FINANCE EVOLUTION THROUGH AI AND NEW EMERGING TECHNOLOGIES

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ABSTRACT: *Buisnesses and services are trying to center themselves on customers at a very large scale, through this process development in automation and technology follows, increasing evolution of robotics and AI science (artificial intelligence). One side of such technology is understanding the customer while on the other side the banking industry is what to do in the following developments. The new trend is to keep the customer engaged in an open banking system, thus it is important for banks to know the wants of customers and how they act in their financial activities. In activities such as trading further developments are being made to increase trading capability between assets and optimisation of buyer portfolios. This is an analytical activity and requires deep knowledge of markets, prices and investing strategies. There is the debate on wether the knowledge needed to undergo these financial processses is required to be learned by people or could it maybe be in the hand of AI which could offer aid to people. There is greater and greater automation demand in order to acomplish the risk and compliance strategies. This domain is an interconnected hub betwween analytics, data, regulations and supervision. In other words, banks must take perspective into improving services through the use of technology and automated processes to improve integration in today's rapid changing environment and adaptation of services to comply with an AI system for cost effectiveness and user experience simplification.*

KEY WORDS: *banking, AI, finance.*

JEL CLASSIFICATIONS: *G20, G24.*

1. INTRODUCTION

An important factor in the finance industry is the speed of transactions. As the speed of transactions is reduced with time, the speed of transactions will be less important. With little or no time between transactions, investors will analyze the same type of actualized data in the future. Otherwise, the large companies will be able to looc inside the enterprise and get valuable information about the health and future of the

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organization. The value of real-time acatualized data will level the information of the markets, increasing transparency.

Another ongoing development in banking is represented by the internet banking AI, banking through mobile phone apps and banking virtual assistants developped by adapting financial institutions.

2. PREMISES OF AN EMERGENT CASHLESS SOCIETY

We can observe the development of cash in the country of China. Half a decade ago, everything was generally being transacted with cash. Four years later no cash solutions have moved in cities favouring systems lice AliPay and WeChat Pay. People selling on the street were also using these payment systems. The rate of change in the payment habits of people rapidly change. Not all regions have undergone this change of financial habits but especially big cities which have chosen the 2 payment methods.

The company Alipay was constructed in 2001 and in the year 2013 became bigger than Paypal as the world's largest payment system. It owns more than half of the payment market in mainland China.

WeChat Pay is an addition to the social media app, with more than a billion users. The app can be used for almost anything in China. It has developped digital wallets that can exchange money between people but also can link the users to bank accounts. WeChat pay does not have instantaneous transfers, so users choose to use one or the other.

These payment systems have become verry popular ecause of rapid informational growth, although we must aknowledge the speed of these changes taking place and the rapid adaptation of the customers to such engaging systems of money marketplace solutions. The financial companies in China can be considered as competition to Visa and Mastercard.

A negative aspect of these cashless systems leaves the poor societies secluded close in their environment. Businesses and comerce that will not accept cash as payment will empover even more the low income segment. Using phisical cash does add a cost of manipulation in most all industries, especially banking.

Some states have increased their principles for digitalization and slowly want to use purely digital money. In times of pandemics, digital cash is even more favoured in the detriment of phisical cash.

Today there are even charities that accept the digital currency in favour of phisical cash, using contactelss cards, bank accounts or other types of digital payment systems. This can lead to cash being directed to wrong persons and abuse of wrong amounts being transferred. How long will it take before street beggars will accept digital currency as donations? Technology is slowly changing every aspect of our lives but hopefully for the better. Every change in the financial segment brings new opportunity for businesses but also new demands in terms of security and supervision. People will become comfortable with non anonimous transactions that are kept in registers which will bring a greater degree of control over customers and their transactions.

The two worlds of phisical and digital money will more likely be combined and used as a hybrid model for use in the future.

Banks will probably need to adopt the model in order for adaptation to the rapid evolution. They will have to serve phisical money customers ad digital money customers. These models will function in banks but also in other financial institutions. Even in the past money has gone from phisical to more non-phisical for example the phisical handling of gold or silver and made into coins. Today the monetary system is the relationship between customers of debt or credit, a relationship that is today intermediated by banks.

3. DATA AND ANALYTICS IN BANKING

Analytics is widely used in the banking as an enabler and supervisor to many domains of such financial organisations. Every section of analytics is in it's self a comprehensive system which is separated in different sectors (Aldridge & Avellaneda, 2021).

The center of analytics in banking is represented by the management and by the operation of finances. The Office of Finance is the room where all the big decisions are being made. It is the centre of bank management where the rules for the organnisation are constructed. The unambiguous understanding of departments profitability, the channels and products brings the object of profitability. Other parts of the industry are considered to be the customers insight issues, and serveral types of risk as management, operational risk, market risk. All these domains require deep understanding for the right decisions to be made. The differentiating factor between all of this knowledge will be the new form of data and different sources of data from previously unconsidered areas. The new data dould be found on different devices and new changing formats. All the new data could be in a few different forms. The internal data which is present in big organizations will help them be in an possible advantage. Another chanel would be new forms of data that have not yet been interpreted. The historically data can be another form of facts for analysis. The new types of data that can also be collected to provide a better insight on the financial sectors. If the industry will concentrate on the last type of data that will yet be discovered, it may be related to talent management or the science of behavioural analysis of employees who make decisions.

If these domains of data analysis will be done by inteligent algorythms, where will there still be a place for the human intervetion and value that can be added by real people? We must not forget that humans will be the creator of such technology and should not be put aside in the favour of machines, though a lot of jobs will be cut with the creation of such alghorytms. Advanced AI solutions would find solutions to advanced AI problems but humanity would need advanced AI solutions to advanced human problems. In a financial context it could be possible to replace human interaction. Having the large amount of data daily exchanged in the banking sectors, it could be possible to organize AI systems that can make decisions based on all the data that is present in the market. The banks are completely reliant on their databases. Management of the industry takes a new perspective on how to evolve based on the aquired data. The organisations see AI technology as the future but also is it a difficult task to integrate it

in the actual services. The measurment of progress in this digitalization is not easy and is also based on the IT sector.

For many, thise technology is hard to comprehend and cannot be put into use because of shortage of IT specialists. The technology specialists might be confused by the banking rules and regulations and all other complexities. Otherwise the future may bring a convergence between an interconnection between the knowledge of both sectors. The banking industry does not convey the complexity of other sectors. If this will happen between the work market and future advancement, people who will hold such skills of adaptation will be able to get a benefit on the pay check.

There will always be the question if bankers will become technologists or will the technologists have a easier time becoming bankers? There will be a more translucent migration of skills over time. Although they are separate sectors, they will entertwine deeply in the future of digitalization. Specialization in banking will be of a great importance and those who will learn technical skills may be able to choose banking as a specialty.General understanding of the sectors will also be important.

In the future it will be adaptation who saves people in order to not get replaced by AI at their jobs. Machine learning and AI may be infused in every system in the future. People should be aware of changes in their industry in order to be prepared for the future. AI in banking is going to happen slowly and those who partake in this journey should view this perspective as a highly probability. As there was the period in time where industrialization replaced many peoples jobs with production machines, so there may be a time where automated financial services can replace human interaction with customers through AI systems.

4. TECHNOLOGY REFLECTED ON THE CUSTOMERS

The digital banks that will function in the future must be concerned about the customers past habits, how they do banking in the present and what will the future bring in finance. There is a customer perspective approach in the banking industry which can anticipate the next needs of the customers. This is a method of finding out the bank's value in it's customer's eyes. The customer centric approach can be further enlarged in order to make it correspond and lead to an AI system that can replace the existing paradigm of banking (Arslanian & Fischer, 2019).

In order to reflect on the customer's past, the financial institutions must take a look at what services customers actually use and actually buy. Also the banks must collect the data about the number of interactions customers have with the bank and try to prospect them. Banks need to see which systems interest the customer online as for example investment systems or maybe loan systems that he can access. Another way to investigate the past of the customer represents he's responses to past campaigns that can be positive or negative. And last and not least, there must be a pattern on how customers respond to certain applications and password changes.

To understand the customer's present, there must be a big interest in the customers needs in regard to their stage in life. There must also be an interest in the bank-customer relationship and what the bank can do to improve it and agree on it's importance. And last but not least banks should find out the context in which the

relationship with it's customers takes place in if retail banking is concerned or investment services.

A glimpse of the customers future can be found by analyzing the customer's financial prospects and behaviours, trhough a rigurous research done by bankers. The ambitions and standards of living of the customers can be found out by bankers. Another thing banks can do is try to consider if their products are targeted at the right people, or maybe they need to rethink the strategies. It is very important that banks should know what interests the customers are pursuing. The ethical and moral standpoint views of the banks must align with those of the customers in order to build more credibility and ease of use for the services.

All the databases of information, the complexity of products and the sense to act very fast has reached a point where humans find it hard to intervene. Because of this there will be advanced algoryhms and AI sistems that can recognize behaviours in order to build an adapting financial service that will be personalized to each customer depending on their needs. AI could make an organized sense of all the financial data that is currently available and it could also provide the usefull information through it's priority and the context to which it is being analized. Another benefit could be the increased personalization of data that could be offered in real time. These systems can be used to identify which chanel is preffered and how to allign channels to customers and also recognize their relationships. AI systems could also feel when customers tend to leave financial systems and go on using another open banking solution.

The diverse information that exists in the financial sector and the need for this information to be exposed in different ways to different customers and also to be able to do it in large numbers can lead to intelligent AI systems that would not require human intervention. In order to provide better strategies, AI systems will identify the opportunities in terms of customers, it can improve their engagement in the banking services and can appreciate their time value by organizing tasks according to their needs. Banking services can be constructed in accordance to the customers lifes habits.

5. LEVELS OF AI IN FINANCIAL DATA

The analytics of data is the method by which the insights reffering data are obtained. By doing analytics, we can find out the true value of data. We can observe a pattern in the hierarchy of analtics that will be described in the following lines.

The descriptive analytics reaches to signal what has been done in the past and what is happening in the present. In the banking industry this may be a product or service or part of a bank that has functioned during a set period of time. The desriptive analytics can also be reffered as the "business intelligence" or "management information". In Fig. 1 we try to represent the pyramid of analytics to better try to understand how AI will be a game changer in many industries, including the financial sectors.
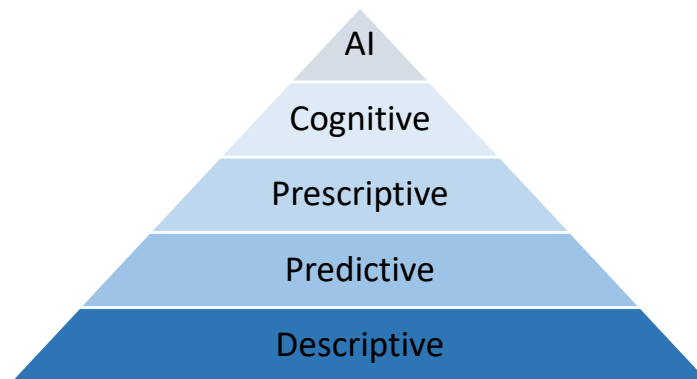
Figure 1. Pyramid of analytic solutions

The predictive analytics is the kind that tries to say what will happen in the future, based on statistics and probabilities. We can say as an example how a bank branch will perform in order to enable a bank to take actions for correcting situations.

Prescriptive analytics is the kind that shows what wll happen and also prescribes a solution to that problem based on some strict rules or algorythm in order to facilitate a course of action. This type of analytics presents the best next action that can be taken in a specific situation. As an example it can be what action is needed next in order to close a contract.

Cognitive analytics gives technology the ability to learn from incoming data and lets this process aid humans in making the right decision based on the collected data. This however does not give it full control of making decisions, but it is as a help to people. The cognitive analytics obtains data through visual recognition, speech recognition, computing algorythms that replicate brain actvities through technology.

The true AI system will be able to make decisions without human inervention compared to cognitive analytics where human intervention is still needed. Cognitive computations are being already used in many sectors and could lead to automated systems in order to serve large populated areas and where shortage of job applicants is active. In some time, the cognitive analytics will take a place in the banking solutions for efficiently organizing financial activities because everything a person can recognize and compute with his brain can be computed by rules and algorythms through technology and at a much higher speed if done correctly.

6. BANKING OF THE FUTURE

In the future banks, their appearance will change and also their functioning habits with various degrees of automation like chatbots, speech recognition and cognitive technology. Keeping their brand identity but revising their phisical astpect will be a challenge to banks of the future. Banks will support changes the way shops have been replaced with showrooms which give customers the ability to try products and services through a new way because of the intangible products and services. The main attribution of banks will be to manage financial data and digital assets.

Banks will be constricted to digitalization for the masses while still having some sort of street visibility. In the future ATM's may be able to have a lot more functions that they have today, reaching to the realm of AI. This will require banks to finance alot of new equipment and customers to learn how to use new technology the same as supermarket self service cash registers or washing your car yourself at the carwash.

Investment banking will also undergo changes that push services towards automation and robotic functioning. The human will have to work side by side with technology assisted complex software. People will not get all the tasks, only those that can't be handled by an automated system, putting more pressure in the working environment.

The financial services and institutions will change and in the same way their leaders and even their employees. The potential evolution of employees can be a new perspective for efficient management. The banker of the future will work side by side with AI which will be taking a big part in it's tasks. We can't say when all this will happen but let's consider that AI will make human's life alot easier and not harder.

7. CONCLUSIONS

The progress of technology brings questions about which systems to be adopted by financial services. Although we can predict a couple of directions that can be present in the future of banking. The banks can build their own capable systems for a new digitalized version of services. This can be hard if the original system builders leave the business or another contracter was hired for the job because of externalization of services.

One way for banks to go on an automated journey is to buy the technology from another business with a history in such endeavours. This can be a way that is approved by internal management but can result in a dependency issue to the developer. The bank may be in a somewhat locked relationship with the developer which will be important for the growth of the bank.

A partnership with a technology company can also provide the necessary means for digitalization. There can be a problem when a bank decides to change the partner if it is required. Partnerships can start small and can end with an aquisition by the bigger company.

All the advancements in technology makes banks in the position to take very hard and long run decisions. Through analytics banks can emerge with technologies such as blockchain and AI. Even if the future is uncertain, steps will be made to reach a more automated and efficient service.

It could be a challenge to not get confused by these new emerging technologies. Fintech companies are trying to find out how to incorporate more blockchain services. Not knowing about such technology can be a sign that an open mind must be held in financial activities because of all new tech development. There will be this new perspective in finance to adapt activities to AI. This will happen in other services as well and are already happening around the globe. People will learn new things about their own industries and will achieve even more.

The leaders of financial institutions will invest more in the training of employees for the use of new technology. It is also as important for the leaders themselves to be adaptable so they can spot opportunities in due time.

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