Director’s Column

Time to put into practice what has been learnt

Time flies. BSc in Risk Management and Business Intelligence (RMBI program), the first undergraduate program in Hong Kong to integrate risk management and business intelligence, has been running for over two years. Our first batch of elites has entered their final year of study in September.

To equip students with solid knowledge in risk management and business intelligence, we emphasize both hard skills and soft skills. For hard skills, we make good use of interdisciplinary resources to strengthen students’ analytical ability by sharpening their proficiency in statistics, mathematics, finance, and information systems. Soft skills are equally important. Therefore, we organize various enrichment programs in the forms of experience sharing sessions, workshops, seminars, and conferences for our students to learn from experienced industry practitioners and look into business problems from multiple perspectives.

Time is ripe for our first batch of elites to try their hands at real business problems in risk management and/or business intelligence, and to demonstrate their capability in problem solving by utilizing what they have learnt from the RMBI program. Nine capstone projects covering various risk management or business intelligence topics in the finance, retail, healthcare, and information technology industries have been carried out in this academic year. With the guidance of our university professors and industry professionals, I am sure that our students will not only gain valuable experience in handling practical business issues in risk management and business intelligence, but also be able to provide useful recommendations to project providers.

In this issue of our newsletter, we invited senior staff from a premier theme park and a major public utility company in Hong Kong to share their views on developing an enterprise risk management system. You will also find interesting articles and hot topics in risk management and business intelligence in the newsletter. I hope you enjoy reading it.

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Publication December, 2011

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Enterprise Risk Management in Theme Park: Ocean Park Hong Kong

In 2003, the outbreak of severe acute respiratory syndrome (SARS) dealt a severe blow to tourism in Hong Kong, and the theme park industry was especially hard hit. Fortunately, riding on the economic benefits brought by the mainland tourists, Ocean Park Hong Kong, a marine life theme park, overcame the difficulties and challenges posed by SARS and was named by Forbes as the World’s Seventh Most Popular Amusement Park. In 2004, the Park launched a HK$5.5 billion development and construction project, the largest ever in its history. In order to ensure a smooth implementation of the project and an effective risk control, the Park has set up an Enterprise Risk Management System (ERM system), which is a relatively innovative concept to theme park industry and its staff as well as in Hong Kong. We are glad to have invited Mr. Frankie Hau, Senior Manager of Environment, Health and Safety and Miss Vivian Lee, Marketing Director of the Park, to give us an introduction to the system and the risk management measures in respect of operation, safety and business sales.

Importance of Enterprise Risk Management

Risks can expose a company to unanticipated consequences like profit and investment losses. Enterprise risk management is a measure to manage the company by identifying, analyzing and mitigating risks. Mr. Hau emphasized that enterprise risk management covers not only management of risks related to health and safety issues, but also takes into account areas like financial risks, operational risks and project risks. A systematic and efficient enterprise risk management raises the performance of employees and the quality of the Park’s operation, and also prevents and reduces the losses incurred when accidents happen.

The Park has experienced various difficulties and challenges during its 30 years of history in Hong Kong. The management has therefore accumulated a lot of valuable experience. "The systematic integration of past experience and consolidation of the existing control measures have greatly enhanced the management quality and achieved better planning on resources allocation. And that is exactly the concept of implementing an ERM system in Ocean Park," Mr. Hau said.

The first theme park to establish an ERM system

Ocean Park is the first among its peers to establish an ERM System, and consultants were employed from Australia to assist in the coordination and roll-out of the system. With the help of the ERM system, Ocean Park is able to perform a variety of tasks like categorizing and establishing control measures, conducting regular reviews on the risks profiles and the control monitoring, as a result, submitting the annual board report.

The ERM system operates by identifying different risk event and classified them into separate categories. Corresponding control measures will then be drawn up and staff will be designated to take charge of the follow-up work. "For those events that Ocean Park has not experienced before, such as tsunamis, earthquakes..."
and other natural disasters and risks that may arise from development and investment in new projects, Ocean Park will deal with them upon identifying foreseeable risks events. With the assistance of the ERM system, the Park can develop a series of control measures specific to each of the risk event. If unfortunately accidents should happen, the Park can respond promptly by carrying out the relevant contingency measures in order to minimize the impact. Mr. Hau explained.

Besides, the Park has set up a Risk Management Committee comprising the Chief Executive Officer, Chief Financial Officer and all executive directors. The committee meets every half year to update on the implementation of the ERM system and to review any changes in the risk profile and any major events happened in the Park during the half year, so as to develop policies for improving the existing system. All decisions made by the committee would be disseminated to the frontline staff to ensure the system is being executed effectively.

Examples of the ERM system functioning in areas of operation, safety and business risk management in Ocean Park are as follows:

**Operational Risks**

**Visitors flow:**
A low visitor count will affect the profit of the Park, whereas too many visitors will overload the facilities and may pose safety risks. Through the ERM system, Ocean Park controls visitors flow by adopting an appropriate approach in the form of crowd control measures, emergency response plans and queue control, depending on the circumstances at the time. Take queue control as an example, it varies in different seasons or festivals because special events will affect the distribution of visitors in the Park. During special events such as Summer Splash 2011, it was expected that Rapids Adventure and Raging River would attract hordes of visitors while leaving traditional facilities such as Merry-go-round with a low traffic, and therefore special arrangement would be needed to maintain proper queue management. Ocean Park also works closely with Citybus, the operator of bus route from Admiralty MTR Station to Ocean Park, to maintain proper crowd control. By sharing data on the number of visitors, Citybus is able to arrange an appropriate timetable of bus service and transport visitors to the Park orderly. Meanwhile, Ocean Park will set up suitable arrangements at the entrance and install signposts in the Park to direct the visitors to different places.

**Animal care:**
The wide variety of animals in Ocean Park gives it a special appeal as a popular tourist spot in Hong Kong. Yet, the deaths of Chinese Sturgeons in the aquarium have raised public concern over animal care in Ocean Park. According to Mr. Hau, Ocean Park has always been committed to providing the best care to its resident species. The Park would also seek help from experts when new species are introduced to its animal collection in order to give proper care for the new members. Apart from regular health check-ups, the Park also emphasizes on animal care practices such as operations and trainings on animals. All these control measures have been included in the ERM system as general guidelines.

**Safety Risks**

**Maintenance:**
Maintenance is another critical factors contributing to the success of Ocean Park. Ocean Park has regular and yearly maintenance policy in place to ensure high standard of safety of its facilities. A comprehensive response plan is also incorporated into the ERM system to handle major incidents such as the collapse of facilities or power failure. For instance, Cable Car will not be allowed to operate when wind speed exceed a certain limit. And during the temporary shutdown of Cable Car, corresponding measures as to how the announcement is to be made and how to direct visitors to take other means of transportation will also be carried out. Should there be any accident, like the one on the Ocean Express last year, the Park will conduct a series of reviews on the safety of the facilities and the staff practices to find out the cause of the accident. Moreover, measures will be set up via the ERM system in order to prevent similar incident from happening again.

**Business risks**

**Sales and Marketing**
The greatest risks to the operation comes from business risks, which are mostly related to the sales and marketing division. Typically, the biggest threat in this division is the lack of visitors, which usually happens when disaster strikes, such as SARS in 2003. The ERM system maintains a set of measures addressing those risk events, providing discounts and having joint promotions in off-season periods are among the most common practices.

More and more theme parks are being built in Asia and this
may threaten the status of Ocean Park, as some may think. In response to this, Miss Lee pointed out that Ocean Park has a different focus of positioning which emphasizes on the connection between human and nature, and it aims to provide visitors with a happy, unforgettable and meaningful experience that combines entertainment and education. Besides, with the launch of new facilities after completion of the expansion project, visitors will have a greater sense of the uniqueness of Ocean Park that makes it stand out among its peers.

**Difficulties, Opportunities, Challenges**

Installation of a new system in a company often means facing up to different kinds of difficulties. Mr. Hau said there had been a shortage of experienced frontline staff during the early stage of the implementation of the ERM system. However, Ocean Park did not face many challenges as the system was executed with commitment from the top management. Also, even though some employees may not understand the whole structure of the ERM System, they can still perform well in their duties and assist in the smooth operation by giving them clear instructions and maintaining a close communication with them.

Having been in operation for nearly five years, the ERM system has not only enhanced operational efficiency in the Park but also promoted information exchange across different departments, which are positive to risk control and management. With the number of visitors expected to rise after expansion of the Park and industry competition intensifies, the ERM system will play an even more substantial role in the Park’s operation.

To overcome new challenges, every successful company needs to keep abreast with the time in all aspects. In addition to being one of the most popular theme parks in the world, Ocean Park has moved to become a pioneer in the development of the ERM system. Leveraging on advanced technologies, the Park has succeeded in mitigating risks in operation, business reputation and marketing, while enhancing service quality and smoothing operation processes. This innovative concept of enterprise risk management by Ocean Park can serve as a useful guide for lifting the standard of amusement parks around the world.

**主題樂園的企業風險管理 – 香港海洋公園**

2003年，非典型肺炎（沙士）大規模爆發嚴重打擊了香港的旅遊業，主題公園這個行業更是飽受衝擊。幸而受惠於內地遊客所帶來的經濟效益，以海洋生物為主題的香港海洋公園克服了沙士所帶來的種種困難和挑戰，更榮獲福布斯網站評選為「全球第七大最受歡迎的主題公園」。2004年，海洋公園開展其有史以來最龐大的發展及擴建計劃，投資額高達55億港元。有此同時，為確保計劃能順利進行及有效控制園區內各項風險，海洋公園設立了企業風險管理系統（Enterprise Risk Management System，簡稱「ERM系統」），這個系統對海洋公園的員工、主題公園業界及香港而言，都是頗為創新的概念。我們現時能夠邀請到海洋公園環境健康及安全高級經理侯文強先生和市場營運李玲鳳小姐為我們介紹該系統和公園在運作、安全和業務營銷方面的風險管理措施。

**企業風險管理的重要性**

風險可以為公司帶來難以預料的後果，如盈利虧損、投資失利，因此有效控制風險對一間公司來說是十分重要。企業風險管理是一個以識別、分析和降低風險為基礎來管理公司的程序。侯先生強調，企業風險管理不僅涉及健康和安全風險管理，也包括其他範圍如財務、營運和項目風險管理等。有系統和高效率的企業風險管理不但有助提升員工的工作表現及園區的營運質素，還可及早預防和減低發生事故時所造成的損害，對企業的長遠發展有莫大裨益。

海洋公園在香港已有三十多年歷史，過去曾經歷過種種困難和挑戰。因此，管理層累積了很多寶貴的管理經驗。侯先生表示：「將過去的經驗有系統地整合後，用於現有的控制措施，可以大大提高管理質素，並使資源分配的規劃更為妥善，這就是海洋公園建立ERM系統的理論。」

**首個設立ERM系統的主題公園**

海洋公園是主題公園業界中第一間建立ERM系統的公司，並特別從澳洲聘請顧問來港協助籌劃及推行該系統。海洋公園借助該系統來執行不同的風險管理工作，包括將風險分類、制訂控制措施、定期檢討風險評級及提交董事局報告等。
在運作上，系統會將訂定的風險事件分類，並製訂相應的控制措施，安排專責人員跟進。侯先生稱：「對於海洋公園未經歷過的事宜如海嘯、地震等自然災難，以及在發展和投資新項目過程中可能遇到的風險，海洋公園在識別出可預見的風險事件後，便會着手處理。透過ERM系統的協助，海洋公園可針對風險事件逐一訂立一系列措施，減少該事件所帶來的衝擊。」

此外，海洋公園已建立一個由行政總裁、財務總監及全體執行董事組成的風險管理委員會，並每半年舉行一次會議，目的是讓委員會了解ERM系統在公園的運作，同時評估過去半年風險狀況的變化和園區所發生的大型事件，以訂製政策來改善現有機制，而所有決定也會下達於前線員工，使系統能有效地運行。

以下是ERM系統於海洋公園的營運、安全及商業風險管理方面發揮成效的一些例子：

**安全風險**

設施保養

海洋公園的成功，設施保養得宜是另一項關鍵因素。ERM系統內載有關於定期和年度維修的全面策略，確保園區能維持高水準的安全標準。系統亦有應付設施倒塌或停電等嚴重事故的策略。例如當風速超過一定的限制，纜車便不可運行，以確保遊客的安全。暫停纜車服務時亦會有相應措施配合，包括如何向遊客發佈消息及工作人員如何指示旅客選擇其他交通工具。若有不寻常發展，如去年涉及海洋列車的事故，公園會對設施的安全和員工培訓進行一連串的調查，以找出導致該事故發生的原因，並將透過ERM系統制訂相關策略，防止類似事件再次發生。

**商業風險**

銷售及營運

商業風險是企業營運的最大風險，這類風險大多涉及銷售和營運部門。人口減少及對海洋公園的營運威脅亦大，這種情況通常在社會發生大型事件時出現，如零三年的非典型肺炎事件。ERM系統便有一系列應付此等情況的措施，例如在旺季期間提供折扣和聯合促銷優惠。

亞洲的主題公園不斷興起，有人認為這可能會對海洋公園構成威脅。李小姐回應指，海洋公園着眼點與其他公園不同，海洋公園強調人與自然的聯繫，並將娛樂和教育連接在一起，帶給遊客一個開心、難忘和具有教育意義的經歷。而海洋公園擴建後，將會有更多的新設施，遊客將更能體會海洋公園與其他主題樂園的分別和獨特之處。

**困難、機遇、挑戰**

一間公司在採用一個新系統時可能會遇上各種困難。侯先生表示，海洋公園於實施ERM系統初期，缺乏熟練系統操作的前線員工。儘管如此，由於高層管理人員十分支持推行該系統，故此海洋公園在推行該系統時並沒有面對很大的挑戰。此外，雖然部份前線員工不熟悉系統操作，但已決定按照指示和與前線員工保持緊密溝通，讓員工清楚知道自己的工作崗位，協助公園順利運作。

ERM系統已建立了近五年，不但提升了公園的營運效率，亦鼓勵和加強了各部門的資訊交流，對海洋公園的風險控制和管理極為有利。預期海洋公園擴建後遊客數目將會增加，加上業界競爭趨烈，ERM系統在公園運作上將擔當更重要的角色。

香港公園優先發展各樣不同的動物，令這地方成為香港一個別具吸引力的旅遊景點。然而，中華鲟的死亡事件曾經引起公眾關注海洋公園在動物專業護理方面的能力。侯先生解釋，海洋公園一直認真照顧各類動物，在引入新動物時也會與相關的專家研究如何照護，而ERM系統就動物的護理亦有清晰的指引。除了為動物進行定期的健康檢查外，海洋公園亦十分注重護理人員對動物護理的專業知識，例如動物訓練和為動物進行手術的知識。
Introduction of Public Utility Risk Management – Towngas

In March 2011, northeast Japan was struck by a magnitude 9.0 earthquake, the most powerful one ever recorded in Japanese history. The earthquake and the devastating tsunami that followed triggered a crisis at a nuclear power plant, threatening the lives of billions of people. Yet, apart from the natural disaster, inadequacy in risk management was partly to blame for causing the nuclear crisis. The disaster sparked public concern over risk management in energy safety-related issues. It is therefore necessary for us to outline the risk management system of the energy sector in Hong Kong so as to address the public concern.

Safety and reliability are the top priorities for a public utility enterprise. To that end, it is imperative for us to maintain proper management on operational risks; otherwise public confidence will be lost. In general, the enterprise risk management system we adopted is based on Standard ISO 31000, the general guidelines on risk management promulgated in 2009. Before 2009, AS/NZS 4360:2004, the former version of Standard ISO 31000, was in use as the blueprint of Towngas’ risk management system.

In gas industry, a common operational risk is third party damage of underground pipelines. Our gas production plants are built in fixed locations. This has made plant management easier and more controllable despite the fact that large quantities of inflammable gases and liquids are stored at our plants. Our pipeline network is more vulnerable to third party damage due to its large coverage area in Hong Kong. In 2004, a gas pipe in the capital of Belgium exploded as a result of third party damage, causing over a hundred of deaths and injuries. Hence, safety management of pipelines is a major concern and we have taken various measures to mitigate risks in this regard. For example:

1. Our safety steering committee reviews and ranks the risks regularly. Each risk is monitored and managed by a designated staff, to ensure that all risks are under control.

2. To cultivate a safety mindset from the top down, regular safety talks are given by the senior executives to the general staff with an aim to avoiding incidents similar to the oil spill in the Gulf of Mexico in which hasty examination of the oil gusher failed to prevent the accident from happening.

3. We are also stepping up efforts in educating external organizations on pipeline safety.

4. We are also conducting trench inspections to avoid pipeline damage due to road works. Besides, regular preventative inspections of pipelines are being conducted to identify aging pipelines, if any at an early stage.

As a result of our efforts, the number of accidents caused by third party damage dropped significantly to 11 in 2009 from more than 120 in 1997.

To maintain the reliability of town gas supply, we operate two gas production plants in Hong Kong, one in Tai Po and the other in Tokwawan. Town gas is mainly produced by...
the Tai Po plant. The Tokwawan plant is mainly operated in peak seasons and hours to cope with any sudden increase in demand. In addition, to ensure stability of our feedstock supply, we import natural gas from Guangdong Dapeng LNG Company Ltd in Shenzhen as a feedstock for gas production while continuing to produce town gas from naphtha at our Hong Kong plants. This dual feedstock strategy prevents shortage of feedstock as a result of accident in the Shenzhen natural gas plant.

Towngas has been actively seeking ways to ensure the reliability of feedstock supply for gas production with a view to providing economic benefits to our customers. Since Oct 2006, we start producing town gas from dual feedstock, i.e. naphtha & natural gas. We made a 25-year natural gas supply contract agreement with an Australian natural gas company in 2003. The price we pay for natural gas is approximately linked to crude oil price of USD$25 per barrel. It is definitely a good price to us with reference to the market value of crude oil nowadays. It stabilizes our gas production cost, and further ensures the reliability of our feedstock. Thus, an operational risk is reduced. As well, this enables us to lower the tariff to our customers by more than 10%.

We have more than 90 gas pipeline projects in mainland China. A safety and risk management scoring system has been set up with the purpose of rating each joint venture and assessing the major risks for each of them. Safety is given the heaviest weighting in the overall assessment. In December of 2003, a gas leakage incident in a mine in Chongqing operated by PetroChina Company Limited claimed the lives of more than 230 people. The incident once again illustrated the importance of supervision & non-standard-operation. The scoring system is a useful tool to assess if a joint venture company meets our risk requirements. We also organize business risk assessment workshops regionally to educate the joint ventures on the latest trends in risk management and provide practical examples for them to improve their operations.

Before making an acquisition in mainland China, we must send our staff to conduct site inspections and examine their documents in order to get a clear picture of the potential risks involved. In our mainland joint ventures, we have our own direct staff for the key management positions, i.e. General Manager, Engineering Manger & Financial Manager to ensure that our policies, work procedures & standards are properly followed. Otherwise, operational risks are difficult to be monitored and controlled. Thus, investment risks are high. Our management rights in joint venture are critical and it helps reduce the financial & investment risks in mainland China.

To our customers, safety, reliability of town gas supply and the quality of customer service are the main concerns. Our town gas supply achieves a near 99.99% reliability and the possibility of supply disruption is extremely low. If unfortunately an accident, such as damage to the pipelines, occurs and leads to temporary breakdown of town gas supply, our target is to restore gas supply within 12 hours. Repairing and maintenance services are provided to our customers. Our emergency team could arrive on site within 30mins (> 90% request), upon emergency enquiries concerning gas safety. We are committed to satisfying customers’ needs and have put in place various measures to minimize customer-related safety risks.
As a leading public utility, Towngas has launched a series of programs to fulfill our social responsibility to protect the environment.

1. In 2003, Towngas launched the “Gas Appliance Recycling Program” to collect old appliances disposed by customers and recycle the scrap metal retrieved. All proceeds from the program are allocated to a green fund to support environmental activities in Hong Kong.

2. In 2006, Towngas built a plant near a landfill in Tak Ku Ling to collect methane from the landfill as burning fuel for gas production.

3. In Oct 2006, we have started using natural gas as one of feedstock. It further reduces the consumption of naphtha as well as emission of greenhouse gases.

4. In addition to reducing emission, we are keen to promoting recycling in the community and in our daily operations.

Over the past five years, we have reduced overall carbon dioxide emission by 20%. We are now preparing a carbon footprint index on customer number basis for reference.

To conclude, we face different types of risk, including operational risks, financial risks & environmental risks in our daily operations. We need to adopt a variety of measures to hedge against those risks. It is impossible to eliminate all risks but we strive to control and minimize them in order to provide our customers with safe & reliable supply of energy and caring services, while working to preserve our environment.

The monitor shows number of calls phoned in and number of staffs on duty.

警報幕顯示已接喙電話的數目及職員人員的数目

In December 2011, the company has set up a new monitoring system to track the number of calls and the number of staff on duty.
由於我們收購一間本地公司，定必會派遣員工到實地考察，調查標的以了解潛在的風險。內地的合資公司大部分都是由我們調派高層管理人員，如總經理、工程總監和財務總監等，到當地負責管理，以確保公司跟從我們的管理政策、制度、模式和規範等各方面。煤氣公司認為，若果我們沒有管理權，合資公司的營運風險難以監管和保證，這會令煤氣公司的投資風險亦大大增加。因此，合資公司管理權十分重要，並有助減低我們在國內投資的財務風險。

煤氣公司一向積極尋求經濟的能源供應，確保供應可靠，以及為客戶帶來經濟效益。公司於2006年10月，開始採用天然氣和煤炭生產煤氣。然而，我們在2003年與澳洲天然氣供應商簽訂了長達25年的供氣合約。在簽訂供氣合約時，定價是以當時每桶石油25美元為參考，遠低於現時石油價格。這有助穩定和減低煤氣公司現時的製氣成本，大大降低了營運風險。我們透過燃料調整費機制，將節省回饋客戶，客戶的煤氣費有超過10%的節省。

至今，我們於內地的管道煤氣項目達九十多個。公司特別建立了三個安全及風險管理的評分制度，為每間合資公司評分，以評估該公司的主要風險，而安全是評分的最主要項目。於二零零三年十二月，中國石油天然氣股份有限公司於重慶開縣地燃礦井，因缺乏監督，未有依照標準程序工作，導致氣體洩漏，造成超過二百三十人死亡。由此可見，妥善的監督對於投資內地公司十分重要，評分制度正是評估該合資公司是否符合我們的風險要求。此外，我們會在每個分區舉辦商業風險自評工作坊，說明風險管理的最新情況，並將一些實例，幫助他們改善運作。

作為一間公用事業機構，煤氣公司展開了多項計劃以肩負其保護環境的社會責任。包括：

1. 二零零三年，煤氣公司推行「點廢成金」舊廂具回收計劃，推動社會回收客戶的舊廂具並回收當中有用的金屬，所得款項會全數撥入煤氣公司的環保基金，用以支持香港環保活動。

2. 二零零六年，煤氣公司在新界打鼓嶺的垃圾填埋場附近興建工業，收集場場內產生的沼氣作燃料。

3. 二零零六年十月，煤氣公司開始使用天然氣生產煤氣，大大節省石腦油用量，從而減少溫室氣體及污染物的排放。

4. 除了減少廢氣排放，煤氣公司亦推動社會和公司內部的廢物回收工作。

煤氣公司過去五年的整體二氧化碳排放量大大減少了百分之二十，而且現正準備提供客戶碳排放量指數作為參考。

總括而言，煤氣公司一直面對許多不同類型的風險，包括運輸、財務和風險風險。我們需要採取多項措施來應對這些風險。要完全消除所有風險是不可能的。但我們會盡量減低和控制風險，為客戶提供安全可靠的能源供應和貼心的服務，同時保護環境。

Staffs are listening the customers' calls (hotline). 當值人員正接聽顧客的查詢電話。
Interview

B.I in supermarket industry
An interview with the data analyst in a large retail chain store

Q: How much resource do supermarkets put into the analyzing department?

A: Although resources being put into the analyzing department in supermarkets are less than that in the banking sector, this department has gained importance in the past few years in the supermarket industry with the wealth of data collected.

Q: How do supermarkets collect data for analysis?

A: There is a lot of ways to collect data, such as reward points program of loyalty card, Point of sale (POS) or checkout, e-commerce where supermarkets can track the sites customers have browsed and observe the products they are interested in, etc. Supermarkets in other countries have also experimented with analyzing CCTV footage to study customers' behaviour, though this is not popular in Hong Kong. Among these methods, POS is the most common practice as data collected at checkout is readily available, and it directly reflects the sales and profits. Information from reward points programs of loyalty card will also be very useful for future use. All the data collected helps us understand customers' buying behavior.

Q: Can data collected be categorized for analysis?

A: Supermarkets collect different kinds of data every day. There are no standards for categorizing data. Some types of data are for specialized reports, such as time series and categorical data. A regular (this week vs. last week vs. last year/monthly/rolling-12 months) reports are generated by the computer system with the data collected to judge the soundness of the business.

Q: What are some of the indicators supermarkets look at?

A: Different departments in a supermarket look for different indicators. For example, trading department looks at sales per day and sales per linear footage, merchandising and store planning will consider sales per square feet as their prime indicators, supply chain may look at stock on hand data. Thus, there are many different types of indicators to reflect the health of business.

Q: Besides those regular inputs of data for the report, how do supermarkets investigate other data? Are there any examples and what other data may be involved?

A: Supermarkets may assign a team or outsource a project from time to time, to investigate other data besides those input regularly for the report. This is because our in-house developed data mining skills are still not in-depth enough and outsourcing the data to experts can help us dig out more findings. In recent years, there is more data from internet trading and e-commerce. New channels such as QR code and combining traditional print marketing also help explore customers' needs in depths. This trend is expected to continue with outside agency.

Q: What are the major difficulties that a supermarket may face while implementing data mining in the operation?

A: It would be hard to align with the company's goals, this in itself is already a very tough mission, if not impossible. A supermarket has numerous legacy systems and applications, how to synchronize them to make use of the data efficiently is a big problem.

We can easily collect vast amount of data in our daily operations from points of sale, customer loyalty program, the log of our web server or even by observation. However, all of these are collected for promotional propose, or simply for calculating some Key Performance Indicators (KPI) as mentioned, which are merely at a surface level. The importance and usefulness of Business Intelligence (BI) were not well recognized and received, or at least not until recent years. Thus, it would be very difficult for supermarkets to adopt datamining using the existing systems and applications.

If we want to develop on the BI aspect, we would need to redesign the database structure, schema, and the Database Management System (DBMS). It would be a near-complete re-engineering of our operation system. The resources needed would be undoubtedly huge. We also have to risk bearing a loss-of-sales-cost if things go off track because the process will surely impact our daily operation.
Developing on the BI aspect means we are digging deeper into customers’ data. To accomplish this, we can either outsource the project or make use of the data by ourselves. We will need to be very careful with the privacy issue when making business decisions related to the findings concluded from our data.

Another inconvenient truth is that, even if we pour resources into the data mining process, we might not be able to get the expected return sometimes. For example, say we use BI to find out two items’ relation using the Association Rule, like the famous example Beer and Baby’s diaper; even if we find out their correlation is high, it does not necessarily mean that we can bond them together for promotion due to business considerations. We have to consider the stance and opinions of different manufacturers when associating various goods. This can be a limitation to the application of the data mined.

Q: Although BI’s implementation has shown to be useful for the industry, it seems that there have been quite a few difficulties to apply the use of BI extensively. Despite so, do you think it is still worth sparing resources for it in the future?

A: We believe BI in the retailing industry is still at the starting point, but it is gaining companies’ attention in the recent years. Global supermarkets and merchandisers such as Tesco and Carrefour have successfully integrated data mining into their businesses because they have recognized the business needs. The strong competition in effect drives them to explore data mining. As the margin for this industry is thin, retailers have to explore every method to maximize sales opportunities. I believe e-commerce marketing and supply chain can be further explored. Store design and planning can also benefit from BI initiatives.

Moreover, I am confident that BI will have a bright future because the data involved in retailing industry is of such a staggering amount and so closely related to our daily lives. Customers can benefit more when they can buy suitable products with the right offers at store level. Even though we may encounter difficulties in implementing BI in supermarkets’ operations, the data collected will show its value to the business sooner or later.
問：除了定期報告所載的特定數據外，超級市場如何分析其他數據？有沒有相關的例子？

答：超市會不時指派團隊分析其他數據或將這項工作外包。這因為我們現時既有的資料探勘技術仍不夠深入，將數據外判給專家分析可以幫助我們發現出更多更具意義的結果。近數年，網上購物及電子商務的興起帶來了更多的數據。而新的渠道如QR code與傳統營銷手法互相結合，也有助於深入瞭解客戶的需要。預計這種趨勢將會延續下去。

問：超級市場將資料探勘應用於日常運作時，一般會遇到甚麼困難？

答：由於我們有不少一直沿用至今的系統和軟件都是在較早期設計的，所以要將資料探勘的新軟件有效地套用到現時既有的系統上十分困難，因為新軟件與既有的運作方式在設定上很容易出現不一致的情況。

之前提到，超級市場可以輕易透過日常銷售、長期顧客的推薦及數據等多種途徑收集到大量原始數據。由於早年的資料庫在設計時只考慮到將這些資料應用到日常的推廣及宣傳用途，所以現在要使用資料探勘時，系統需要修改或重新設計，否則系統將無法運作。一些系統需要投入大量資源，還要承受在過渡期的風險，及有可能會在過程中遇到資料庫的問題。

若我們想在資料探勘方面作進一步發展，現時數據的儲存方法及資料庫的設計、架構，以及一些正在使用的資料庫管理系統，可能都需要一一修改設計或改良，甚至重新建構。這不僅需要投入大量資源，還要承受在過渡期的風險，及有可能會在過程中遇到資料庫的問題。

而且，進一步推進資料探勘的應用亦意味着要更深入分析顧客資料。不論這項工作是由我們的內部研究隊伍負責還是外判給其他專家，在處理這些資料時，特別是根據研究結果作出商業決定的時候，我們都需要注意私隱權的問題，因為這很容易引起大眾關注。

除此之外，有時我們會成功透過資料探勘在大量數據中找出隱藏其中的特徵，但基於各種商業考量，我們未必能有效利用這些資料的成果。例如在中國，「啤酒和尿布」的例子，即使找到了兩者的關聯，也不等於可以將兩種貨品放在一起推廣，因為必須考慮不同品牌的影響及消費者的需求。這無疑是資料探勘在商業應用上的一大障礙。
Algorithmic Trading

Technological advancement has brought about a shift to automated operations for many financial institutions. A good example is the rise of algorithmic trading, or algo trading in short.

Definition and development of algo trading

Algo trading is the kind of trading that makes use of computer to determine factors such as the asset to be traded, the trading amount and the trading method. The main difference between algo trading and traditional trading is that algo trading involves mainly computer operations instead of human decisions when making a deal. When developing an algo trading system, at least one trading strategy will serve as a starting point. Rules will then be drawn up as guidelines to decide when to execute buy or sell orders as well as how to conduct the transaction, such as by slicing a large order into smaller trades.

According to a report from Aite Group in 2010, there has been a surge in the use of algo trading across various asset markets, especially in equities and futures. In the U.S., the proportion of trades involving algo trading rose from 5% in 2004 to over 40% in 2010, when more than half of the stock trading were done by computers automatically. There has also been a significant growth in the demand for algo trading in Hong Kong. Another research from Celent showed that the use of algo trading has increased to over 45% from about 25% in 2008.

Advantages of algo trading

Nowadays, algo trading is widely used by hedge funds, pension funds and other institutional investors. What triggered the shift in trading modes?

The most obvious reason is the extremely short response time. When traders observe a trading opportunity, they need a few seconds to make the judgment. However, in a fast-paced financial market, such a delay may mean a great loss of profit. By using an algo trading system, investment opportunities can be detected more easily and the deal will be completed in a few milliseconds. Algo trading can help achieve better investment performance and reduce the possibility of incurring a loss.

Apart from the extremely short response time, algo trading also enables financial institutions to identify the best trading strategy during the stage of system development. To determine the model and rules of an algo trading, system developer may draw on traders’ experience and apply technical analysis, index analysis or multi-factor analysis to real-time or historical data. Since system developers do not have a well-defined percentage of distribution regarding the representation of the data, software engineers will make use of historical market data as training data and input them into different systems to check for the system performance. This is why the quality of algo trading models is guaranteed.

Since trading is done by machine, multiple and parallel transactions can benefit from algo trading. As such, algo trading can be further applied to other trading techniques, one of which is high frequency trading (HFT), which has brought about a substantial change in market pattern. When placing an order that involves a large amount, the price of the underlying asset will experience broad fluctuation and the trade will become less profitable. According to regulations of different exchanges, transactions of this scale must be disclosed to protect all investors, thereby exposing the trading strategies used by sizable institutions. HFT is a good solution to this problem. First of all, an order will be divided into smaller parcels before they are sent to the exchange. Due to the low latency between the execution of each divided trade order, all the divided orders will reach the server of the exchange at nearly the same time. The difference between the price of each of the deals is therefore minimal, making it more difficult for other parties to trace the trading strategies and so putting institutional investors at a better position.
Besides, to hedge against market risk, traders would buy various financial instruments such as options and futures in addition to trading in the spot market. Making one transaction at each time will result in a higher cost and greater risks for financial institutions. Algo trading enables them to control the cost of hedging more effectively as trade orders are made nearly at the same time.

The risks of algo trading

As mentioned, algo trading systems are well-designed tools that help lower market risks. Nevertheless, there have been a lot of concerns over algo trading. One argument is that the algorithms are not stress-tested before they are put into use. For ordinary programs, programmers try to come up with different testing environments to test the reliability of system. Testing environments can also be set up for developing an algo trading system, but it is difficult to predict the factors contributing to the extreme condition that leads to system failure. Therefore, it is impossible to determine the tail risks of the system. Moreover, compared with traditional trading methods, the speed of algo trading is much faster. In case the system encounters errors, wrong trading orders would have been executed and enormous losses incurred before the errors are being discovered and fixed.

A risk specific to the application of algo trading is the theft of trading model by developers or other staff members, since it would be easier to extract trading strategies from the system than to elicit information from traders. If someone steals the model and sells it to other institutions, the system owner would suffer from the loss of revenue the system would be able to generate. A more serious problem is that other institutions may take action to intercept their trades after obtaining their trading strategies. On 3rd July 2009, a computer programmer of Goldman Sachs was arrested for being suspected of stealing trading programs.

Algo trading is most advantageous to institutional investors. But for other investors, it may be the cause of trouble if the system is not well-designed. The flash crash in the U.S. market on 6th May 2010 was a concrete example of how poorly designed system can cause huge fluctuation in the market. The crash started in midafternoon on that day, when the Dow Jones Industrial Average Index plunged by about 600 points within minutes and shedding as much as 998.50 points. It all began with the sell-off of futures contracts by an automated trading system that triggered a large number of algo trading software to execute stop-loss orders to close all related long positions. Since the systems were not able to think like a trader, they kept on selling even though the prices of some stocks fell to virtually zero. Under specific conditions, algo trading can have disastrous effect. The incident raised concerns from public and regulators regarding the reliability and potential market risks arising from algo trading. The U.S. Securities and Exchange Commission has held a number of meetings discussing possible regulatory measures on algo trading, but so far it has yet to reach a consensus.

Algo trading is becoming more and more popular and it is expected that the trend will continue. In order to protect investors, it is high time for regulatory authorities to set up corresponding regulations and risk management measures to avoid similar incident from happening in the future.

算法交易

随着科技进步，许多金融机构的营运操作渐趋自动化，算法交易（algorithmic trading，简称 algo trading）的兴起便是一个很好的例子。

算法交易的定义和发展

算法交易指由电脑决定待交易资产、所涉金额及交易方式等因素的交易。算法交易与传统交易方式的主要分别在于算法交易执行时以电脑运算为主，以人为主决定为辅。在编写算法交易系统时，首先会以最少一个交易策略作为起步点，接着定下规则决定何时执行购买或出售指示，以及如何进行交易，例如把一个涉及巨大金额的交易分割成多个金额较小的交易。
根據Aite Group 2010年的報告，算法交易在各種資產市場的運用激增，尤以股票和期貨為甚。在美國，涉及算法交易的交易宗數比例由2004年的5%上升到2010年超過40%。於2010年，一半以上的股票交易都是通過電腦自動化進行。另外，算法交易在香港的需求也有顯著的增長。Celent的研究指出，在香港應用算法交易的水平在2008年時已達25%左右，現時更在45%以上。

算法交易的優勢

算法交易現時獲機構投資者如對沖基金和退休基金等廣泛使用，是什麼原因觸發交易模式的轉變？最明顯的原因是極短的反應時間。當交易員觀察到交易良機時，他們需要數秒作出決定。然而，在這個瞬息萬變的金融市場，即使是些許的延遲也可能意味着投資損失減少。使用算法交易系統可以更容易偵測到投資機會，並在數毫秒內完成交易。所以算法交易不但有助提升投資表現，同時可降低投資損失的機會。

不僅如此，算法交易更可讓金融機構早於系統開閘階段便能找出最佳的交易策略。系統開發者可以根據交易員的經驗，以及對實時或歷史數據進行技術分析、指數分析和多因素分析，定出算法交易模型和規則。由於軟件工程師對資料的代表性並沒有一個明確的分配比例，他們會使用過去的市場數據作為訓練資料 (training data)，輸入到不同系統並測試其表現，故此算法交易模型的質量能有所保障。

由於交易是透過機器進行，算法交易有利於重複交易和平行交易，因此可應用在更多交易技巧上。其中一項便是大大改變市場格局的高頻交易（high frequency trading, HFT）。若交易金額非常龐大，資產價格將出現大幅變化，交易所得的利潤亦會減少。按照不同交易所的規定，為了保障所有投資者，這類交易均要對外公佈。大型機構的交易策略因此便在所難行。高頻交易是解決這個問題的好方法。交易指令首先會被分成數個小額的交易，再把訊息發送到交易所。由於執行各個分割指令的延遲時間極短，幾乎所有的分割指令都能同時到達交易所的系統，每筆交易的價格因此分隔不大，其他人較難跟蹤交易策略，為機構投資者帶來優勢。

此外，為了對沖市場風險，交易員除了購買現貨資產外，也會購買不同的金融工具，如期權、期貨。每次只執行一個交易便會令金融機構成本及風險上升。但有了算法交易，不同市場的交易指令幾乎可以同時發出，讓這些公司更有效地控制對沖成本。

算法交易的風險

如前所述，算法交易系統設計完善，有助減低市場風險。然而，很多人對算法交易仍然有所顧慮。其中一項論點是算法交易未能控制交易員的壓力，並且在不同的交易環境下，不同交易員的表現可有不同。算法交易亦有相應的測試環境，但無人能預知可能會引致系統故障的極端情況會否出現。此外，算法交易的交易速度很快，如果算法交易系統出現錯誤，不正確的交易指令可能在機構發出後及修復問題前便已執行，因而產生巨大損失。

交易策略的開發人員或其他員工盈賤是運用算法交易的一個特別風險。相比從交易員中抽取交易策略，從交易系統中抽取交易策略更為容易。如果有人得到模型並出售給其他機構，他們便會失去執行系統所獲得的收入。更嚴重的問題是其他機構在獲得他們的交易策略後，可採取行動攔截交易。2009年7月3日，一名高盛交易員便因涉嫌竊取算法交易程式被捕。

算法交易為機構投資者帶來莫大好處，但對其他投資者而言，如果系統設計不完善，可能會對金融市場造成大幅波動。2010年5月6日美國股市閉市崩盤是一個例證。當日下午交易市場中段，道瓊斯工業平均指數在數分鐘內下跌約600點，最大跌幅998.80點。事件起因於某個自動交易系統出錯及誤合約。這觸發各個算法交易軟件啟動自動交易，將所有相關長倉平倉。由於系統本身不應像交易員般進行思考，所以系統不斷拋售股票，其中有些股票的價格甚至下跌。在特定情況下，算法交易可能會引致災難性的影響。這次事件使公眾疑慮算法交易的可靠性和其引申的市場風險，亦引起監管機構的關注。美國證交及交易委員會至今已就算法交易的監管召開多次會議，不過仍然無法就此達成共識。

算法交易的使用日漸頻繁，預期這個發展趨勢將會持續。然而為了保障投資者，監管部門應盡快落實相應規範，並制定相關的風險管理措施，以防止類似事件再次發生。
Introduction to a common Business tool (PALO)

What are “BI tools”? How can they help Risk Management?

Generally speaking, Business intelligence (BI) tools are a type of application software designed to retrieve, analyze and report/present data. The result is then used to make decision.

To let you understand more about how BI tools work, here is an introduction to a common BI tool – PALO, written by one of our students:

In the past three months, I worked in an HSBC Insurance branch as a summer intern. I dealt with a lot of MS Excel files everyday. In most business operations, we stored useful information in numerous Excel spreadsheets, and used Excel features such as pivot table to analyze data. However, there was too much business data, and they were usually kept in separate Excel files. Do you think it difficult for the managers to make appropriate decisions from such Excel-chaos?

Palos, however, has been popular these days. Palo is a commercial open source business intelligence solution for planning, reporting and analysis. It has an Excel version, which is called Palo for Excel. Although Excel already provides basic tools such as pivot table, Palo helps fully utilize the potential of MS Excel and manage data in separate Excel files at the same time, and thus improves productivity and performance of a company.

Palo integrates data from each specific Excel file. There will be no more needs to have hundreds of sheets with often inconsistent data circulating throughout the company. The data is available to all users via the company’s network, quickly and easily.

Although Business Intelligence concept has become popular among IT professionals in renowned companies, sometimes they are discouraged to learn such business solution tools. One of the reasons is that there are many vendors to choose: Oracle, SAP, SAS, Microsoft, IBM, etc. Although big 5 one has powerful BI capability, the cost is high and requires expert to deploy the tool. Some startup companies have no idea on what tools to use. Furthermore, companies may find it uneasy to find new blood who have experience on handling the BI tools. They need to input resources and time in order to train their staff.

Palo for Excel, however, is very convenient to use, thus does not require too many resources for training. The only requirement for those inexperienced employees is knowledge of using Microsoft Office. Therefore, Palo for Excel is easy to learn, as it has a familiar user interface.

There are some other special features in Palo for Excel. The software does not save Excel tables but cell values only by using a comprehensive and indicative system of coordinates. This improves readability and flexibility. Palo is also web-enabled and not limited to the two dimensions of Excel.

Palo also provides some formulae, which are also called PALO:DATA formulae; you can access cell values within the Palo database in an organized manner via intuitive object names. Data can not only be well displayed but also collected via Excel by overwriting the DATA formula with a value. The formula will be preserved and will display the new value.

By combining the multi-dimensional and network-enabled data power of Palo with the easy handling and graphic possibilities of Excel, we can now transform Excel into an unbeatable Business Intelligence tool for planning, analysis, reporting and dashboards.

Palo’s developer, Jedox AG has been increasing its license turnover, thanks to the success of Palo. The market share of Jedox AG should continue to grow.

Palo is an alternative if the company mainly focuses on managing BI with Excel. Palo integrates the BI features into MS office environment. It is especially suitable for SMEs as they may not have enough funding and human resources to buy and deploy BI tools and MS office is a common application platform for every corporate.

Oracle BI Enterprise Edition (OBIEE)
Ready for the new BI generation?

The world is fast-changing and surely the BI market is no exception. The BI market development is driven by two factors: technological development and market demand.

You may foresee that BI application will be more visualized: the font will be larger and clearer; the charts will be more fancy and colorful. But these are only marketing elements if they cannot help the user make better decisions. With the technological development of central processor, the response time of the applications will be shortened, it is important as every time the application has to process millions of billions of data. BI tools are dependent on these features. BI is becoming proactive, real-time, operational, integrated with business processes, and extending beyond the boundaries of the organization.

The BI tools are now being criticized as "software which has complicated interfaces and is very expensive to purchase and maintain." Based on a recent survey by BRARC, 38% of SAP BI users are unhappy with the performance of their SAP BI modules. It is pretty sure that with better processor, the response time can be shortened by up to 100%.

As you may know, we are now in the age of web 2.0 and we also have a standard called BI 2.0, suggested by Gregory S. Nelson, the president and CEO of ThotWave Technologies and listed in the white paper <<Business Intelligence 2.0: Are we there yet?>> on SAS Global Forum 2010.

Web 2.0, which refers to social media, is now dominating the Internet and BI 2.0 learnt lessons from Web 2.0 media, such YouTube, Twitter, Facebook, Wikipedia, blogs and forums. BI 2.0 can be regarded as an extension of Web 2.0. It will be a mix and match of structured and unstructured data. Public data and corporate data are mixed by new ways to achieve better analyzing capability.

What can we learn from Web 2.0?

For example, from Facebook, we can learn that proactive alerts and notifications force people to participate, and the importance of continuous flow of information. From Twitter, we can learn about real-time processing of data, generate word clouds that provide a visualization of the sentiment of the business and associate newsworthy information, as suggested by Greg Nelson. And from Wikipedia, we can learn that collective knowledge is greater than that of the creator's.

If you view BI from its basics, it is derived from only two things: data and reports. Most of the effort in BI before has been focusing on the data issue, data integration, data quality, data cleansing, data warehouse, data mart, data modeling, data governance, data stewardship. BI 2.0 is an extension of BI. So, what is the proposed future of BI?

The future of Business Intelligence?

1. The applications will provide real-time instant access to information. Users will be able to interact with the data operational systems, i.e. requests for information, report problems.

2. Analytic applications may have built-in intelligent helper model to help detect complex patterns in data.

3. Users may be able to ‘tag’ the useful data they found in the loads of data. Finding information will be much easier and context will be provided with the search result.

4. Decisions, facts and context will be developed through "crowdsourcing".

5. Application will give alerts and notifications based on dynamic business rules, which will learn from users' behavior and area of interest. Data will be more directly linked with action. When the users see something wrong, the data will tell you where and why it is wrong.

6. Collective knowledge will be the mainstream. Unstructured contents such as documents, discussions and previously answered problems will be linked with the database.

7. Technical, process and business event monitoring will be applied to the applications.

8. Complex relationship and data can be visualized easier by using new tools. Info-graphics will become a useful tool.

BI 2.0 will not to replace traditional BI tools, it is an extension of BI. With the powerful functionality of WEB elements, BI tools are going to be much stronger. Many companies are now putting more and more attention on Business Intelligence. And the developers, such as Microsoft, are trying their best to develop better applications for users. In the foreseeable future, the new generation of Business Intelligence is going to benefit all of us, not only businessmen.
通用商業工具介紹

什麼是BI Tools？
他們對風險管理有何幫助？

總體來講，商業智能（BI）是一類用來檢索、分析和匯報或呈現數據的應用軟件。所有的結果最終會被用來做決策。

為了更明確解釋商業智能工具是如何運作，我們的一位同學撰寫了一篇關於通用商業智能工具Palo的介紹。

在過去三個月，我在匯豐銀行的保險部門當暑期實習生。每一天我都會處理很多MS Excel檔案。在大多數商業運作中，我們把有用的信息存儲在Excel電子試算表，並利用數據透視表等Excel特性來分析數據。但是，當有太多的商業數據存在Excel文檔，對於經理來說要從這些混亂的Excel數據中做決策就有點困難了。

通用智能工具Palo日益流行。Palo是一種公開源碼，是用來規劃、報告和分析數據的商業智能解決方案。Palo的Excel版本名為Palo for Excel。儘管Excel已提供了諸如數據試算表等基本工具，但Palo則更全面地發揮Microsoft Excel的潛能，於不同的Excel文檔中同時管理數據，從而提高公司的效率和生產力。

Palo能整合每個特定Excel文檔中的數據。因此再沒必要用上千張試算表來記錄在公司內流通且經常不一致的數據。數據可以迅速且簡易地在公司整個網絡上存取。

雖然商業智能這個理念在著名公司的IT精英中逐漸流行起來，但有時他們也會因學習這些商業方案解決工具而受挫。原因之一就是市場上有太多的供應商：Oracle、SAP、SAS、Microsoft、IBM等等。一些剛剛建立的公司不知道應該選用什麼工具。此外，一些公司很難找到有運作商業智能工具經驗的人才。他們需要投入大量資源和時間來訓練員工。

為Excel而設的Palo使用十分方便，因為無需在訓練上投放那麼多資源。對於無使用Palo經驗的單位，其唯一要求就是對微軟辦公室的掌握。因為Palo有很容易操作的用戶介面，很容易就能學會如何使用。

Palo也有其他的特色。比如說，它不是直接保存Excel報表的，而是用一種綜合且有指示性的座標系統來儲存單元值，這樣就提高了可讀性和靈活性。Palo同樣也是網絡兼容並且不局限於Excel的二維性。

Palo同時提供一些叫做PALO.DATA的公式。用戶可以有條理地通過直觀對象名稱來獲取Palo數據庫中的值。數據不僅可以很好地展示出來，而且可以利用Excel的數值複寫公式來收集，這些數據可以保存下來並賦予新的值。

通過多維和Palo的網絡兼容數據能力，加上Excel方便處理和繪出所有可能性的特徵，我們現在可以將Excel轉變成一個很適合用來策劃、分析、匯報和操控的商業智能工具。

由於Palo的成功，Palo的創建者Jedex AG的營業額不斷上升。Jedox的市場份額也將持續增長。

如果一公司主要集中利用Excel管理商業智能，Palo將是一個很好的替代品。Palo把商業智能的功能集成到微軟辦公室裏。這種軟件特別適合中小企業，因為他們可能沒有足夠的資金和人力資源去購買和部署商業智能工具，而每一個企業都會使用微軟辦公室軟件。

Palo Website: http://www.palo.net/
迎接商業智能新世代？

世界在快速變化。商業智能市場當然也不例外。商業智能市場的發展主要由科技發展和市場需求兩個因素推動。

我們可以預見BI應用會更形像化。字體會更大更清晰，表格也會更加美觀和多彩。但是如果它們不讓用戶做出更好決策的話，這些也都是不實際的營銷元素。隨著中央處理器科技的發展，應用程序的反應時間會縮短。由於應用程序要處理成萬上億的數據，這對數據處理非常有幫助。這些進步對商業智能工具很重要。商業智能工具變得更加廣泛使用，並且可以與商業過程融合，及可以延伸到這些組織界限以外。

BI工具被評價為「購買和維護都很昂貴的複雜界面軟件」。根據BRARC的一項近日調查，38%的SAP BI用戶都對自己使用的商業智能模版的表現不滿意。我們確信有了更好的處理器，反應時間將會被縮短100%。

我們現在處於web2.0時代，我們也有一個被ThatWave Technologies的首席執行官Gregory S. Nelson稱為BI 2.0的標準，並且在白皮書《商業智能2.0：我們到了麼》列舉了出來。

Web2.0即社交媒體。現在正主導互聯網。同時BI 2.0也在像諸如YouTube、Twitter、Facebook、Wikipedia、博客和論壇等媒體學習。BI 2.0被認為是web2.0的延展。它將會是有組織和無組織數據的結合。公開數據和共同數據利用新的方法融合在一起以實現更好的分析能力。

我們能從web2.0中學到什麼？

從Facebook的例子中，我們知道「主動提醒」和「通知」強制了人們去參與，並且了解了持續信息流動的重要性。從Twitter中，我們可以理解Greg Nelson所提出的，怎樣即時地處理數據，產生語義來提供一個形象化的商業和具新聞價值的信息。而從維基百科中，我們可以知道集體知識要比單一創造者的豐富。

如果你從最基本的角度審視BI，就會發現它僅僅源於兩種物件：數據和報告。之前，大多數的BI發展都集中於數據開發、數據整合、數據質量、數據管理、數據庫、數據集市、數據模型、數據存儲和數據管理。商業智能2.0是BI的伸延。那麼，BI的未來發展將會如何？

商業智能的未來？

1. 應用程序會提供即時訪問信息的渠道。用戶能夠直接與數據操作系統互動，比如要求資訊、報告問題。

2. 分析性質的應用可能擁有內置的智能助手模版來幫助探測數據中複雜的模式。

3. 用戶也許能夠「標記」那些他們在大量數據中找到的有用數據。尋找所需信息變得更容易，而且背景資料也會與搜索結果一起呈現出来。

4. 決策和背景都會通過群眾外包而不斷發展。

5. 應用程序會有發出警報和提示的功能，這些都是在活躍的商業規則上建立而成的，而這些商業規則都會學習用戶的行為和關注範圍，同時數據也會與行動接連得更加緊密。當用戶發現有問題出現時，數據就會告訴你問題所在。

6. 集體知識將成為主流。比如像文檔、討論和之前回答過的問題這些非結構化的內容都會被連接到數據庫中。

7. 技術、過程和業務事件的監控都將適用於這些應用程序。

8. 複雜的關係和數據可以通過新的工具而變得更加容易形象化。資訊圖像也將會成為一種重要的工具。

商業智能2.0並不會取代傳統的商業智能工具，而是作為一種延伸與之並存。隨著WEB元素功能不斷強化，商業智能工具也會變得更加強大。許多家公司現在越來越關注商業智能。像微軟這樣的開發商也在盡最大努力為用戶開發更好的應用程序。在我們預見的未來，新一代的商業智能將不僅是對商人，而是會對我們所有人都有益處。
1. Dim Sum Bonds

Dim sum bonds are Renminbi-denominated bonds issued in Hong Kong. Having been around since 2007, these bonds were not popular and issuers were few before 2010, mainly due to the restriction that only Chinese financial institutions were allowed to issue them. From 2010 onwards, however, organizations all over the world have been allowed to issue dim sum bonds in Hong Kong. Yet, issuers would still need the permission from the Chinese government to transfer the capital raised to China.

2. Synthetic Exchange Traded Funds

Synthetic exchange traded funds (ETFs) are exchange traded funds using synthetic replication by holding financial derivative instruments to track index performance. Synthetic replication is adopted for efficiency and cost considerations. More importantly, ETFs can only adopt synthetic replication by the use of financial derivatives when they are tracking restricted market like the China A-share market.

The financial derivatives used are usually in the form of index-linked structured products issued by a counterparty, or other contracts such as swaps, futures and options transacted with another counterparty. As a result, synthetic ETFs are considered to be riskier than ordinary ETFs as they involve more risks like counterparty risk from the holding of financial derivatives.

3. Big Data

Big data refers to datasets with size beyond the capability to store, manage, analyze and visualize them using typical database software tools. Examples of big data include web logs, financial data, and data of large scale e-Commerce.

Big data is not defined in terms of the actual size of memory the datasets occupy because it is assumed that the size of big data will grow as technology advances over time. Big data today ranges from dozens of terabytes (TB) to multiple petabytes (PB).

The growing trend of big data is mainly due to the benefits of using larger datasets such as more comprehensive analysis and more accurate forecast results. However, it also creates challenges such as problems of storage and technology.

1. 點心債券

點心債券是指在香港發行的人民幣債券。點心債券於2007年首次推出，但初始並不普及，發行機構不多，主因是當時只有內地的金融機構能夠發行點心債券。直至2010年，全球所有公司都可以在香港發行「點心債券」融資。然而，發行機構仍然需獲得中國政府的批准，才可將籌集所得的資金從香港轉移到中國內地。

2. 合成交易所買賣基金

合成交易所買賣基金是指透過持有各種衍生工具以合成模擬所產生的交易所買賣基金，具有追蹤個別指數的效用。基金採用合成模擬方法來追蹤指數表現，是基於效率及成本方面的考慮，更重要的是，基金只能運用金融衍生工具，採用合成模擬方法追蹤設有參與限制的市場，如中國的A股市場。

這類基金所持有的金融衍生工具多為由交易對手發行的指數掛鉤結構性票據，或與其他交易對手訂立的掉期、期貨及期權合約。由於涉及的風險如對沖風險較大，因此合成交易買賣基金較傳統的交易所買賣基金風險更高。

3. 海量數據

海量數據是指數量極為龐大以致一般數據庫軟件無法有效儲存、管理和分析海量化的數據集。海量數據的例子包括網絡日誌、金融數據及大型電子商務的數據。

海量數據並不以其實際佔用記憶的大小而定義，因為海量數據的規模會隨著科技進步而增加。現時海量數據的大小由幾十個太位元組(TB)至數個拍位元組(PB)不等。

海量數據應用的趨勢，是運用更大型的數據集有其好處，如分析可更全面和預測更為準確。不過，這種趨勢亦帶來了儲存和技術等方面的挑戰。
HKUST Symposium on Risk Management and Business Intelligence 2011
科技大學風險管理及商業智能學座談會2011

The HKUST Symposium on Risk Management and Business Intelligence 2011 was held on 2 April at HKUST. For the third consecutive year, the Symposium invited prominent guest speakers from different professions to share with the audience their insights into the prospect of risk management and business intelligence. The speakers included Ms. Alexa Lam, Executive Director and Deputy Chief Executive Officer of the Securities and Futures Commission; Dr Ping Chung Ng, Senior Business Executive of Cluster Technology Limited; Dr Ka Lok Chau, Consultant of Evo Capital Management Asia Limited; Dr Wing Nam Wong, Senior Health Informatician of Hong Kong Hospital Authority; Dr Paul Tsang, Managing Director, Head of Asia Market Risk Department of Morgan Stanley. The event drew an audience of more than 300 scholars and industry players from across the banking, insurance and other business sectors. They were provided with the most recent updates and a deeper understanding in the fields of risk management and business intelligence.


Career Talk — AIA limited
就業講座—友邦保險集團有限公司

The RMBI Program often organizes career talks for students to gain a better understanding of different industries. In June this year, a career talk was jointly held by the Program and AIA Group Limited. The event featured Mr. Stewart Lee, Vice President of Agency of AIA Hong Kong, as the guest speaker. He shared with the students his extensive industry experience and information about the financial planning industry, such as the importance of risk management in financial planning and trends of the industry development. In addition to providing excellent academic training, the Program aims at enhancing students’ competitiveness by hosting activities such as career talks to prepare students for the challenges in their studies and at work in the future.

本課程經常舉辦就業講座，藉此增加學生對不同行業的了解。今年六月，本課程與友邦保險集團有限公司在科技大學合辦就業講座，由友邦保險集團代理部副總裁李誠凱先生負責主講。李先生與學生分享了他從業多年的豐富經驗，和一些有關財務策劃行業的資訊，例如風險管理對財務策劃的重要性和市場發展趨勢。除了給予學生優秀的學術培訓，本課程亦透過舉辦多種活動如就業講座來提升學生的競爭力，為當前學業和日後就業作好準備。

http://www.rmbi.ust.hk/news_15.html
Lunch gathering
午餐聚會

The RMBI program organizes lunch gathering every semester as a way to forge a closer bond between professors, officers and RMBI students, and to help students strike a balance between studies and social life. During the luncheon on 11th March, program director, Prof. Mike So, shared with students information about professional examinations, research projects an upcoming activities. Students made good use of the opportunity to discuss academic and career development issues with the professors.

為了讓教授、職員及風險管理及商業智能學課程的學生建立良好的關係，幫助學生在學習及社交生活之間取得平衡，本課程不時舉辦午餐聚會。在3月11日的聚會中，課程主任蘇家培教授給學生講解各種信息，包括專業考試、研究項目，以及將舉行的精彩活動。與此同時，學生亦藉此機會與教授討論學術、個人成長或事業發展的話題。

Exchange experience sharing
交流體驗分享

Yeung Yuk Ting Cherry, RMBI Year 3 student,
Exchange study at the University of Waterloo, Canada in Spring Term, 2011
楊玉婷 (風險管理及商業智能學課程三年級生)
於二零一一年春季學期前往加拿大滑鐵盧大學交流

Not only did this exchange trip broaden my horizon through meeting people from different places, it also gave me a totally different learning experience. In Waterloo, I met nice friends from places such as Iraq, France and Africa, etc. Canadians are friendly and willing to help foreign students. They love spending time with friends and families and show a strong sense of belonging to their nation. Their enthusiastic attitude towards friends and families impressed me and made me reflect on myself. Now I am making more time for my family from my busy school life.

It was very exciting and eye-opening to study in the University of Waterloo (UW). While in HKUST we emphasize more on using various tools to assist us in getting the result, UW focuses more on hand-on experience. For instance, in an Optimization Class in UW we spent half an hour on paper to solve a problem which can easily be done by Excel in a few seconds. Though it seemed to be time-consuming to do the calculation step by step, it was unexpectedly interesting to manually work out the excel computation. This unforgettable experience made me realize that not only should we focus on how tools are being used but also the actual working mechanism behind.

這次交流不僅擴闊了我眼界的視野，認識到來自不同地方的朋友，也給我一個全新的學習體驗。在學校，我認識了來自伊拉克、法國和非洲的好友。我覺得加拿大人十分親切，很願意幫助外國學生。他們喜歡與朋友和家人相處，並對自己國家有強烈的歸屬感。他們對朋友和家人的熱情態度給我深刻印象，同時讓我反思自己。現在我學會從繁忙的學校生活抽出更多時間與家人相處。

這次經驗讓我眼界大開又感到非常興奮。在香港科技大學，我們重視使用不同工具為得出運算結果；相反加拿大的學校較注重親身經驗。例如在滑鐵盧大學的一個有關優化設計的課程中，學生需要花半小時以筆算解決一個可用試算表軟件輕易在幾秒鐘完成的問題。一步一步的數學操作好像很費時，但我覺得很有趣，因為可以從中了解試算表的運作。這次難忘的經歷讓我了解我們不應只着眼於如何使用工具，更要知道背後的原理。
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