BAIT3013 BUSINESS INTELLIGENCE

Assignment

Academic Year 2020/2021

Semester 1 (May 2020)

Student Name	Student ID	Contribution (%)	Signature	Report Marks (80%)	Presentation (20%)	Total Marks (100%)
Lee Jun Xian	20WMR08873	25%		59	17	76
Kong Mun Jun	20WMR08867	25%		59	18	77
Lim Chia Chung	20WMR08877	25%		59	16	75
Lim Yih Feng	20WMR08880	25%		59	16	75
Total		**100%**				

Programme: RDS - Bachelor of Computer Science (Honours) in Data Science Y2S1

Tutorial Group: Group 3

Group Name: Maybank

Date of Submission: 31st August 2020

Lecturer: Ts. Dr. Yu Yong Poh

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BAIT3013 Business Intelligence - Group Assignment Rubrics

Student Names:	(1) Lim Yih Feng	Tutorial Group:	G3
	(2) Lim Chia Chung	Programme:	RDS 2
	(3) Kong Mun Jun	Mark:	/80
	(4) Lee Jun Xian		
	(5)		

Section	Criteria / Area	Excellent		Good		Average		Poor		Very Poor		Score
Report	Q1	Very good elaboration on introducing background of the chosen organization. Very good elaboration on the drivers	(18-20m)	Good elaboration on introducing background of the chosen organization. Good elaboration on the drivers	(15-17m)	Generally show an attempt on introducing background of the chosen organization. Generally elaborate the drivers	(12-14m)	Little attempt on introducing background of the chosen organization. Little elaboration on the drivers	(6-11m)	No attempt on introducing background of the chosen organization. No elaboration on the drivers	(0-5m)	13
	Q2	Very good elaboration on various components of BI implemented In the company	(18-20m)	Good elaboration on various components of BI implemented In the company	(15-17m)	Generally show an attempt on elaborating on various components of BI implemented In the company	(12-14m)	Little attempt on elaborating the various components of BI implemented in the company	(6-11m)	No attempt on elaborating the various components of BI implemented In the company	(0-5m)	14
	Q3	Very good explanation and justification on the operational and tactical advantages	(18-20m)	Good explanation and justification on the operational and tactical advantages	(15-17m)	Generally show an attempt on explaining and justifying on the operational and tactical advantages	(12-14m)	Little attempt on explaining and justifying on the operational and tactical advantages	(6-11m)	No attempt on explaining and justifying on the operational and tactical advantages	(0-5m)	15
	Q4	Very good justification and elaboration on the csf	(18-20m)	Good justification and elaboration on the csf	(15-17m)	Generally show an attempt on justifying and elaborating on the csf	(12-14m)	Little attempt on justifying and elaborating on the csf	(6-11m)	No attempt on justifying and elaborating on the csf	(0-5m)	17
TOTAL (80 marks)		59										
Comments:												

BAIT3013 Business Intelligence - Individual Presentation Rubric

Programme:	RDS2	Student Names:	(1) Lee Jun Xian	(2) Kong Mun Jun	(3) Lim Chia Chung	(4) Lim Yih Feng	(5)
Group:	3						

Section	Criteria/Area	Very Poor	Rating: 1-Very Poor, 2-Poor, 3-Average, 4-Good, 5-Excellent					Excellent
Oral Presentation	Ability to deliver ideas clearly, effectively and confidently.	Delivery of ideas is vague, unorganised and without confidence.	4	4	4	4	4	Able to present ideas very clearly, organized, attractively and confidently.
	Ability to answer the question and provides justification.	Unable to answer the question & not understanding	5	5	4	4	4	Able to answer the all questions & provides excellent understanding & justification.
	Presentation skill	Inaudible,no eye contact, speaker seemed uninterested and used monotone	4	5	4	4	4	Poised, clear articulation; proper volume; steady rate; good posture and eye contact; enthusiasm;
	Able to use of visual aids and tools for effective presentation	Not prepare presentation slides and no visual aids used	4	4	4	4	4	Able to of visual aids or tools appropriately and attractively.
TOTAL (20 marks)			17/20	18/20	16/20	16/20	/20	
Comments:								

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Introduction

This case study is conducted by Lee Jun Xian, Kong Mun Jun, Lim Chia Chung and Lim Yih Feng. The company that we choose to conduct this case study is Maybank. Maybank is one of biggest bank in Malaysia and also is the largest company by market capitalization on the Malaysian Bourse (Bursa Malaysia). It is ranked first among listed Malaysian companies and among the top 500 companies in the Forbes Global 2000 leading companies of the world. The following questions are answered based on the assumption we made against the company and also some facts based on the case studies they have published. The organization chart is included under the appendix section.

1. What were the drivers / cause that the company using BI solution?

1.1 The evolution of Decision Support System - Yih Feng

Decision Support System is the first information system that **primarily helps the business making decisions depending on the various and critical situation** that benefits the management, company planning. As the big data and data warehouse start trending in the industry, many of the business starts implementing a BI solution to analyzing their data.BI solutions provide several services such as **descriptive analytics, predictive analytics, prescriptive analytics, streaming analytics** and etc.

1.2 Strong force impact from AI in the industry - Yih Feng

In the era of AI is getting smarter and more powerful, AI can **help the company democratize and organize data efficiently** that could produce info accurately for the user to understand. The core application of and techniques of **AI has started to integrate with BI** is the beginning of a new generation in the industry; it **helps us analyze data and give a recommendation** based on the data given. Maybank is using this advantage to predict the trend and the needs of their customer.

1.3 Maximize revenue, minimize costs and wastage - Chia Chung

Considering a big organization will have unnecessary expenditures, as a result BI solution would be of some help to resolve this kind of problem. The ability of BI is to **maximize revenue, minimize costs** and **wastage** by identifying areas of high expenditure, operating inefficiencies and analyzing transaction data. Without using of BI solution, it is hard to analyze huge amounts of data for minimizing costs and wastage, thus they can cause **confusion and eventually complicate business**. Similarly, the use of BI can be a real competitive advantage since the information required is just a few steps by using computer. For example, by adopting BI to gather data from business processes and analyzing it is able to start to uncover some valuable insights instead of manually collect data by employees. Hence, BI can use these insights to improve all defects.

1.4 Gain Sales & Market Intelligence - Mun Jun

The most vital point of using BI solution is to **improve the efficiency** of the organization which directly improves the productivity of the organization too. Business Intelligence enables the organization to **share information across the different departments** at the same time which could help out in saving time on reporting processes and analytic. With the ease of sharing information, BI will **solve the problem of having duplication roles** within the organization and it could improve the accuracy and usefulness of the data generated by different departments.

With that efficiency, the organization can **handle and maintain the satisfaction** of the customers easily. This is related to the efficiency of finishing the analytic for the customers with different details tables and charts and every little requirement from the customers can be granted and finishing up in a short time. Indirectly, Business Intelligence Solution enables to **increase the sales efficiently** and **gain further insights into the organization's current market** as well as market entry support.

In Maybank, as a marketing company, they might **use Customer Relationship Management (CRM)** which involves decision-support processes and its main purpose is to **keep track of the organization's customers**. This software enables to assist the organization handling every aspect of an organization's interactions with its customers which it could collect data about their customers and present to the organization in the form of graph, table or charts. CRM may include the entire sales cycle from winning new customers, to servicing and tracking existing customers to provide post-sales services.

1.5 Better Management of Human Resources (HR) - Jun Xian

One of the reasons that a company should implements business intelligence is it can **benefit Human Resources enormously** by finding the best fits for the position, gaining insights into employee engagement and retention of the company.

During the hiring process, a lot of data are needed to gone through by the hiring manager to find the perfect candidate for the position. Business Intelligence (BI) is **able to aggregate relevant data, process such data and analyze whether the candidate is the best fit for the position** or not.

Employee is the key to success for every company, knowing their satisfaction towards the company can brings so many benefits. Through BI analytics, the company is **able to understand how the employees spend their time during work**. As a result, company may **take action to reduce distractions** in order to improve employee productivity. Knowing the employees satisfaction towards company is important because it is a costly move for company to recruit and trains new employees rather than retaining the experienced and efficient employee. BI tools are **able to track workers improvements and contributions regularly**, therefore the company could use this information to reward them for the good deeds they have done to the company. Maybank is considered as a big company, it is not surprising that they use BI in HR too.

2. Describe in detail various components of the BI at the company.

There are five components of business intelligent which includes Online Analytical Processing (OLAP), Real-Time Business Intelligence, Data Warehousing, Data Sources and Corporate Performance Management (CPM).

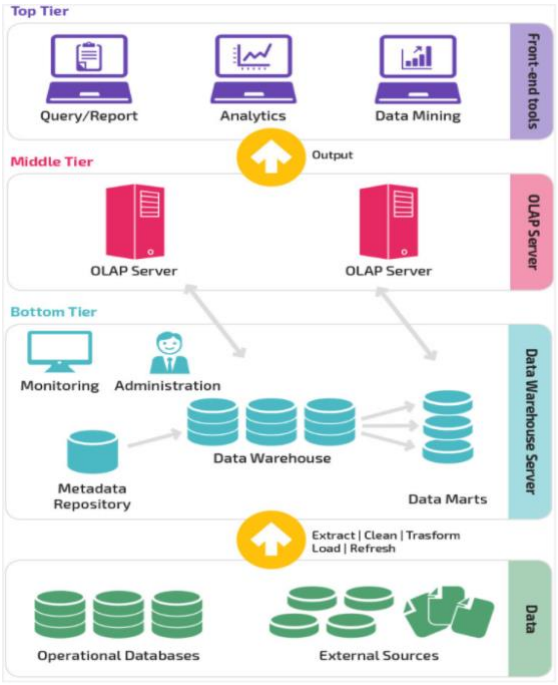

Figure 2.1

2.1 Data Warehousing - Yih Feng

Data warehouse **keeps aggregated structure data into the database across the whole organization from multiple sources**. Extract, Transform, Load (ETL) is a **process that maintains the accuracy and integrity of data** which loads in batches. The data warehouse includes **OLAP engines to let multi-dimensional queries compare against historical data**. Data analysts use an application such as Tableau, Sisencse that integrate with the data warehouse to explore data and create a dashboard to keep track of key metrics.

Referring to Figure 2.1, Oracle has signed with Maybank providing enhancement data warehouse to **improve high-value customer relationship and services**. Data warehouse provides **business intelligence information of their customer to target and customizes their marketing sales, services and solutions respectively**.

2.2 Online Analytical Processing (OLAP) - Chia Chung

OLAP is the component of BI that executives use to **organize** and **pick clusters** of data for **tracking** or **monitoring purposes**. Specific tools help to generate and analysis these clusters data on the basis on which changes to business processes can be made. This component of BI help executives to **filter and select data aggregates for strategic monitoring.** Through the aid of specific software tools, a certification in BI allows business owners to use data and make changes to their overall business processes. In addition, OLAP analyzes business information in multi-dimensional way to deal with complicated calculations, data modeling and trend analysis. Through OLAP the end-user is given an opportunity to evaluate particular data in multiple dimensions in order to **gain the necessary insight for decision making.** Considering businesses are constantly gathering information to carry out some different analysis. Thus, they have a strong need to collect all the data in single place to obtain a reliable and accurate interpretation of the various aspects of the data. Moreover, OLAP is able to help them **achieve quick access to the result of multi-dimensional analysis**. For Maybank example, analysis of package sales data, time period is one dimension, product category, channel distribution, geographic distribution and customer group category are also one dimensions. Once the multi-dimensional data model has been established, users can quickly obtain data from different analysis angles and can dynamically switch between different angles or perform a multi-angle, comprehensive analysis with a wide range of analyzes.

2.3 Real-Time Business Intelligence - Chia Chung

Real-time BI is used in **sorting** and **analyzing business activities** and data which need to be done during collection stage. It allows the client company to gain insights into the business cycle as rapidly as possible in order to take strategic action. This has become an essential BI component that would be some of help to business owners to adapt real-time trends. As a consequence, it will allow marketing experts to craft creative a better deals and time-limited offers such as voucher or coupon for the ice-cream on a hot day. For instance, it may help analyze the number, location and time of customers for promoting better deals on a specific date. Furthermore, real-time BI is becoming extremely popular in a fast-paced modern society. By using real-time BI software, an

organization can **easily respond to real-time trends via email, messengers and applications.** As an example, real-time BI is able to promote offers at the most suitable time possible to achieve the maximum conversion rate. For Maybank example, more positive business results are observed through real-time BI which **processes information becomes more convenient and decision can be made precisely and faster.**

2.4 Corporate Performance Management (CPM) - Mun Jun

Corporate Performance Management (CPM), also known as the Financial Performance Management (FPM) or the Enterprise Performance Management (EPM) or the Business Performance Management (BPM), which also is a subset of the Business Intelligence (BI). CPM is involved with various processes and methodologies in **aligning an organization's strategies and goals to its plans and executions** to increase the success rate of the company.

The primary purpose of the CPM is to **compare the actual results of the company to the budgets and forecasts and make adjustments** accordingly for the organization. It able the organization to manages and monitors financial results across an organization with various variables such as the organization's performance. They **rate the performance through the Key Performance Indicators (KPIs)** with revenues, return on investment (ROI), overheads, and operational costs.

It also **provides significant business insights from processes** like scenario analysis, financial planning, forecasting, and budgeting. Different strategic frameworks and management methods used in CPM to provides these insights are included the Balance Scorecard where the management system aimed at translating the organization's strategic goals, the Six Sigma which is an approach to data-driven management that seeks to improve quality by measuring the number of defects and last but not least, the European Foundation for Quality Management (EFQM) excellence model.

Thus, it could assist the company to **formulate a confidence strategic plans and forecasts** and handling performance reporting within a short moment. This could **directly increase the finance operational efficiency and execution company-wide** and

indirectly with the difference of the timing looking and analysing the reports and performance might **increase the revenue and overall performance** of the organization.

Supply Chain Management (SCM) and **Risk Management** are two practices aligned with Corporate Performance Management. **SCM enables organizations to do the planning**, controlling, and executing products' journey from materials to production to distribution most efficiently and economically. Whereby **Risk Management ables the organizations to track the related risks** of each plan or process alongside the performance results.

In the Financial Industry, it is very important that they have to **understand and needed detailed analysis** to determine which company or **third party support to cooperate and invest in the companies**. These investments can **provide extra assets and continue the investments cycle successfully** so that they can maintain trust among the public. Trust has to maintain as the finance they used to invest in temporary from the amount they got from the public as the public saved money in the bank accounts. These amounts are temporarily taken away for the bank to invest and needed to get the money back to cover it back.

2.5 Data Sources - Jun Xian

The last component of BI is Data Sources. It **involves various forms of stored data** for example, external or internal data, operational data, and historical data which c**an be obtained from research companies, internet or even from data warehouse**. Data Sources is about **converting raw data into meaningful data** using software application where each division of data is going to impact the business positively. This component is used by the BI analyst **for dashboard driven presentation to gain better insight** in business and marketing aspect. They can **reside on many different platforms and contains structured information**, for example, spreadsheets, charts, tables or even graphs for variety of business purposes.

3. What operational and tactical advantages were achieved?

3.1.1 Improve Drive Performance and Increase Revenue (Operational) – Yih Feng

To investigate what drives the company and what to do in order to improve business performance and increase revenue, business intelligence will **analyze deeper with the data concerning and focusing on their staff and customer experience**. Hence, the company believes that **tackling high annual employee turnover will improve customer experience and will lead to getting higher revenues**. They used the data collected such as employees service behaviors and customer feedback to determine the potential relationship between drivers and results.

3.1.2 Identify Sales Trends (Tactical) – Yih Feng

The data collected is used to analyze and understand how the market evolves and the reason why their customers invest their competitors instead of themselves. By visualizing the data, they **able to analyze their customer needs and feedback to identify the issues and use it to identify the future trends to increase the revenue and services.**

3.2 Risk Management (Operational) – Chia Chung

The financial world is always changing rapidly and full of uncertainty. Banks and financial institutions are required to use any possible tools or components to reduce risk. Fortunately, BI solutions provide actionable insight that the organizations can use to **mitigate risk** in a variety of fields. With the ability to track customer transaction history that enables organization to **easily identify and reduce the occurrence of fraudulent activities**, such as being credit card fraud. Moreover, BI can also provide risk mitigation benefit which is precisely estimating the risk of customer loans based on key factor such as the income and current assets of debtors which helps bank and financial institution to prevent financial crisis. Apart from that, BI components can be used to analyze credit portfolios, detect potential defaults early and swift preventive action. In Maybank, they can apply the risk management to each of every foundation or bond as well as provide a **comprehensive insights** and **explanation of the following products**.

3.3.1 Continue Surviving in public (Operational) – Mun Jun

With Business Intelligence, the company able to obtain an operational advantage from it. The company can **withstand the competency and survive** in its business war between other companies. The company can face several problems such as negative cash flows with business intelligence models as the model able to do the analysis and predictions for the company to make some decisions.

Especially when Covid-19 slump and the company must **track the current financial metrics and cash flows** as the business have to evaluate with the impact on new sales, collections, credit cycles, and potential bad debts.

In Maybank, they will **follow the hub and spoke model to emphasize flagship branches** while closing some smaller and less used outlets in a similar vicinity. This allows them to decrease the outgoing money from their cash flow. Maybank also will **take out an attractive short-term loan or line of credit** to the public. A short-term loan is required to pay back in regular installments over a short period which able to increase the incoming cash flow easily.

3.3.2 Retain Customers (Tactical) - Mun Jun

To overcome the intense competition with other financial companies, Business Intelligence able to help the company to **retain and increase consumers** to increase their revenue through tactical strategy. The company can use the business intelligence model to **get results they wanted such as the lifestyle of consumers and the approximate area of their consumers** to get the focus point for their business. With these results, they able to **get the right and helpful Third-party support** to face some operational risk.

For example, Maybank Sdn Bhd promotes and encourages the customer to **use cashless transactions** for real-time transfers or remote deposit capture more prominently on marketing screens at ATMs and on digital sites, especially on their apps, M2U MY app. **Mobile wallet apps and QR codes are the focal points for Maybank** and it is widely used in almost every shop's lots.

To well used the cashless transactions, Maybank will cooperate with some well-known company to provide some attractive discounts and cashback to the consumers which able to retain Maybank's customers. In real life, recently, Maybank had cooperated with Zalora by giving RM44 off with a minimum expenditure of RM 200 with the promo code. They are giving the new Zalora user a discount of 26% too with the specific promo code.

3.4.1 Reduce cost for employment and training (Operational) – Jun Xian

Referring to point 1.5, BI can improve the qualities of Human Resources Management (HRM) thus benefits the company in operational point of view. Applying BI in **hiring process reduces mistake** which can be very costly in this process since average cost of an individual hire is RM4000.

BI can help company to know the satisfaction of the employee so that the company is able to retain experienced employees. It is because hiring new employee is much more costly due to the trainings given to. Therefore, the company can **avoid spending extra training and recruitment cost for new employees**.

3.4.2 Improve productivity of employees and image of the company (Tactical) – Jun Xian

Also referring to point 1.5, BI can keep track how employees spend their time during work so that the company can **reduce distraction for the employees in order to improve their productivity**. BI can also **help the company to acknowledge the hard works of employee**, the company may reward the employee for their hard works so that they **feel motivated and improves their** productivity too along with the image of the company.

Refers to 3.4.1, other than saving cost by retaining experienced employee, it is also **very time efficient** compares to new employment because it takes time to trains and recruit for new employees.

4. What were the critical success factors (CSF) for the implementation?

4.1 Clear vision and well-established business case – Yih Feng

The **alignment between business strategies could produce a clear vision of the company with a well-established business cas**e, the company understand what they need for the implementation of BI. Which means that BI can be a powerful factor of the strategy. Although both things are completely different CSFs but they are related. Hence, the **alignment of a business case supports the BI system increases the possibility of a successful BI system implementation**.

4.2 Focus on ease of use – Chia Chung

People actually did not consider any major improvements in the properties of the technology. Perhaps, due to BI **presupposes accessibility and ease of use for improvisation**, although the restrictions placed on the characteristics of component. The business user is the most to gain from a successful implementation of BI. However, some will also benefit such as IT employees will no longer have to modify / generate reports for someone needed and finance employees will no longer have to manually create Excel anymore. Consequently, all of them rely on the business user is being able to help themselves. With the ease of use and user-friendly front end, the normal employees do not need use technical terms, table names and any programming syntax is essential for the efficient implementation of BI. In Maybank, they should consider to the factor focus on ease of use. As this case, Maybank **does not need to spend large amount of money to conduct a program** for their employees to take any courses to operate the BI system for few months.

4.3 Performance is key – Mun Jun

Before the Business intelligence model was implemented in the business fields, **the production of every report and analytics are slow** as it needs a huge amount of time to do great reports out. Those times are used to get all pieces of information from the raw data and also calculate the statistics out from the data into the report to get an analysis to make a rightful decision in the business. However, these will cause delays in the submissions to the users and it annoys them. In the end, it will affect user satisfaction ratings and giving an impact on the business. Thus, **business intelligence implementation will affect the success rate** in the business.

In a world where a web search for "Business Intelligence Implementation" returns 281,000,000 results in 0.52 seconds, users will not want to wait for simple results or analysis to get into their hands. **Modern technology** like in-memory analytic, columnar databases, SSD disks, and advanced caching to **deliver blistering, sub-second performances over millions of rows of data** which will ensure the satisfaction ratings from the users will be 11/10.

This factor has to be considered in Maybank as they need the best and fastest performances to deal with their management to make the right decision in a short time. It is because they might store and get millions and millions of new data about transactions and user info in a week or few days. Can't be denied that, with these large amounts of the dataset, Maybank has to ensure purchasing the best technology to get the best performance for their company to compete with their competitors.

4.4 Understands where the cost is – Jun Xian

Cost evaluation is a critical success factor because it can help the company **know what the total cost of the implementation are** and **where does the cost go to during the implementations.** Usually about 40% of the total project **cost will be required annually to maintain those implementations.** Therefore, a £50k business intelligence software cost can easily expand to a £250k total project cost. There are exceptions to this rule, of course.

Since BI implementation cost is inevitable, the **company are not able to reduce the cost,** but in exchange the company can **conduct the worthiness of such implementation** by comparing the overall results of the implementation and the initial status to decide whether or not to continue using this implementation.

4.5 Information Quality – Jun Xian

The most important success factor for data warehouse is **the quality of the information provided to users**. The data in the data warehouse **must be accurate, complete, relevant and brief**. The way of data **presentation must be understandable and clear.** Business Intelligence **contains trusted and strategic information** that are **valuable to the enterprise resource for decision makers** in the organization. If it contains bad data and the user did not discover the bad data, the enterprise may fall upon making decision based on the data. Maybank may consider this as a CSF because **data are valuable and important for decision making** and as a bank a lot of decision were to make, so they will not miss this part out.

Conclusion

As a conclusion, Business Intelligence can help you understand your business and improves it in any way possible. Comparing to the old business style which all decision is made by one person based on their way of thinking and assumption, business intelligence helps in analyzing all the data gathered and provide a much better and reliable insights for management level to make significant decisions. Thus, business will grow big with less bad decision were made.

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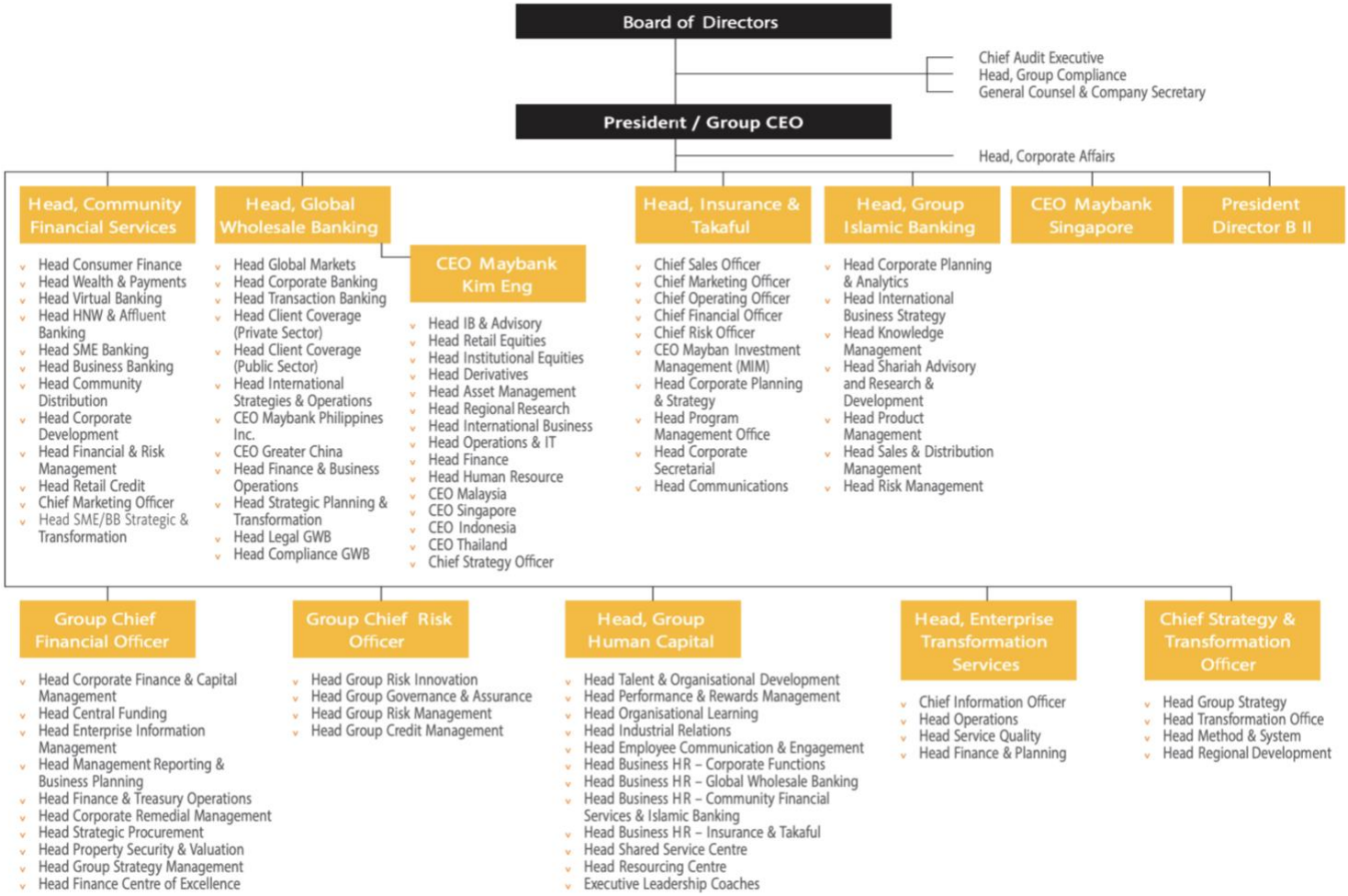
Appendix

1. Organization chart