspectives, the regulators have to design rapidly a new clear framework to create a favorable environment for the Fintech to grow and to prosper, and on the other side, to be able to enforce the rule of law. In Cambodia, the framework is still nascent, and is summarized for the moment by punctual announcement through newspapers.

In some countries, the regulators have tried to implement some measures, with more and less success, in order to promote the industry, for instance by offering tax and non-tax incentives. Whereas there are some tax incentives in some European countries, it is not clear that association-type of organization may receive any incentive, nor the donor any exemption of withholding taxes in Cambodia. In any case, if Association-type, this would be under the supervision of Ministry of Interior, and if private profit oriented companies the Ministry of Commerce, and finally it should also be under the authority of the SECC (Securities Exchange Commission of Cambodia), of the Ministry of Economy and Finance.

Regulators in Cambodia are taking slow steps and sometimes are not clear in the direction they take: the NBC on Blockchain and banking payment system, the SECC (MEF) is preparing a prakas on Collective Investment Scheme and then on crowdfunding. SECC has also enter into a MoU with Blockchain provider whereas CSX (which report to SECC) with a chines crypto currencies company. And insurance are under the supervision of the MEF.

The NBC want to promote financial stability supervised the banking and financial services market, and safeguarding consumer rights and protection. As Peer-2-Peer lending/borrowing platforms from overseas can disrupt totally this heavy system and so do the risks associated with such a new business models not recognized by regulators.

Some jurisdictions in Europe require the P2P platforms to be registered and have a license. In Europe, it is recommended by the MiFID (Markets in Financial Instruments Directive) for instance, the equivalent would be the SECC (Securities Exchange Commission of Cambodia) in Cambodia. These rules require the company to meet minimum capital requirements to guard against operational risks. The new prakas on CIS (Collective Investment Schemes currently set up some rules in Cambodia, such as crowdfunding or CIS through electronic system with a minimum capital of USD 150,000.

In some Asian jurisdictions, the regulator will require the use of a strong third-party custodian (Japan, Korea, Spain, and Malaysia) and will thus restrict platforms from directly handling customer funds, for the sake of consumer's protection. "In France and Italy are imposing specific requirements to mitigate

operational risks, such as making it compulsory to back-up facilities, and the putting in place of adequate security measures, procedures, and controls"[40] . Some countries like in USA, UK, or Chili require banking licenses. Moreover, it opens new questions from the regulators: what about the interest rates practices, loan repayments system form consumers, consumer protection, requiring capital requirement, case of default, loan portfolios management? And like as for traditional financial institutions, the regulators has to find rapid answers to the growing demand of P2P models (lending, crowdfunding).

DISRUPTION IN DIGITAL CURRENCY

CRYPTO CURRENCIES VS. BITCOIN

Bitcoin is a "cryptocurrency", which is a digital currency which does only exist virtually, meaning that it does not have a physical or material form, or in another word: it only exists on the internet (King, 2019). In the last few years, crypto currency has become more popular due its most widely known currency "Bitcoin". Bitcoin has exponentially increased in value from being only around $500 in 2015, rising to more than $15,000 in December 2017, although now at $5,000 in April 2019. However, crypto currency is not only limited to Bitcoin, but also a large variety of currencies such as Litecoin or Ethereum. The figure 31 shows the domination of Bitcoin in terms of market capitalization, and closely followed by Ethereum and Ripple. Figure 31a and 31b shows their relative size.

Fig 31a. Market Capitalization of Crypto Currencies in 2017[41]

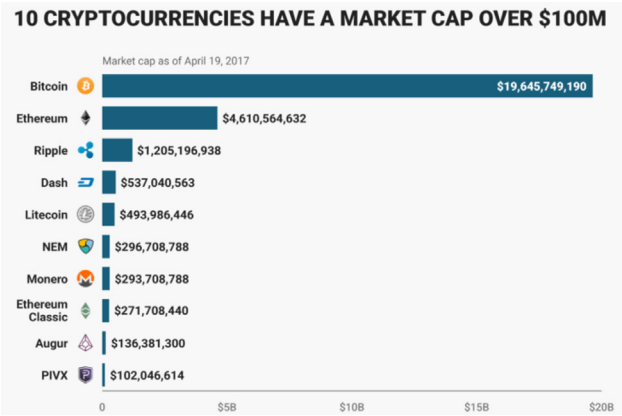
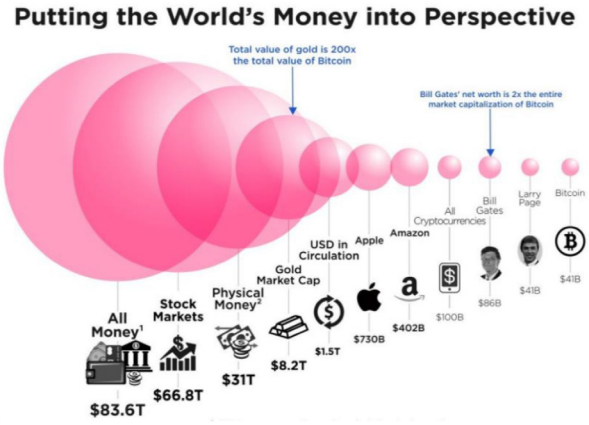


Fig 31b. Relative Size of Crypto currencies and Bitcoin[42]



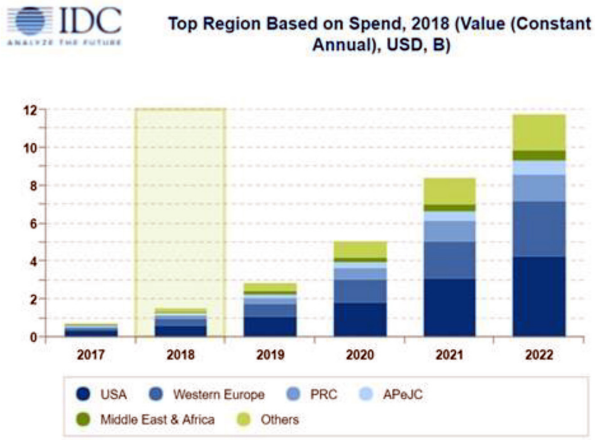
On the other hand, in order to have crypto currencies, we need the brick and the mortar: it is the Blockchain Technology. Blockchain systems, though dataminers[43] and datamining, was originally created to secure transactions on Bitcoin. Blockchain is the innovation not the digital currency. In simple word, Blockchain is "a chain of many blocks, in which each block consists of data which record the transaction the Blockchain is bound to"; in another it is similar to accounting ledger in a way, but more complex as it has multiple layers and levels. The public has access to the Blockchain but most of the times, operations are done by Dataminers. Dataminers will secure transactions in complex and unbreakable secret code and process (crypto technology), a reference to the famous movie the Imitation Game[44] in 2014 (The Allies broke the crypto-code of the Nazi war plan, by setting the first generation of algorithm code breaker and with the first of a computer system in its kind).

Today users cannot simply copy the data with login and password use only, Blockchain add code to the transferred data which is transferred to another trader, thus, a new block of data and code is then added. Originally, the purpose of Blockchain technology is tp create to ensure security of Bitcoin, but studies have shown that its value is not only beneficial to Bitcoin, but to all platforms using it for products authentication (to see whether a product is original or fabricated). This opens the new possibility of replacing bank verification by pure technology. In the future the Blockchain can be applied for stock exchange, it can be used for voting rights (annual general assembly of company for instance), for the dividends distribution and also can revolutionized the accounting and audit, if assisted by artificial intelligence, we may not need anymore accountants and auditors.

BLOCKCHAIN TECHNOLOGIES AND APPLICATIONS

According to the IDG Forecast Report, the United States looks like being the largest and biggest Blockchain in terms of investments. US Investments in that field will represent more than a third of worldwide spending (figure 32) from now until 2022. Europe will be the second largest region, followed by China and Asia/Pacific (excluding Japan and China). All the nine regions will cover the most of the spending and the growth between 2018-2022 is exponential, between 90-100% depending on the countries.

Fig 32. Top Spenders in Blockchain Technology[45]

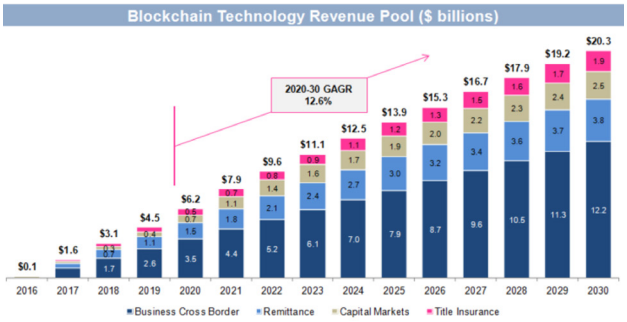


Source: IDC Worldwide Semiannual Blockchain Spending Guide, 2017H2

The financial sector will be the biggest driver of Blockchain with an estimated USD 552 Mn in 2018, mainly due by rapid adoption in the banking industry. The distribution and services sector come second with estimated USD 379 Mn, as the retail and services industries tend to modernize very rapidly, and explore financial business. And the trend influences the manufacturing and resources sector, with and estimated USD 334 Mn, as the sector will be need to improve manufacturing process and well as the supply chain management. Globally, the investments in Blockchain will come firstly and massively from the financial services sector (74.7% CAGR). followed by distribution and services (e.g. professional services is expected with 77.7% CAGR) and then manufacturing (78.8% CAGR).

Within the financial sector, Blockchain still needs to sort out many regulatory issues region by region, for instance concerning the regulatory compliance for cross-border payments and settlements, for custody and asset tracking (The Association of Banks in Cambodia worked and applied on a FATCA compliance law in 2017), and for international trade, about the pre and post transaction settlements. On the other hand, the distribution and services and manufacturing may rely on the financial services backbone to use and transfer the asset/goods/services, for cross-border transactions, payment and settlements.

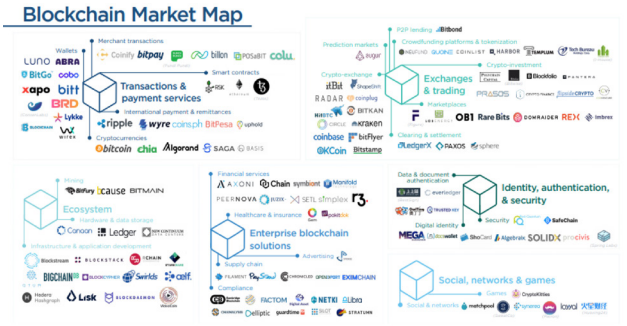
Fig 33. Contribution of Blockchain in Revenues[46]



Accoding to Next Automomous Report (fig.33), the Blockchain technology companies could experience a revenue pool of $6 billion by 2020 and $20 billion by 2030. These figures are based on the impact of digital ledger technology on payments: (1) Business Cross Border, (2) Remittance, as well as impact on (3) Capital Markets and (4) Title Insurance. Findings show that. We also expect the increasing adoption of digital currency to put downward pressure on of Blockchain revenue in 2020 and

In the period 2020-2030, Autonomous Research estimates a CAGR of 12.6% for the Blockchain technology market., from a gobal revenue of USD 4.5 Mn in 2018 to USD 20 Mn in 2030. The key drivers will be the business B2B crossborder, the remitatnce market and the capital markets. For instance, the Cross Border B2B will make up most of the revenue pool 56% of total in 2020 (USD 3.5 Bn) and 60% in 2030 (USD 12.2 Bn), whereas the remittance payments 24% in 2020 (USD 1.5 Bn) to 19% in 2030 (USD 3.8 Bn). And with downward pressure of the the nwecomers, the remaining revenues will be mainly captured by tre capitl maeket and insurance.

Fig 34. Blockchain Market Map[47]



Blockchain technology is developing at a rapid pace, and the table below, done by Pitchbook, gives us an overview of the complex the ecosystem (fig.34). The evolution of the technology is difficult to follow, with more than 135 Blockchain startups (who received funding from business angel investors and PEVC) identified by Pitchbook and categorized by these sub-sectors:

Transactions and Payment Services (This category contains startups whose primary use cases involve buying, selling or storing crypto-currencies)	Wallets (ex: ApplePay) Merchant Transactions (Coinify) Smart Contracts (Ethereum) International Payments and Remittances (Ripple) Cryptocurrencies
Exchanges and Trading (Crypto-exchanges are platforms for exchanging cryptocurrencies into other cryptocurrencies, fiat currencies or vice versa)	Prediction Markets (Augur) Clearing and Settlement Marketplaces P2P Lending Crowdfunding Platforms and Tokenization Crypto-Exchange, Crypto-Investment
Identity, Authentication and Security (An inherent characteristic of a Blockchain is the immutability of transaction records. Startups here use digital ledger software to verify the authenticity of data, as well as assets or documents, and use Blockchain identifiers to represent and/or authenticate tangible assets)	Data and Document Authentication Security Digital Identity Compliance RegTech
Enterprise Blockchain solutions (Startups in this category provide enterprise-level Blockchain solutions to entities operating in sectors such as financial services, healthcare, insurance, compliance, supply chain, and advertising)	Financial Services Supply Chain Healthcare and Insurance Compliance
Social, networks and games (In this category, startups leverage decentralized networks to enable social and networking platforms used for recruiting, classifieds, dating and loyalty programs, among other use cases)	Games (CryptoKitties in Thailand) Social and Networks
Ecosystem (This category includes startups furthering Blockchain technology via underlying infrastructure improvements and software development tools)	Mining Hardware and Data Storage Infrastructure and Application Development

CENTRAL BANK REGULATION IN CAMBODIA

One of the biggest risks surrounding is risk of insolvency (or bankruptcy) of fast growing Fintech company. Some companies are developing too rapidly and do not comply with the domestic commercial law (tax, licenses,) and or as disruptors do not want to comply with regulatory rules or ethics, or consumer protection laws. The other risk is risk of fraud or mis-selling, for instance the "Ponzi schemes" and pyramid schemes have too many times, been experienced in Cambodia, and the sudden emergence of new companies with no historical background will increases the likelihood of malpractice and fraud.

These risks are even more difficult to assess in the Blockchain sector, and they are not in the front end, and they can be localized anywhere in the world. And those Fintech can be localized in an easy going liberal jurisdiction, where participant s would not need to have a license or banking licenses. These platform being available anywhere thanks to high speed and secure internet, increase the risks of international fraud and make the management of dispute a big headache.

As a consequence, the regulator should the NBC should rapidly design the framework for the companies who will conduct theses line of business (tools, software, hardware, custodian, counterparties, …) and these business operators should obtain a type license which will define clearly the scope of their financial services (payment, collections, customer, solicitation, advisory, dealer trader, of distributing collective investment schemes) and their responsibilities, for the sake of consumer protection and general trust in the system.

CURRENT STATUS OF BLOCKCHAIN IN CAMBODIA

According to a new report released by the World Economic Forum[48] , the National Bank of Cambodia will soon deploy Blockchain Payment System. Cambodia, like few other countries in the world[49] , is aiming to be the first central bank in the world to utilize Blockchain technology. The NBC[50] has worked on pilot project of a distributed ledger technology since late 2017. The NBC aims to deploy full usage of Blockchain technology by the end of 2019 and many domestic banks may follow the National Bank of Cambodia for the first time adoption of such a technology.

The NBC said that Blockchain will definitely be incorporated into its national payment, and as said in the World Economic Forum (WEF), the National Bank of Cambodia sees Blockchain as resolving two key issues:

- "Nation's residents who are unbanked would benefit tremendously from a Blockchain-based system. Not only would it cut out bureaucracy, but it would integrate banking with mobile

devices seamlessly. The economy would be more fluid as a result, a net boom for the entire country".

- "The issue of efficiency: currently, the National Bank of Cambodia has a very fragmented domestic payment system. Private payment apps sometimes don't correspond to the central bank which causes confusion. By utilizing a Blockchain-based payment system, the National Bank of Cambodia hopes to unite these disparate apps to provide more efficient payment and settlement services.

The ambitious plan aims to deploy the Blockchain-based system in 2019 with 10 bank branches[51]. Currently, the pilot Project is called "Bakong"[52] is under testing by four banks (Acleda, FTB, Vattanac Bank and Wing). Bakong will be the first thai-khmer blockchain platform dedicated to peer-to-peer fund transfer services in Cambodia.

The other identified Blockchain projects are the following:

CCB – Wing has introduced an innovative cross-border payment with Blockchain technology in Cambodia. Cambodian Commercial Bank (CCB), a subsidiary of Siam Commercial Bank (SCB) and Wing (Cambodia), a licensed Specialized Bank, have signed a partnership to provide cross-border remittance services from anywhere in the world into Cambodia leveraging on Blockchain technology. The SCB will the backbone as the regional settlement hub.

ReNet Japan (Cambodia), is the subsidiary of ReNet Japan Group Inc, with the head office in Nagoya Japan. ReNet Japan develops various IT solutions for better livelihood and ecology in Japan and South East Asia. In Cambodia, the company focuses on better financial service in Cambodia through technology, by developing Mobility Finance solutions, for poor and rural household. They also merged with on Chamroeun Microfinance Plc.

BlocRice

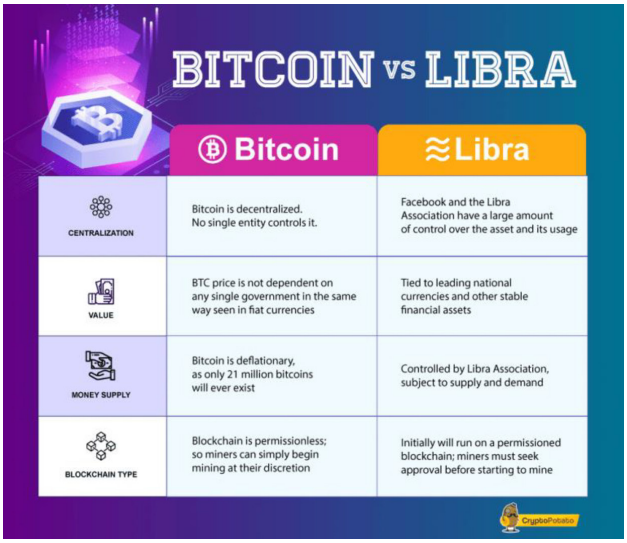
In a different field the BlocRice Blockchain is supply chain solution for Cambodian rice industry. Launched by Oxfam, BlocRice aims to use to provide it between rice growers (5,000 farms by 2022) and purchasers (Netherlands, Europe).The project manager quotes "The project aims to test Blockchain technology and its smart contracts, a digital 3-way contract farming arrangement between primary producer, Cambodian rice exporter and retailer in Europe, to improve farmers' livelihood and their supply conditions,". The application of Blockchain technology is clearly expected to enhance the rice supply chains, selling power of small-scale farmers with transparent and secure rice value chains, and some another platform will be soon deployed by giant Alibaba.

LIBRA ?

With the recent unveiled Facebook plans for a new cryptocurrency called Libra, the whole industry has experience a mini earthquake, and Cambodia will also be in the loop. Libra is backed by powerful companies including Visa, PayPal with partners such as eBay, Uber and Spotify, and will become an unavoidable universal platform for digital payment. But there is some difference with Bitcoin (fig 35), many experts, such as Brian Kelly said justly: "there are some crucial differences between Libra and a cryptocurrency like Bitcoin : Libra is creating a digital version of the U.S. dollar, yen, euro, but you still have all the characteristics of a fiat currency, it is a digital dollar, whereas the Bitcoin is digital gold[53]".

Facebook's new asset will significantly differ from Bitcoin or Ethereum, and the Libra association led by Facebook and partners might make us think that it will become a top global asset even more than the exiting cruptocurrencies. Libra will initially run on a permissioned Blockchain, which means miners must seek approval from Facebook before starting to mine (situation of monopoly, whereas Bitcoin is permissionless). Facebook is also expected to link its payment method with available ones such as eBay, Spotify, Uber, PayPal and Booking.com, and add incentives (lower fees than conventional banks). In one word, Libra can instantly targets a billion people out of the global unbanked population who own mobile phones, and another half a billion who already have Internet access.

Fig 35. Bitcoin vs. Libra[54]



What about Libra in Cambodia[55] ?

In Cambodia, only one quarter of the population has a bank account. What opportunities and threats can the digital currency pose for Cambodians? Mr Jojo Malolos, CEO of Cambodia's leading mobile banking services provider called Wing Money CEO of Wing Money, Jojo Malolos gave this comment: "it will take some time before we see [the] adoption of a scheme this huge. I think success will not be driven by the innovation and technology that is being brought forward. Success will be based on the ability of Libra to get the unbanked to adapt to this channel for their financial transactions. For decades now, the world tried to capitalize on the phenomenon that there are now more people with phones than bank accounts. The de-banking of the banking industry, rendering financial institutions obsolete in managing movement of funds from one person to another, to an enterprise, from an enterprise to enterprise, to another person, [has] not happened as envisioned"

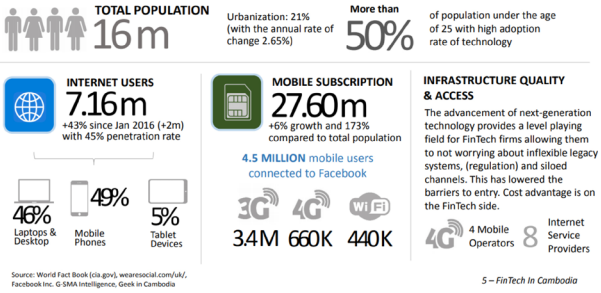
Mr Malolos also makes us notice that one in two Cambodians owns a Facebook account, and with a highly penetrated social population, there is potential and positive environment for leapfrogging solutions. And if Libra happens in Cambodia, He also foresees:

- A huge transformation with mobile financial services, with Fintech unlimited possibilities
- More efficiency in funds movement, settlement, real-time payments, merchant payments
- More productive and efficient companies which will create opportunities for more jobs, more successful businesses, more robust economy. Fintech companies will soar
- A great opportunity for microfinance in Cambodia through social media.
- Facebook can leverage the immense amount of data it possesses on its users and the communities connected to the local social network.
- An efficient tools for Financial inclusion as well

CONCLUSION
DISRUPTION FOR CAMBODIA

Fintech market in Cambodia is making a critical impact in the market and forecast to keep doing so in the future/ The Digital Map of Cambodia (fig 36) looks also favorable. Cambodia's finance minister H.E. Aun Pornmoniroth, in an interview on Southeast Asia Globe, states that the introduction of Fintech market has helped Cambodians in many new possibilities such as new services in financial sectors and also contributes to better financial inclusion by giving access of financial and credit markets within the country and with reduced financial transaction costs. Since the in rural areas where financial literacy is still low, Wing, for example; is very famous for their services since those people believe that it is easier to understand although it costs more than other money-transfer transactions, take ABA for instance.

Fig 36. Cambodia Digital Map[56]



Although Fintech in Cambodia (figure 35) seems to lag behind other counties in ASEAN, the country has a current ecosystem which can grow and show gradually its potential. Fintech has started to gain more trust and popularity, with the local financial institution which trying to catch more opportunities and ways to earn more customers and leading the market. Mr Jojo Malolos, CEO of Wing, also stated on KhmerTimes that "competition is always healthy for the market; he worries that those entering the market with the sole purpose of acquiring a market share could negatively disrupt the new ecosystem". The Cambodian disruption can also come from outsiders such as retailers like Starbucks[57] , present in Cambodia and Asia, and is forecast to be one of the biggest mobile payments in USA soon. GRAB, who with its strong presence in ASEAN, is currently applying for a banking or payment system license[58] in Singapore. And Amazon.com, is certainly preparing a riposte against Alibaba's Ant Financial, with potentially am "Bank of Amazon"[59] .

Blockchain technology is clearly the backbone of all the FinTech, the underlying of the entire ecosystem. Spread in all transactions, remittance and capital market, it can reduce the risk of fraud, of money laundering risk, of corruption. The only limit is that the system is relying on an "invisible" third parties, and to make it work, the technology has to be adopted, promoted and softly regulated by governments, central banks, The Blockchain is the core ecosystem of FIntech, and shall be supervised

by relevant regulators as SECC and the National Bank of Cambodia, in order to ensure trust, consumer protection while boosting world-class technology and new digital opportunities in Cambodia.

Besides blockchain, Cambodia has built its own ecosystem with names in the figure 35. As we know evolution of the industry is very rapid, and we might see some disappearing in the next couple of years, and new ones coming. But overall, this new ecosystem gives a real excuse and trigger for the traditional and conservative financial system in Cambodia to change, evolve or consolidate.

Fig 37. Cambodia's Fintech Ecosystem to Follow[60]

BIBLIOGRAPHY

BOOKS IN 2018

- The Wealthtech Book: The Fintech Handbook for Investors, Entrepreneurs and Finance Visionaries.by Susanne Chishti (Author), Thomas Puschmann (Author)
- The Insurtech Book, by Sabine L.B VanderLinden (Author), Shan M. Millie (Author), Nicole Anderson (Author), Susanne Chishti (Author)
- Inclusive Fintech: Blockchain, Cryptocurrency and ICO by David Kuo Chuen Lee, Linda Low (Author)
- The Truth Machine- The Blockchain and the Future of Everything, by Paul Vigna (Author), Michael J. Casey (Author)
- Advances in Financial Machine Learning, by Marcos Lopez de Prado (Author)
- Digital Human- The Fourth Revolution of Humanity Includes Everyone, by Chris Skinner (Author)
- Breaking Digital Gridlock, + Website- Improving Your Bank's Digital Future by Making Technology Changes Now, by John Best (Author), Brett King (Foreword)
- Emotional Banking- Fixing Culture, Leveraging FinTech, and Transforming Retail Banks into Brands. by Duena Blomstrom (Author)
- Blockchain and the Law- The Rule of Code, by Primavera De Filippi (Author), Professor Aaron Wright (Author)
- A Guide to Financial Regulation for Fintech Entrepreneurs, by Stefan Loesch (Author)
- Bank 4.0, by Brett King (Author)

ARTICLES / RESEARCH

- Nakamoto, 2008, "Bitcoin: A Peer-to-Peer Electronic Cash System."
- Narayanan et al., Bitcoin and Cryptocurrency Technologies. https://d28rh4a8wq0iu5.cloudfront.net/bitcointech/readings/princeton_bitcoin_book.pdf
- Marco Inasiti and Karim Lakhami "The Truth About Blockchain" HBR February 2017
- Raskin, Max and David Yermack, "Digital Currencies, Decentralized Ledgers, and the Future of Central Banking in Peter Conti-Brown and Rosa Lastra (eds.),
- Tania Ziegler, E.J. Reedy, Annie Le, Bryan Zhang, Randall S. Kroszner and Kieran Garvey, 2017, "2017 The Americas Alternative Finance Industry Report, Hitting Stride" https://www.jbs.cam.ac.uk/fileadmin/user_upload/research/centres/alternative-finance/downloads/2017-06-americas-alternative-finance-industry-report.pdf
- Adair Morse, 2015, "Peer-to-Peer Crowdfunding: Information and the Potential for Disruption in Consumer Lending," http://www.nber.org/papers/w20899.pdf
- Havrylchyk, Olena and Mariotto, Carlotta and Rahim, Talal-Ur- and Verdier, Marianne, What Drives the Expansion of the Peer-to-Peer Lending? (April 19, 2017). Available at SSRN: https://ssrn.com/abstract=2841316
- Younkin, Peter and Keyvan Kashkooli, 2016, "What Problems Does Crowdfunding Solve?" California Management Review on Crowdfunding

KPMG INSIGHT PAPERS

- The Future of Banking, Report 2019
- The Pulse of Fintech 2018
- https://home.kpmg/xx/en/home/insights/2019/01/the-pulse-of-fintech-2018-h2-infographics.html

- 2019 Fintech Predictions
- https://home.kpmg/xx/en/home/insights/2019/02/fintech-predictions-2019.html

KEY FINTECH CONTACTS IN CAMBODIA

A. Royal Government of Cambodia

Ministry of Economy and Finance (MEF)

60 Street 92, Phnom Penh

Website: www.mef.gov.kh

Ministry of Commerce (MoC)

No. 19-61, Confederation de la Russie Blvd (110), 12102 Phnom Penh

Website: www.moc.gov.kh

Ministry of Posts and Telecommunications (MPTC)

Corner Street 13 and 102, Sangkat Wat Phnom, Phnom Penh

Website: www.mptc.gov.kh

National Bank of Cambodia (NBC)

HE. Chea Serey, Director General

Mr Ouk Sarat, director of NBC's payment system department

B. Past Fintech Workshops in Cambodia

DFDL

Contact person: Mr. L-Martin DeSautels

No. 33, Oknha Chrun Youhak (St. 294), corner of St. 29, 12301 Phnom Penh

Tel: (855-23) 210-400

Fax: (855-23) 428-227

Email: cambodia@dfdl.com

Website: www.dfdl.com

=> "Considerations for Fintech Investments in Cambodia"

19 July 2019 | Phnom Penh- Workshop

MC Kooithong Lai, DFDL Senior Consultant

Nearirath Sreng, DFDL Senior Consultant

Vinay Ahuja, DFDL Partner and Regional Head of Banking and Finance Practice Group

KPMG

https://home.kpmg/xx/en/home/insights.html

No. 144, Tchecoslovaquie Blvd (169), Delano Business Center, 4th Floor, Sangkat Veal Vong, Khan 7 Makara, 12253 Phnom Penh

Tel: 023 216 899

Fax: 023 216 405

Email: kpmg@kpmg.comkh

Website: www.kpmg.com.kh

Deloitte

Mr Virek Chey, Mr Ly Vandy

Cybersecurity events and workshops in 2018

No. 66, Preah Monivong Blvd (93), Vattanac Capital Tower, Floor 8, Unit 8, Sangkat Wat Phnom, Khan Daun Penh, 12202 Phnom Penh

Tel: +855 23 963 777

Fax: +855 23 963 778

Email: khenquiries@deloitte.com

Website www.deloitte.com/kh

C. Chamber of Commerce

European Chamber of Commerce in Cambodia

ICT Working Group, Mr. Chris McCarthy

No. 33, Samdech Sothearos Blvd (3), corner of Preah Ang Makhak Vann (St. 178), 12206 Phnom Penh

Tel : 023 964 141

E-Mail: info@eurocham-cambodia.org

Website www.eurocham-cambodia.org

American Chamber of Commerce in Cambodia

Ms Tean Ly

No. 34, Samdech Sothearos Blvd (3), 12206 Phnom Penh. Tel 015 333 715

E-Mail: admin@amchamcambodia.net

Website: www.amchamcambodia.net

Chambre de Commerce Franco-Cambodgienne

CCI Cambodge / La French Tech

No. 33E2, Samdech Sothearos Blvd (3), Corner of Preah Ang Makhak Vann (St. 178), 12206 Phnom Penh

Tel and Fax 023 221 453

Mobile Phone 012 801 950

Email: ccfc@online.com.kh

www.ccfcambodge.org

D. FinTech Associations

Cambodia Fintech Association (launched 6.9.2018)

Eddie Lee, vice president

http://cambodiafintech.org/

Mekong Business Initiative (MBI)

Mr Khemara Ros

Mr Sambath Sak

https://mekongbiz.org/cambodia/

ICT FEDERATION CAMBODIA

Mr Steven Path

http://www.ictfederation.org/

E. Fintech Companies Contacts in Cambodia

BANHJI

Mr Sim Chankiriroth

https://banhji.com/

MORAKOT TECHNOLOGY

Mr Sophorth Khuon

https://www.morakot.it/

KOMCHEY

Mr Chansamrach Lem, managing director of the Cambodia Investors Club (CIC) and founder of Komchey

KARPRAK

http://www.karprak.com

BABYLOAN

Mrs. Cristina Alvarez

https://www.babyloan.org/

KIU

Mr Khemara Ros

https://www.kiuglobal.com

SPEAN LOAN

Yuta Nagano, Founder and CEO of Spean Luy

https://spean-kh.com/

PAYGO

Evgeniy Kagay, General Manager

https://paygo.com.kh/

TRUEMONEY

Mr Kong Mean, a managing director of TrueMoney Cambodia

https://www.truemoney.com.kh/

BONGLOY

Mr Chenda Pen

https://www.bongloy.com

EMONEY

Mr Vanndeth Phann

https://metfone.com.kh/en/emoney

SMARTLUY

Mr. Thomas Hundt, CEO at Smart Axiata

https://www.smart.com.kh/more/smartluy/

DARAPAY

Mr Ratha Phok, GM

2nd degree connection

https://www.darapay.com.kh/

ASIA WEI LUY

https://asiaweiluy.com/

PIPAY

Mr Tomas Pokorny

https://www.pipay.com/

WING

Mr. Jojo Malolos, CEO

https://www.wingmoney.com/en/

AMK

Mr. Borann Kea, CEO

Status is reachable

ENDNOTES

1 https://www.businessinsider.com/digital-payments-have-become-the-preferred-payment-method-2017-8

2 https://www.atmmarketplace.com/news/online-mobile-rule-in-aba-banking-preferences-survey/

3 https://www.axiaware.com/learning-center/blog/150-mobile-banking-vs-bank-branch-searches

4 https://thefinancialbrand.com/65628/digital-banking-consumer-trends/

5 https://www.bangkokpost.com/business/1419447/moodys-digital-tactics-to-cut-costs

6 https://thefinancialbrand.com/65628/digital-banking-consumer-trends/

7 ttps://www.thailand-business-news.com/banking/68086-thailands-increasing-mobile-internet-banking-payments-transactions-credit-positive-banks.html

8 http://edition.cnn.com/2014/07/02/business/is-a-cashless-society-on-the-cards/index.html

9 https://thefinancialbrand.com/65628/digital-banking-consumer-trends/

10 https://www.credit-suisse.com/corporate/en/articles/news-and-expertise/will-we-soon-live-in-a-cashless-society-201507.html

11 https://thefinancialbrand.com/65628/digital-banking-consumer-trends/

12

13 https://www.bain.com/insights/evolving-the-customer-experience-in-banking/

14 https://www.aitegroup.com/report/cross-border-money-transfers-2014-update

15 https://www.aitegroup.com/report/global-business-initiated-payments-volume-and-trends

16 https://www.aitegroup.com/report/global-business-initiated-payments-volume-and-trends

17 https://www.aitegroup.com/report/global-business-initiated-payments-volume-and-trends

18 https://medium.com/proofofcapital/remittance-market-primer-and-landscape-3213c2c81771

19 https://medium.com/proofofcapital/remittance-market-primer-and-landscape-3213c2c81771

20 https://medium.com/proofofcapital/remittance-market-primer-and-landscape-3213c2c81771

21 https://squareup.com/ca/guides/payment-gateway

22 http://centralveterinaryexport.com/credit-card-processing-companies/

23 https://money.cnn.com/infographic/technology/mobile-payment-comparison/index.html

24 http://Fintechnews.sg/12603/cambodia/Fintech-cambodia-startup-report-map-infographic/

25 http://Fintechnews.sg/12603/cambodia/Fintech-cambodia-startup-report-map-infographic/

26 https://www.linkedin.com/pulse/p2p-lending-banking-without-banks-gazi-yar-mohammed/

27 ttps://www.corporatecomplianceinsights.com/p2p-lending-risks-and-business-models/

28 https://onlineeconomy.hbs.org/submission/network-effects-in-peer-to-peer-lending-analysis-of-lending-clubs-model/

29 https://www.foxymonkey.com/zopa-review-investor/

30 https://www.crowdcube.com/explore/investor/crowdfunding-models-explained

31 https://www.kiva.org/

32 https://www.kickstarter.com/

33 https://www.indiegogo.com/

34 https://crowdsourcingweek.com/blog/top-10-usa-crowdfunding-platforms/

35 https://wefunder.com/

36 www.bimamobile.com

37 http://www.iac.org.kh/index.php/about-us/members#

38 http://insurancethoughtleadership.com/wp-content/uploads/2014/04/bg-h1.png

39 http://Fintechnews.sg/23449/insurtech/asia-100-insurtech-companies/

40 DFDL Workshop on Fintech 19.7.2019

41 https://www.businessinsider.com/cryptocurrencies-with-market-caps-of-100-million-or-more-2017-4

42 https://steemit.com/cryptocurrency/@forgotmypassword/cryptocurrency-usd35-trillion-dollar-capitalization-in-november-2019

43 https://www.techopedia.com/definition/1464/data-miner

44 https://en.wikipedia.org/wiki/The_Imitation_Game

45 https://www.idc.com/getdoc.jsp?containerId=prUS44150518

46 https://next.autonomous.com/insights/2030-projection-of-Blockchain-technology-market

47 https://medium.com/humble-ventures/Blockchain-ecosystem-explained-in-one-chart-68bdc5e18335

48 https://www.weforum.org/projects/central-banks-age-of-blockchain

49 Eastern Caribbean, Sweden, the Bahamas and Cambodia, https://www.weforum.org/agenda/2019/04/blockchain-distrubuted-ledger-technology-central-banks-10-ways-research/

50 https://medium.com/humble-ventures/Blockchain-ecosystem-explained-in-one-chart-68bdc5e18335

51 https://beincrypto.com/national-bank-of-cambodia-will-deploy-Blockchain-payment-system-this-year/

52 https://www.facebook.com/bakongsystem/

53 ttps://www.cnbc.com/2019/06/19/Bitcoins-digital-gold-but-facebooks-libra-is-the-digital-dollar.html

https://www.ultragamerz.com/btc-vs-libra-Bitcoin-is-digital-gold-store-of-value-but-facebooks-libra-is-just-digital-dollar-not-really-decentralized/

54 https://cryptopotato.com/libra-vs-Bitcoin-what-is-facebooks-libra-coin-why-is-it-different-from-Bitcoin/

55 http://geeksincambodia.com/facebooks-libra-whats-in-store-for-cambodia/

56 https://cryptopotato.com/libra-vs-Bitcoin-what-is-facebooks-libra-coin-why-is-it-different-from-Bitcoin/

57 https://www.zdnet.com/article/why-starbucks-remains-the-mobile-payment-app-leader-ahead-of-apple-google-samsung/

58 https://www.cnbc.com/2019/06/12/grab-eyes-singapore-banking-license-as-regulator-studies-virtual-banks.html

59 http://fintechnews.ch/fintech/bank-of-amazon-is-disrupting-the-financial-landscape/21954/

60 https://cryptopotato.com/libra-vs-Bitcoin-what-is-facebooks-libra-coin-why-is-it-different-from-Bitcoin/