**The Power of Data Analytics in Banking Industry**

Introduction to Analytics - Spring 2019

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**Group 2**

Introduction

Advanced analytical technology and innovative tools is changing the market and players. The rising of emerging business modes and roles in different areas at workplace is evolving industries ranking highest on analytics maturity including energy, materials, agriculture, criminal justice, medical and transportation. The superior performance in organizations are reforming the business’ goals and strategies from traditional methods to more analytical and data driven business operational ways. Banking, with a long period of history in leveraging, storing and handling clients’ data, a massive user base and a profound influence to the society and individuals, starts from the strongest position.

This paper focus on the industry analysis of how big data analytics has changed banking sector and what specific place we would like to choose in this industry based on different perspectives. We did some initial research within this industry from past to current era and aims at clarifying three parts related to data analytics and the study of banking industry. Firstly, the evolutionary insight is provided in this essay in order to demonstrate the brief history and relationship between data analysis and banking system. Follows by the introduction of disrupted substitutes in the market and an overview of future trend for changing banking sector. Then, the concentration of part two is to present the concept of organization roles within this industry, so, four mainly roles will be discussed. And we illustrate findings of the current demand for data analytics supported by data and cases. Finally, we discussed some interested and ideal career roles in banking industry to provide some aspiring ideas. On the other hand, the concern of this industry’s status quo, ethical issues and the weaknesses of specific positions in the field of data analytics are discussed in the last part.

**PART I. Findings About Banking Industry**

1.1 The Evolution of Data Analytics in Banking

Data analysis has been used in Banking industry for a long history, it evolved most part of the banking system. It can be mainly included in two ways improving customer services, internal controls and risk management.

*Improve Customer Services*

The most important part of the data analysis is using to improve customer services, because, digging in the deep, banking is a kind of organization that offers services to the public. Generally, every service provided in banks will be record in data set like customer information, loan information, financial transaction and credit or debit details. These four data sets are closely related to our daily life. Even though the services provided by the ATM, where everything is done by machine, will be translated into data and be used to analyze. According to Srivastava, Singh, Tanwar and Tyagy, customer information will be segmented in particular ways, so that it can be used to learn what each group is looking for. So that banks can give better services to customers. For example, people in our ages really hate unknown sales phone call, however, older group of people may trust banks more and they are more likely to buy the product banks provided. It will greatly improve customer experiences by analyzing the data.

*Internal Controls and Risk Management*

The most parts of the data analysis are used in risk management. It is because this area is data analysis good at. According to Zaidi, “The corporate Investment Group is responsible for calculating the probability of default on 9.5 million mortgages which helped Bank of America forecast losses arising from loan defaults.” And “The bank was also able to increase its efficiency through reduction in loan default calculation from 96 hours to just 4 hours.” Both risks management and efficiency are improved by data analysis. Besides risk management, data analysis can be used to prediction. This activity needs large amount of data sets, so big data analysis is required technical reserve.  Srivastava, Singh, Tanwar and Tyagy believe that past data patterns can be used to predict their businesses future. Not only in money but also in labor and time allocation. What’s more, it can be also used to study the economic for banks manage the money and are more sensitive with the economic.

1.2 Big Data Disruption in Banking

Even though banking industry walks in the front row of big data, it still disrupted by online finance, for example, pal pay and Alipay. These internet companies really good at programing and data analysis. If you have experience shopping in amazon, you can easily get many push services from it. These companies combine online shopping and payment making it a better experience on online shopping which really influence the traditional banking.

1.3 Future Data Analytics Trends for Changing Banking

As customer expectations change and regulatory priorities evolve, many of today’s leading banks are investing in new data technology solutions that have the potential to deliver significant cost savings, improve customer service, and help them gain or retain a competitive advantage.

Big data can increase the transparency of the market, which allows financial institutions to rationally deploy. Clients' fund can be allocated to diversified areas, with relevant market trends taken into consideration in order to reduce overall investment risk and to increase overall investment return. The future development of big data and artificial intelligence will also have an impact on the bank's matching mechanism. Banks can quickly analyze consumers with big data analytics and tailored to their own circumstances to match the customer's investment products, even with automatic matching. The automatic matching mechanism can greatly reduce labor costs and financial costs.

In addition, the development of big data will make loan decisions more rapid in the future, making the loan process more concise. Big data can analyze the borrower's reputation information and repayment ability from multiple perspectives. The entire loan process can be simplified to minutes or even seconds, which also increases the loan opportunities of each borrower and is also important for future economic developmen**t.**

**PART II. Insights into Data Analytics Within Banking Sector**

2.1 Organizational Roles Associated with Data Analytics

Due to the special job functions and customer needs of the banking industry, there are some special data analysts in the banking industry.

**Fraud Prevention Analyst**

The analyst mainly analyzes the customer's account information, purchase records, equipment, location and business information to detect whether the customer has abnormal spending. Through special calculation methods, the bank can reasonably help customers avoid some fraud risks and eliminate abnormal expenses that customers may have.

**Credit Risk Analyst**

Analysis based on factors such as the customer's credit history and repayment ability can enable the bank to reduce the possibility of default, and at the same time enable the borrower to get the loan in time.

**Anti-Money Laundering (AML)**

Data analysis can play a major role in combating terrorism around the world by organizing the flow of funds to terrorist organizations or criminal organizations. AML's main job function is to collect appropriate information to perform regulatory functions, and to refine the analysis through data analysis tools, avoiding money laundering and other behavior from the source.

**Customer Service Analytics**

With the development of big data, the transparency of the market is getting better. Choosing the right investment products based on customer needs and capabilities. Optimizing the investment process based on data analysis, and rationally reducing the risk of investment is the main job function of this type of data analyst.

2.2 The Current Demand for Data Analytics Talent

Banking is getting branch-less, contemporary and digital at a very fast pace. As banks compete to gain competitive advantage, the need for managing big data and analytics becomes more relevant. In this data driven world, data analytics has become vital in the decision-making processes in the Banking and Financial Services Industry. In Investment banking, volume as well as the velocity of data has become very important factors. Big Data Analytics comes into picture in cases like this when the sheer volume and size of the data is beyond the capability of traditional databases to collect.

Today, data analytics practices have made the monitoring and evaluation of vast amounts of client data much simpler. Investments in Big Data analytics in banking sector totaled $20.8 billion in 2016, according to the IDC Semiannual Big Data and Analytics Spending Guide of 2016. This makes the domain one of the dominant consumers of Big Data services and an ever-hungry market for Big Data architects, solutions and bespoke tools. Within this wealth of investments, the allocation of funds mostly targeted the customer support, risk assessment, decision-making support and researching for new profit opportunities along with investing in new markets. The trend is growing and in 2017 these numbers became only bigger. The amount of data generated each second will grow 700% by 2020, according to GDC prognosis. The financial and banking data will be one of the cornerstones of this Big Data flood, and being able to process it means being competitive among the banks and financial institutions.

**PART III. The Insight of Working at Banking Industry**

3.1 Ideal Career Roles and Inspiring Positions in Banking

The ideal job is to combine finance with data analysis and play a role in predicting big data and trends.

*Specific role: Domain business analyst.*

A Business Analyst in Banking generally researches and analyzes the macro-economic and micro-economic/financial data, gathers financial information along with company fundamentals in order to make business, sector and industry recommendations to the organization. They may also involve in the smooth implementation of changes/transformations resulting out of their recommendations.

Because we understand the finance and investing better. And we have good communication skills and we need to write and speak clearly, easily communicating complex ideas. And we have the attitude of critical thinking by looking at the numbers, trends, and data, then coming to new conclusions based on the findings. I'm passionate about forecasting and analyzing decisions.

3.2 Concerns and Realities in Banking Industry Roles

Even though the technology and big data tools are changing the banking industry’s operation modes and improving the satisfaction standard for clients in various ways, such as customer services, credit risk management, fraud prevention and internal control. The majority of banks were still struggled to keep up with the rapidly changing market and innovative business mode in the current era. They are facing many challenges both from traditional setting and digitally operation ways. Customer loyalty is declining with the increasing of fintech class and commerce platforms. This is not an ideal industry for us to choose in order to look for a growing long-term career path.

As early as 2016, there were 70% of staffs in the banking sectors do not feel the process is able to quickly adapt to change and 46% of consumers already have alternative accounts from Fintech provider (Olynick, 2016). The switching cost from traditional banks to fintech platforms is extremely low and banks have lower bargaining power than potential clients and the threat of substitute products and platforms are breaking the market within a short period of time.

Data collection systems and processes used in the banking industry has a strong and wide-range impact on people’s private data. It is hard for banks to keep customer trust in big data age and the using of big data creates a set of ethical responsibilities, such as credit risk regulatory problems, money laundering prevention and financial customer services when the data relates to personal details, account information, social relationship, income level, purchasing habits, lifestyles or health status. The level of precise of these data and high proportional risk may results in financial fraud, identity theft and other crimes without strict regulation mechanisms.

Positions in the risk control or customer services functional areas are basically responsible for routinely work with high risks on a daily basis with relatively lower income level compared to other financial or other industries. It is more difficult to manage work life balance properly if we started to seek for career in this industry.

For more technical oriented and higher paid roles like data scientists in the banking industry have to undertake higher risk level, intensive working hours and overloads tasks on condition that they meet the extremely high standard requirements: Ph.D or Master degree, solid economics or finance knowledge, years of relevant working experiences at top tier companies in the industry, strong technical skills like machine learning, programming experiences, modelling capability and excellent soft skills, such as written and verbal communication skills, strong quantitative and problem solving skills and so on.

Conclusion

Based on our research and finding, we found big data analytics is being implemented across various spheres of banking sector, and it is playing a more pivotal role to be the innovator of delivering better services to clients. From the internal perspective of the organization, the digital evolution by adopting data analytical methods is important to help the entire active and passive security banking system to maintain professional operations. As for the external aspect, customers’ trust and confidence for both traditional banks or digital age banking are the essential factors to the growing of the banking business.

New data technology solutions deliver more efficient and cost saving strategies owing to data analysis technics. No matter in which roles, fraud prevention, credit risk, anti-money laundering, customer services or other financial services. The growing demand of technical supports within the industry requires more solutions to gain competitive market strength. Positions as data scientists, business analysts, BI analysts or client managers in different sectors is sharing the same goal in the industry. Ethical issues and future improvements of analysis quality and safety should be concerned by every member within the organizations.

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