White Paper

Big Data Usage and Trends in China Market

Executive Summary of Survey Analytics in China Market

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Abstract

Global data volume grows rapidly at an average rate of 50% every year. At present, 80% of the world's data volume has been generated in the recent two years. Before year 2003, the global data volume was about 5 Exabyte, but a well-known research company predicts that humans will be able to create the above-mentioned information volume every ten minutes next year.

Big data is a double-edged sword. On one hand, big data can result in huge IT expenses; IT inefficiency could reduce business margins and market share rapidly. On the other hand, it also brings opportunities for enterprises to leverage big data to create values, to enhance competitiveness, and to achieve business breakthroughs through IT innovations.

At present, the most important dimensions describing big data include data volume, data variety, and speed of analytics. Sino-Bridges Research and Consulting Ltd., (here after referred to as Sino-Bridges) considers the biggest challenge posed by big data for users as being how to resolve challenges from traditional IT technology and IT process, and enable IT to create values through big data via the process of rapid acceleration of data volume, variety, and velocity, specifically including whether it can meet the requirements of resources and performance of the four stages during the big data analytics process from data ingest and storage, ETL (data extracting, transformation, loading), data analytics, to the analytics results presentation.

Sino-Bridges conducted an in-depth survey of 455 end users with 50 sets of questions in China in July, 2013, concerning their organizations' current and planned data management, focusing on the impact that large data volumes- now frequently referred to as "big data"-are having on data analytics and integration. The questionnaire mainly referred to the problems of development trends of current big data in China, the understanding of big data, the values brought by big data for enterprises, and the challenge and future development trends of IT (IT infrastructure, computing, storage) in the big data era. Combining the survey data and analytics, the report will present a comprehensive interpretation of big data values and trends in China market. Here is the Executive Summary of China's Big Data Values and Trends Research Report. Survey participants represented large midmarket (500 to 999 employees) and enterprise-class (1,000 employees or more) organizations in China market.

How To Create Business Values Through Big Data

The Values of Big Data

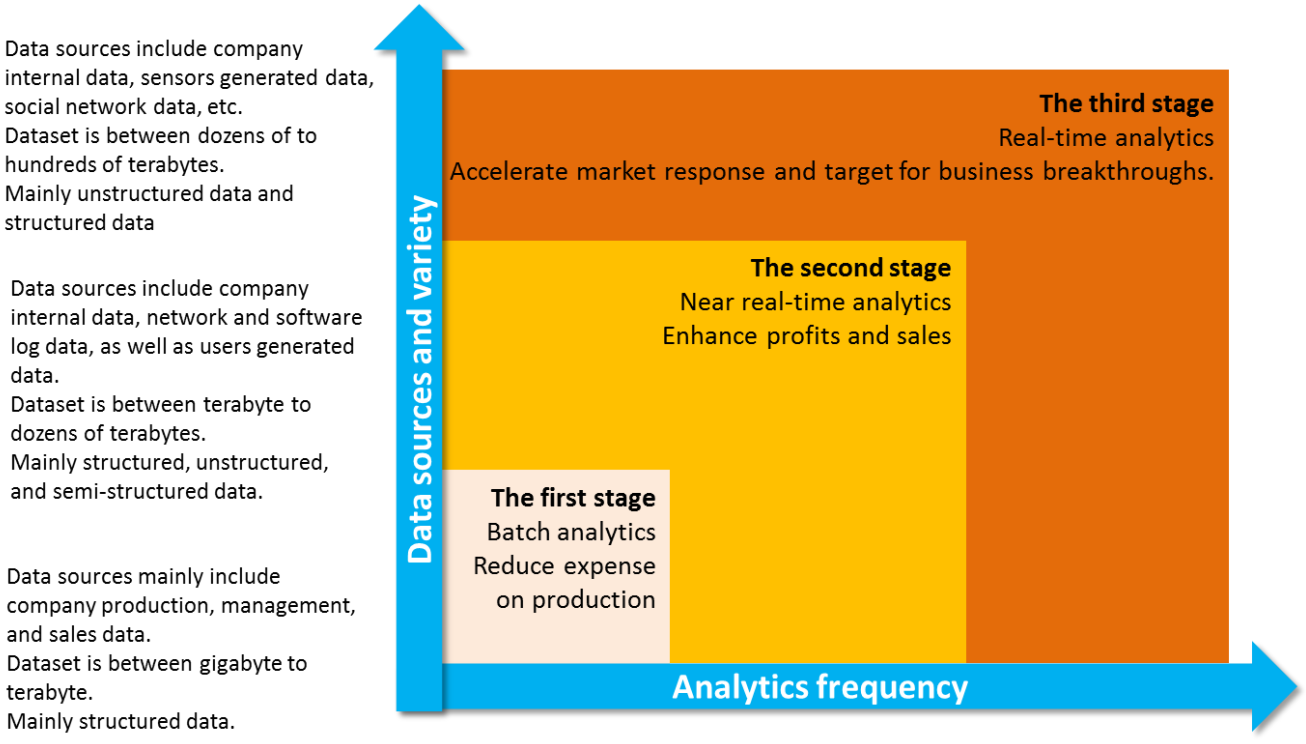
In the retail business, premier customers' acquisition and retention as well as capital turnover determines the profits and sales growth. Big data enables innovative retailers to change the retail market landscape. For example, by leveraging real–time, price comparison tools to consumers and combining dynamic pricing, online retailers dramatically increase their competitiveness of both customer acquisition and retention, also optimizing their profit on each merchandise item. Big data is shaping the retail industry and its profit model. It has been analyzed from the price to earnings ratio (P/E ratio2) over the past 10 years that Amazon's yield range was 30 to 300 in the past ten years which is much higher than Target3 (11-18) and Walmart4 (15). By attracting premier customers more efficiently, Amazon, with a history of less than 20 years, successfully surpassed traditional retailing P/E ratio that had developed for more than 50 years and been famous for its low price competitions. This indicates that, compared to the traditional retail industry's depending on low price competitions,

the online retail industry can attract more and better consumers at a lower cost by making full use of the value of big data, thus preceding the traditional retail industry by an increase in profit during a short time. Amazon, Alibaba and eBay have taken great advantage of speed to challenge large scale through big data and leaped rapidly in development due to superior and swift market response, changing the market landscape of the traditional retail industry. In addition to the retail industry, great changes have taken place in industrial patterns in other industries by using big data. According to McKinsey's prediction, big data can sharply reduce government's expense on health care and public administration. Centralized management and effective use of large data of the U.S. health care system can improve not only production efficiency, but also the quality of nursing and health care, as well as competitiveness of the industry. What is more, the expense can be reduced by up to 300 billion dollars each year; EU public service administration can save £250 billion annually by improving operational efficiency, and reducing operating costs through big data.

Features at Different Stages of Big Data on Analytics

Big data is an evolutionary process. Traditional business intelligence are evolving to big data analytics through increasing data variety and data sources, improves analytics speed to catch up with more and larger datasets. Within business intelligence, the main dimensions of big data to create values through IT are: data analytics frequency, data variety (sources and types). It can be divided into three stages (Figure 1).

Figure 1. The roadmap of big data creating values through IT



Source: Sino-Bridges's Big Data Survey, July 2013

- The first phase: Batch analytics: The data are mainly from internal structured data (such as production, management, and other data). Analytics datasets often range within gigabytes or terabytes. The primary purpose is to reduce production expenses through data analytics and improve the efficiency of capital expenditures and logistics as well as improve decision-making ability of business intelligently. In China market, the major data analytics architecture often

is based on the traditional one. Users' IT investment in this stage focuses on increasing the frequency and variety of data analytics, in order to make better preparation of IT infrastructure and resources for the evolution of big data analytics architecture.

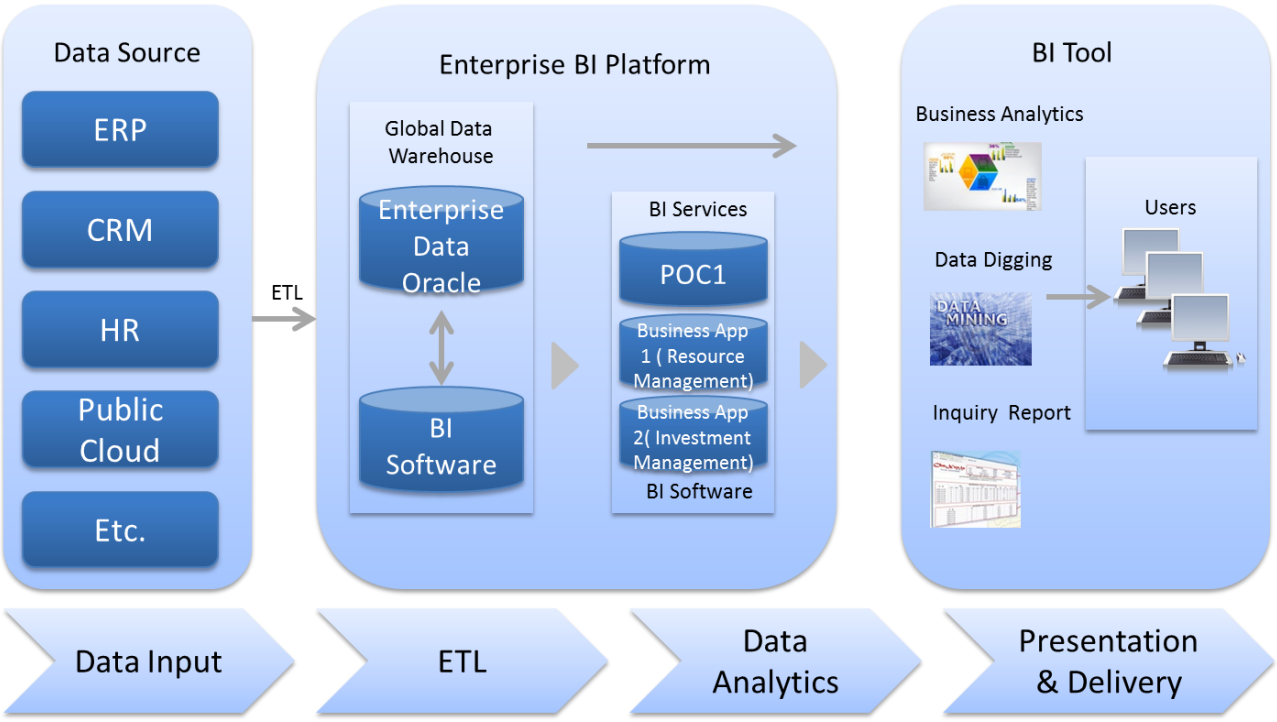
- The second phase: Near real-time analytics: Data analytics type is evolving gradually from the traditional, structured data into more unstructured data (audio/visual video, community, etc.) and semi-structured data (including system logs, customer information). The analytics dataset is larger than that of batch analytics, ranging from a terabyte to a dozen terabytes or even dozens of terabytes. In addition to reducing production expenses and improving decision-making efficiency, enhancing profits and sales and improving premier customers' acquisition and retention have become the major objectives. The processing time of near-time analytics from preparation process to render is much more demanding compared to batch analytics. And this drives high requirements of the processing capacity of the data and the speed of analyzing as well as quick presentation of results.

- The third phase: Real-time analytics: Data sources and types are more rich, which include not only production data, users' data and social networks, but also data from third parties (real-time competition monitoring, purchasing behavior monitoring of target users' group), and data from sensors. The analytics dataset ranges from dozens of terabytes to hundreds of terabytes. The main objective is evolving toward achieving business breakthroughs through real-time analytics, and also, to enhance the core competitiveness of enterprises in the global market and optimize enterprises' premier customers' acquisition and retention. In the real-time analytic process, necessary "action" can be activated by the intelligent system automatically, so as to achieve operation automation. Therefore, real-time analytics has the most demanding requirements for capacity and performance of data analytics. Also, prompt business decisions (price, inventory, packing services) based on real-time analytics results is critical. This sets up higher standards not only for computing performance, networking performance, and security, but also for data storage capacity, performance, and dynamic resource allocation capabilities.

Four Steps of Big Data Analytics

From data collection and management to data analytics and reporting, it mainly includes the following four steps (Figure 2).

Figure 2. The Process of Creating Business Values through Big Data Analytics



Source: Sino-Bridges's Big Data Survey, July 2013

1. Data Input: Effectively collect and manage business internal data, and gradually set up standardized data classification in the data collection stage. Effective data storage and management is critical to ensure the availability of enterprise data resources in the evolving process of big data, which is also the key of whole big data analytics process.

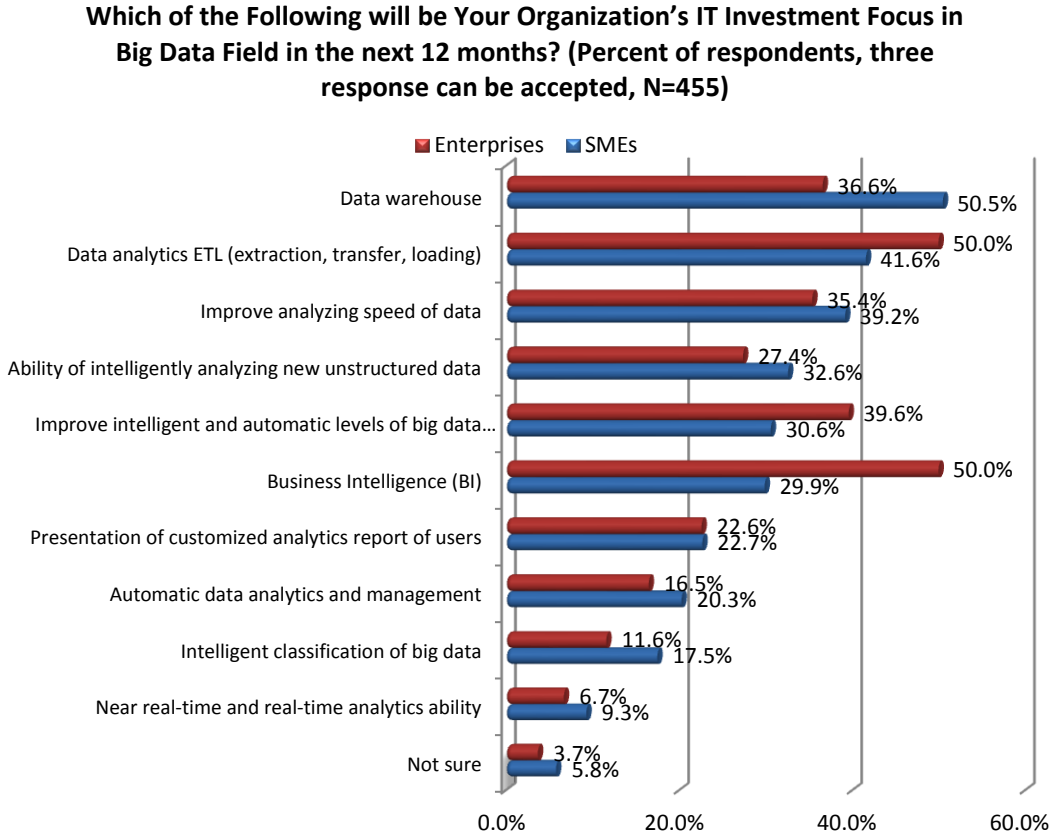
2. ETL: Big data analytics preparation should realize data extraction, cleaning, transformation, and loading from different applications.

3. Data Analytics: Conduct batch, real-time, or near real-time or real-time analytics based on business needs.

4. Result Presentation: Present big data analytics results to support intelligent strategic decisions and business decisions. Or trigger business actions automatically based on real-time data analytics to improve business' response efficiency to the market and improve competitiveness.

Then what is the emphasis of businesses of all sizes based on the above four steps? The survey results show that (Figure 3), in the next 12 months, relative IT investment of big data among enterprise users will focus on data analytics ETL (extraction, transfer, loading) and Business Intelligence (BI); SMEs IT investment will focus on data warehouse and ETL (extraction, transfer, loading) . This result has very close relationship with stages of different enterprises.

Figure 3. The investment Focus of Enterprises in the Big Data Field



Source: Sino-Bridges's Big Data Survey, July 2013

To be specific, Chinese enterprises are evolving from the first phase of batch analytics to the second phase of near real-time analytics. And they are more interested in how to maximize users' experience and reduce premier customers' loss through big data analytics and business intelligence (BI). SMEs will focus on how to improve production efficiency, profitability, and business intelligence levels.

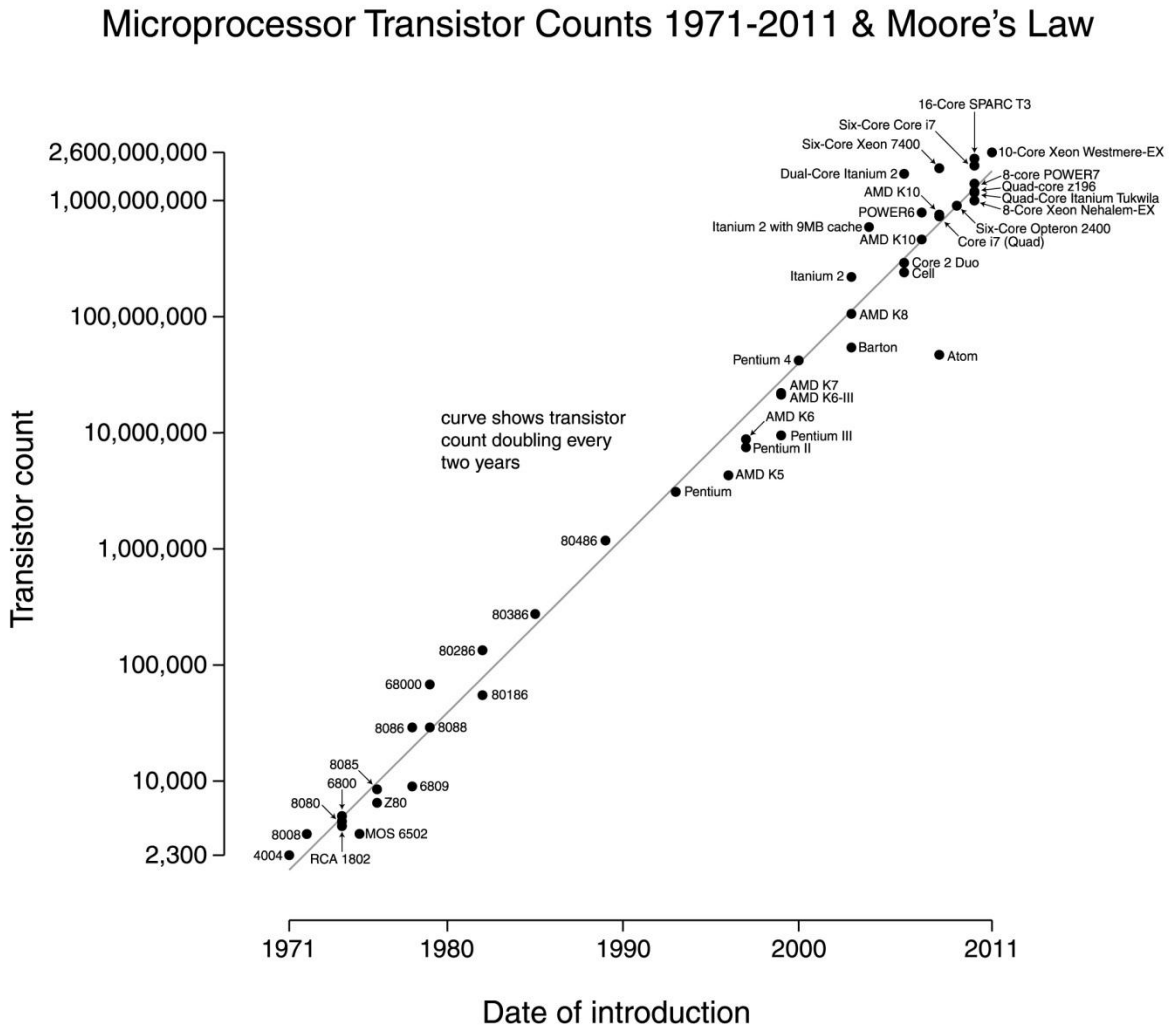
IT Challenges for Big Data

In the big data era, the number of global applications has changed from thousands, more than ten years ago, to millions today; IT service users have rapidly increased from consisting primarily of traditional IT professionals to including ordinary consumers. Traditional IT, regardless of resource allocation efficiency, scalability, and processing capacity, has been unable to meet the demand of processing and analytics and storage of big data. In addition, traditional IT technology not only results in rapid growth of the total cost of ownership but also poses a lot of hidden threats to the stability and safety of business when tackling the challenges of big data. Therefore, the big data era needs innovative IT to economically, efficiently, and dynamically support business's big data era.

The rapid growth of IT technology of data centers is to meet the market demand. In terms of computing capacity, the performance of chip processors doubles in every two years according to Moore Law (Figure 3). Regarding the performance of networks, 10 gigabyte-, 40 gigabyte-, and 100 gigabyte- Ethernet products are racing to launch, the price of InfiniBand declines gradually, and data center, network bandwidths have been rapidly strengthened. Under the circumstances, the gap

of the disk with respect to CUP and cache performance, as well as dynamic allocation capacity of traditional storage, result in performance and capacity bottlenecks during the big data analytics process. Storage bottlenecks lead to not only performance problems of application processing, but also problems of traditional storage capacity, storage utilization rate, storage allocation efficiency, and high availability of data, etc., during the big data analytics process, which create obstacles that limit value creation of big data IT.

Figure 4. Moore Law



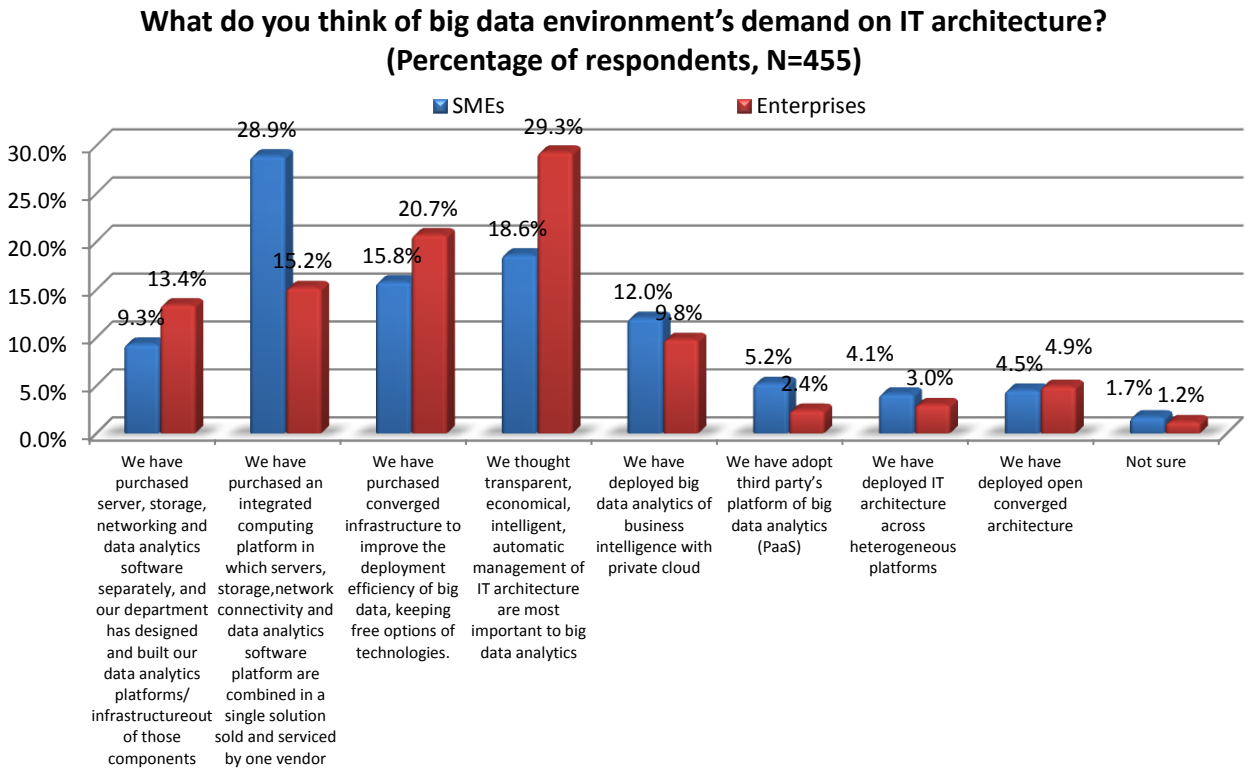
Architecture of big data analytics evolves rapidly from the combination of traditional table and column structure, to distributed architecture. Sino-Bridges will interpret the trend based on the options of Chinese enterprises on IT architecture, computing nodes, and storage as follows.

IT Architecture Demand of Big Data Analytics

In the era of big data, with the explosive growth of data storage and the emergence of layered network architecture, the IT complexity has reached an unprecedented height, while big data analytics makes traditional IT architecture overburdened. Then, from the view of enterprises, what IT architecture do they need for their big data environment? The investigation results from Sino-Bridges (Figure 4) shows that enterprise users (with more than 1,000 employees) mainly choose

transparent, economical, intelligent, automatic IT architecture (29.3%); SMEs (with less than 1,000 employees) mainly choose the all-in-one solution (server, storage, network, big data analytics software) (28.9%). Enterprise users tend toward open, heterogeneous, cross-platform IT architecture, because the development of IT architecture for big data analytics is more mature. The improvement of the efficiency of BI is the current focus of Chinese enterprise users in selecting IT architecture. SMEs are still in the developmental, initial period of IT architecture with a lack of IT management resources. Therefore, the all-in-one solution becomes the first choice for SMEs. The choices of respondents show thefuture trends of the need of IT architecture of China's enterprises, and show that data integration and ETL is the urgent demand of China's enterprises and is one of the biggest problems confronting them.

Figure 5. Infrastructure for Data Analytics and Processing Activities

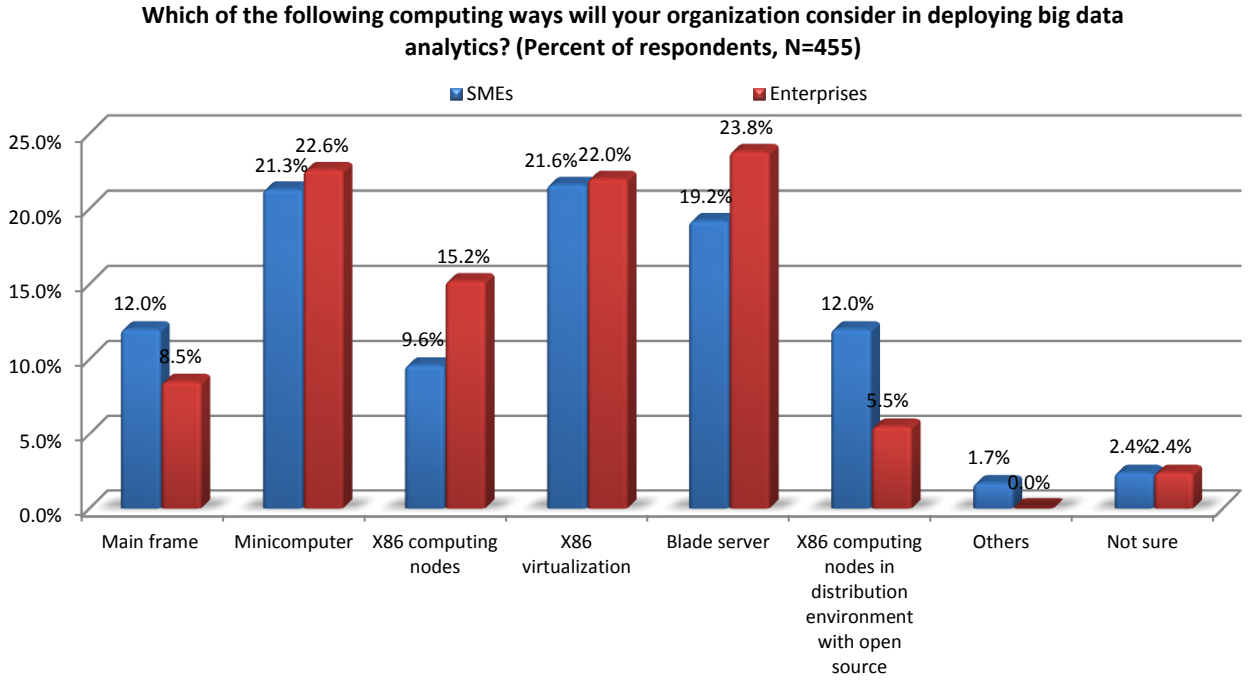


Source: Sino-Bridges's Big Data Survey, July 2013

Computing Technology Demand of Big Data Analytics

From the perspective of the computing way of big data analytics (Figure 5), respectively 21.6% and 21.3% of the enterprise users consider x86 virtualization and minicomputers to deploy the platform of large data analytics; SMEs (23.8%) mainly consider the Blade Server. The characteristic of high density of the Blade Server is helpful for improving computing ability, maintaining a high density of IT. Compared to other countries, in China market, many business critical applications run on a minicomputer platform, therefore support for the minicomputer has become the preferred option for enterprise users; for those enterprise users wanting to choose a new platform to realize large datasets analytics, x86 virtualization has become the fit option. Combined with our prior analytics, the current, big data analytics speed and frequency of China market are much lower than that of U.S. and European markets, which leads Chinese enterprises in data analytics, where large data can create value through IT; the important part is relatively weak.

Figure 6. Demand for computing technology of big data analytics



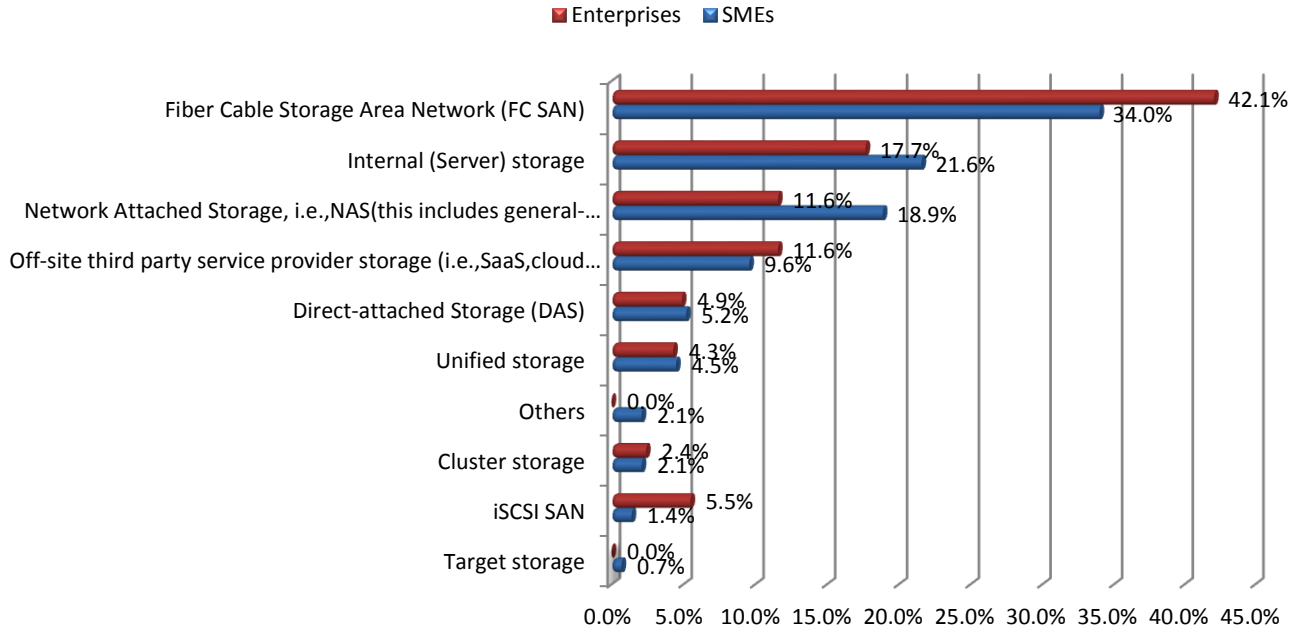
Source: Sino-Bridges's Big Data Survey, July 2013

Storage Demand of Big Data Analytics

Considering big data analytics evolution, storage is the key to ensure OLTP and OLAP requirements, especially the requirement of business critical applications, as amount of applications, data volumes and numbers of users continuously grows in the big data era. In terms of storage currently used to support its data analytics and/or processing activities, Figure 6 revealed that FC SAN ranked as the #1 for enterprise users (42.1%) and SMEs (34.0%). The results of the survey also reflect that Chinese current users are mostly in the first phase of big data analytics, namely batch analytics, where centralized storage and IT architecture mostly dominate. With the growing popularity of Hadoop and MapReduce, users are gradually moving into the near real-time and real-time analytics phase, which will drive distributed and cluster storage requirements to increase.

Figure 7. Storage Used to Support Data Analytics and Processing Activities

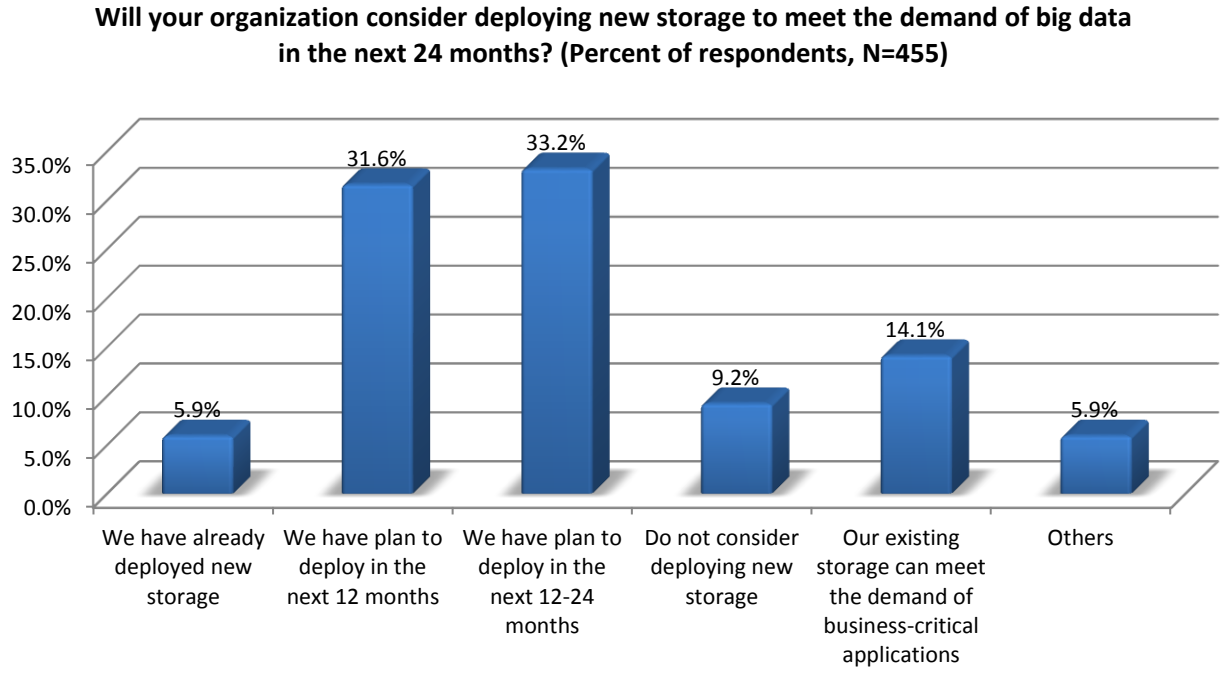
Which of the following types of storage is currently being used by your organization to support its data analytics and/or processing activities? (Percent of respondents, N=455)



Source: Sino-Bridges's Big Data Survey, July 2013

Can the enterprises' storage meet the demand in the big data era? Figure 7 indicated that in next 12 months, 31.6% of users plan to deploy new storage to meet the demand of business-critical applications, and in the next 12-24 months, 33.2% of users will plan to deploy new storage. This suggests that traditional storage is facing challenges to meet the performance demand of business-critical applications. In the next 24 months, 64.8% of users will deploy new storage to meet the increasingly higher demand for storage performance of business-critical applications in the big data era.

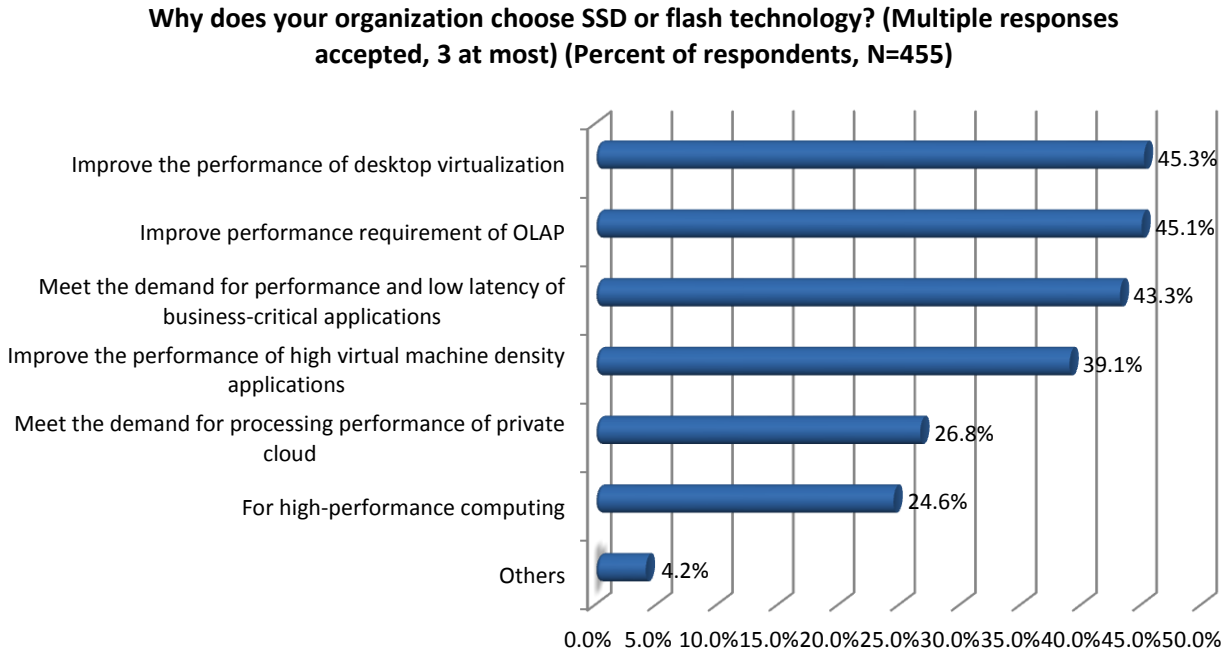
Figure 8. The development trends of storage in the big data analytics era



Source: Sino-Bridges's Big Data Survey, July 2013

To meet the increasing OLTP and OLAP requirements, more enterprises are considering SSD for big data. Figure 8 showed that the main reasons drive enterprises to adopt SSD or flash technology are listed as following: to improve the performance of desktop virtualization and also to increase OLAP for analytic performance, to meet the demand for performance and low latency of business-critical applications, to improve the performance of high virtual machine density applications, and so on.

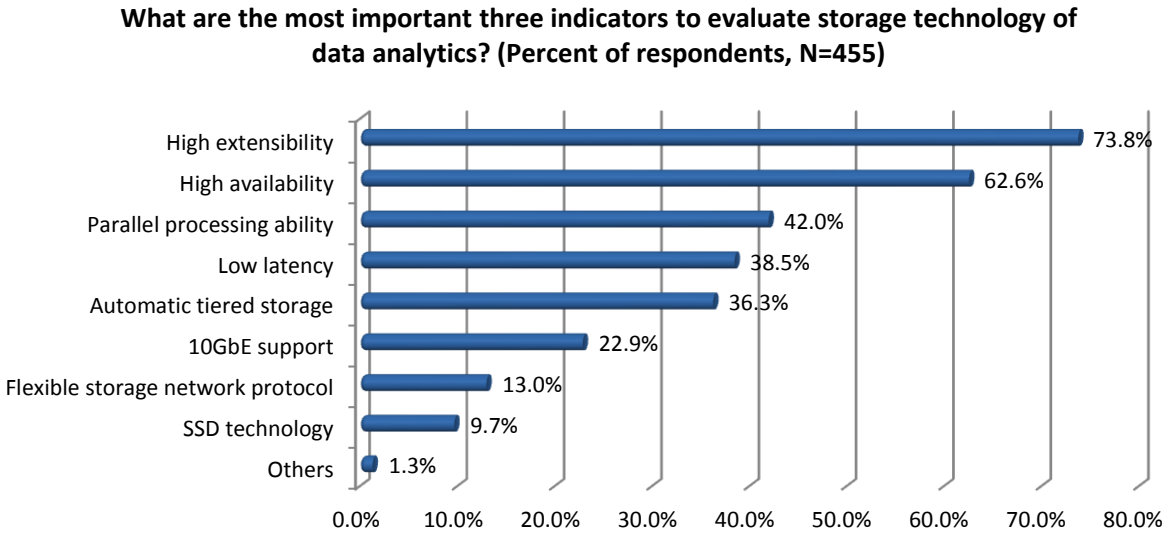
Figure 9. The main reasons for choosing SSD or flash technology



Source: Sino-Bridges's Big Data Survey, July 2013

For the Chinese enterprises, what factors should be considered in terms of storage technology to ensure the smooth and efficient operation of the large data analytics process? Figure 9 revealed that the most three important factors of storage evaluation include: high scalability, high availability, and parallel processing ability. High scalability can ensure that IT of enterprises extends with the growth of data volume and performance requirements, to meet the demand of storage and processing of mass data. High availability can ensure the smooth, uninterrupted running of the big data analytics process, so the business won't be interrupted because of failure or accident in the system. High parallel processing ability can ensure more data processing, enabling more efficient data analytics, and in so, to transform the results of the analytics to business decisions and accelerate market cycles of the product and technology. In addition, low latency, automatic, tiered storage, and 10 gigabit- Ethernet support, etc., are also important factors for users in evaluating storage.

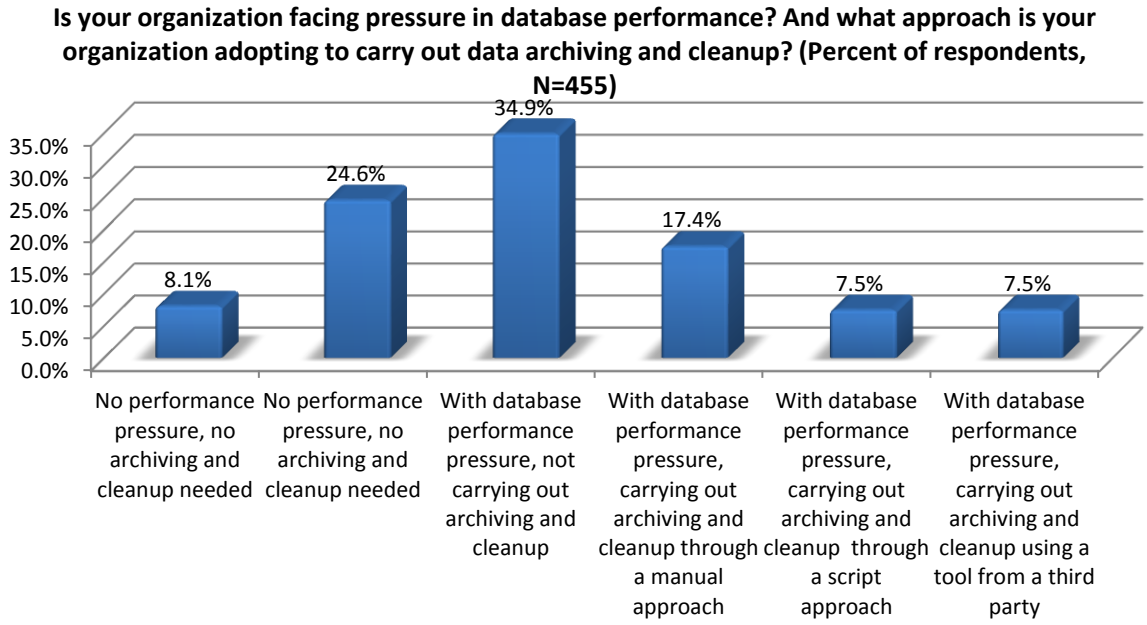
Figure 10. The three indicators in evaluating the storage technology of data analytics



Source: Sino-Bridges's Big Data Survey, July 2013

From the storage utilization point of view, based on the research finding, Chinese end users have much room for improvement in data life cycle management efficiency. The survey results show that (Figure 10) the aging database consumed large amounts of primary storage capacities, consequently causing performance pressure in the database. 84.4% of survey respondents do not effectively archive and clear up data, 24.6% among of them do not even perform it, and 34.9% of respondents take a manual approach on these tasks. Taking the inactive data out of primary storage resources, and carrying out tiered storage and archiving based on data type and life cycle will not only improve storage utilization, but will also ensure the stability of production and application performance for data analytics, and effectively reduce the expense of primary storage and delay storage procurement cycles.

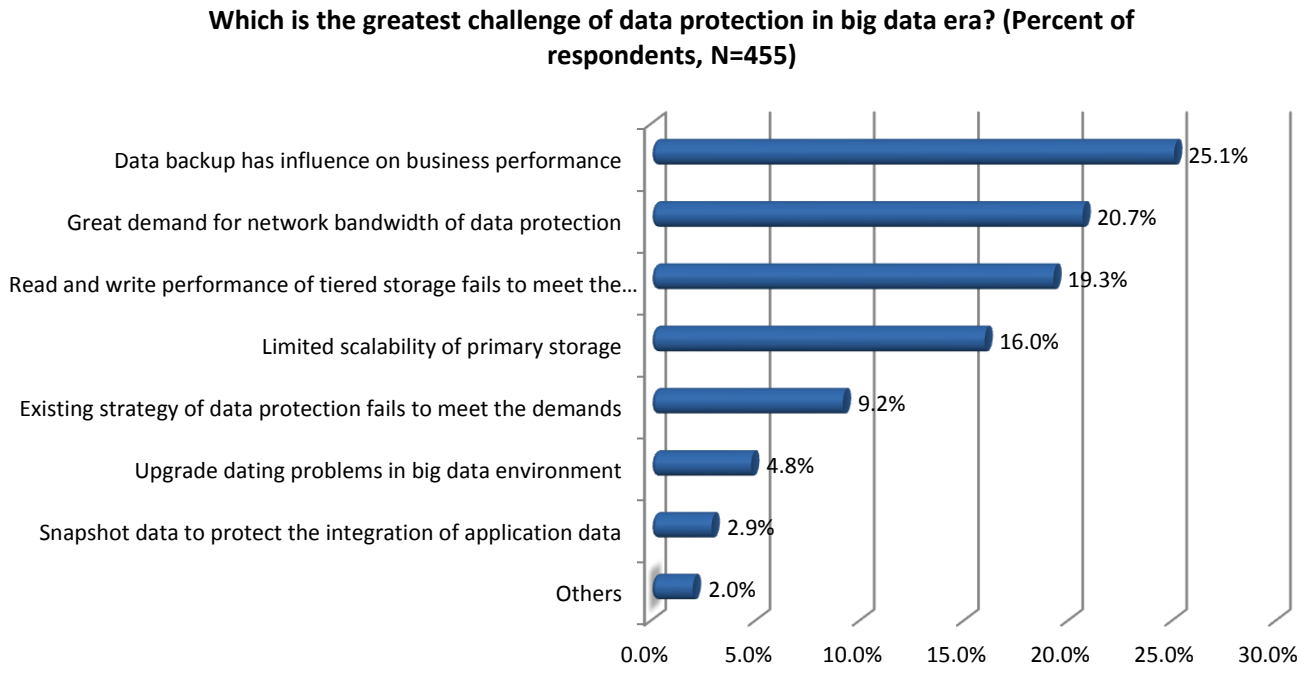
Figure 11. Data archiving and cleanup



Source: Sino-Bridges's Big Data Survey, July 2013

In the big data era, not only has mass data brought challenges to system performance and storage, but data protection has also become one of the most central issues for enterprises. The research indicates (Figure 11) the top data protection challenges in big data include: Data backup impacts business performance (25.1%), the high network bandwidth requirement of data protection (20.7%), and read- and write performance of tiered storage not meeting the big data analytics requirements (19.3%). Automated tiered storage is very important to enterprises in dealing with big data challenges.

Figure 12. The greatest challenge of data protection in big data era



Source: Sino-Bridges's Big Data Survey, July 2013

Data is the seed that creates value through IT in the big data era. The four steps in big data analytics are: data collection and storage, data cleanup and integration, data analysis, and result presentation. How can we ensure the requirements of capacity, performance, and business continuity in the evolution of big data? Protecting the seeds of big data can be done by improving the resource utilization rate to reduce storage expense, which is also the most important factor when considering selecting big data storage.

Big Data Market and Technology Trends in China

Next, aiming at the following topics, Sino-Bridges will interpret the big data market and technology trends in China according to the survey data conducted by Sino-Bridges's survey in July, 2013.

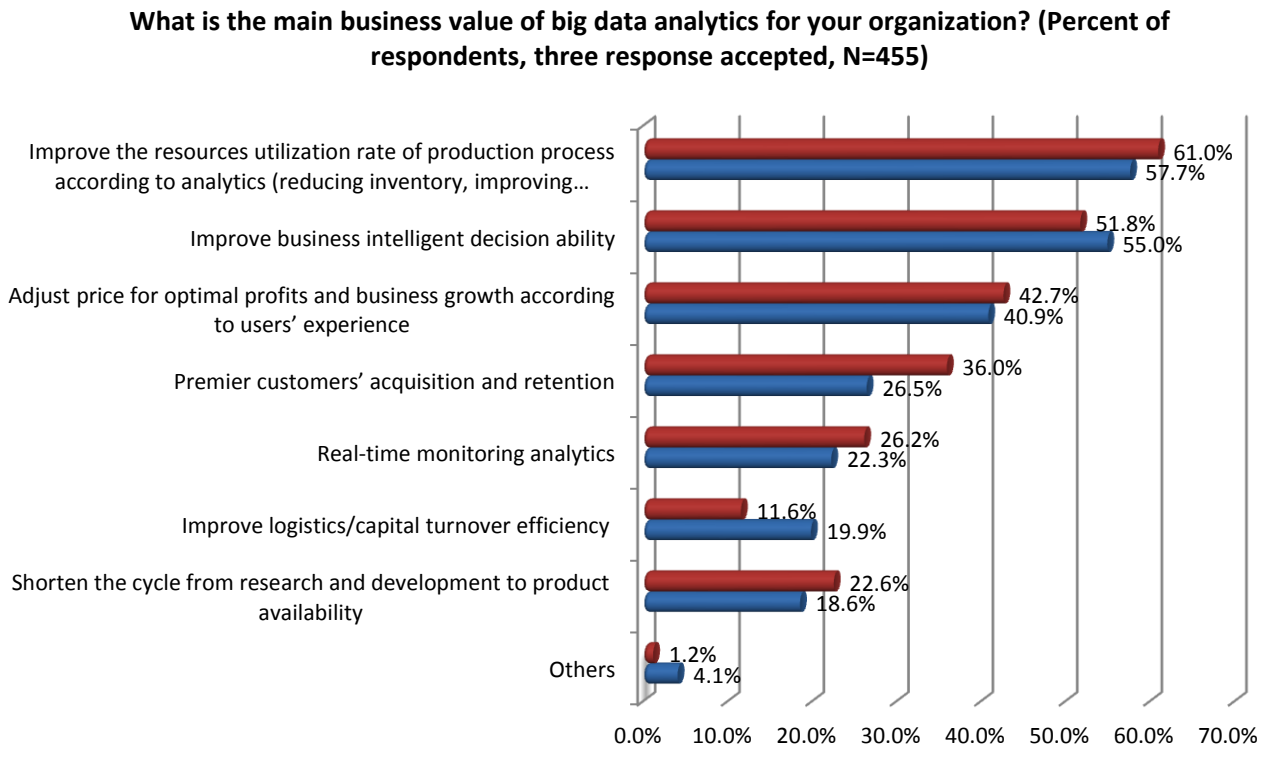
- Business values of big data analytics
- Frequency (velocity) of big data analytics
- Data sources and data types of big data analytics

- Approaches of big data analytics
- Market trend of big data analytics

Business Values of Big Data Analytics in China Market

More and more enterprises realize the business value brought by data analytics. Sino-Bridges's multiple survey results (Figure 12) show that the main business value of big data analytics in China market in sequence are: improving the resources utilization rate of production process and reducing production expense; according to business analytics, improving the accuracy of business intelligence and cutting down the business risk in decision- making traditionally based on "feeling"; optimizing profit and growth of dynamic price; premier customers' acquisition and retention. Another group of survey data from Sino-Bridges shows that recently increasing enterprise users invest to transition from batch analytics (the first phase of big data creating value) to near-time analytics (the second phase) to improve the ability of creating value by IT. Meanwhile, data analytics turns to rapidly develop from business intelligence to user intelligence. China market is gradually advancing from big data reducing expenses to big data accelerating business growth, increasing profits, and breaking through innovation development.

Figure 13. Main business value of big data analytics



Source: Sino-Bridges's Big Data Survey, July 2013

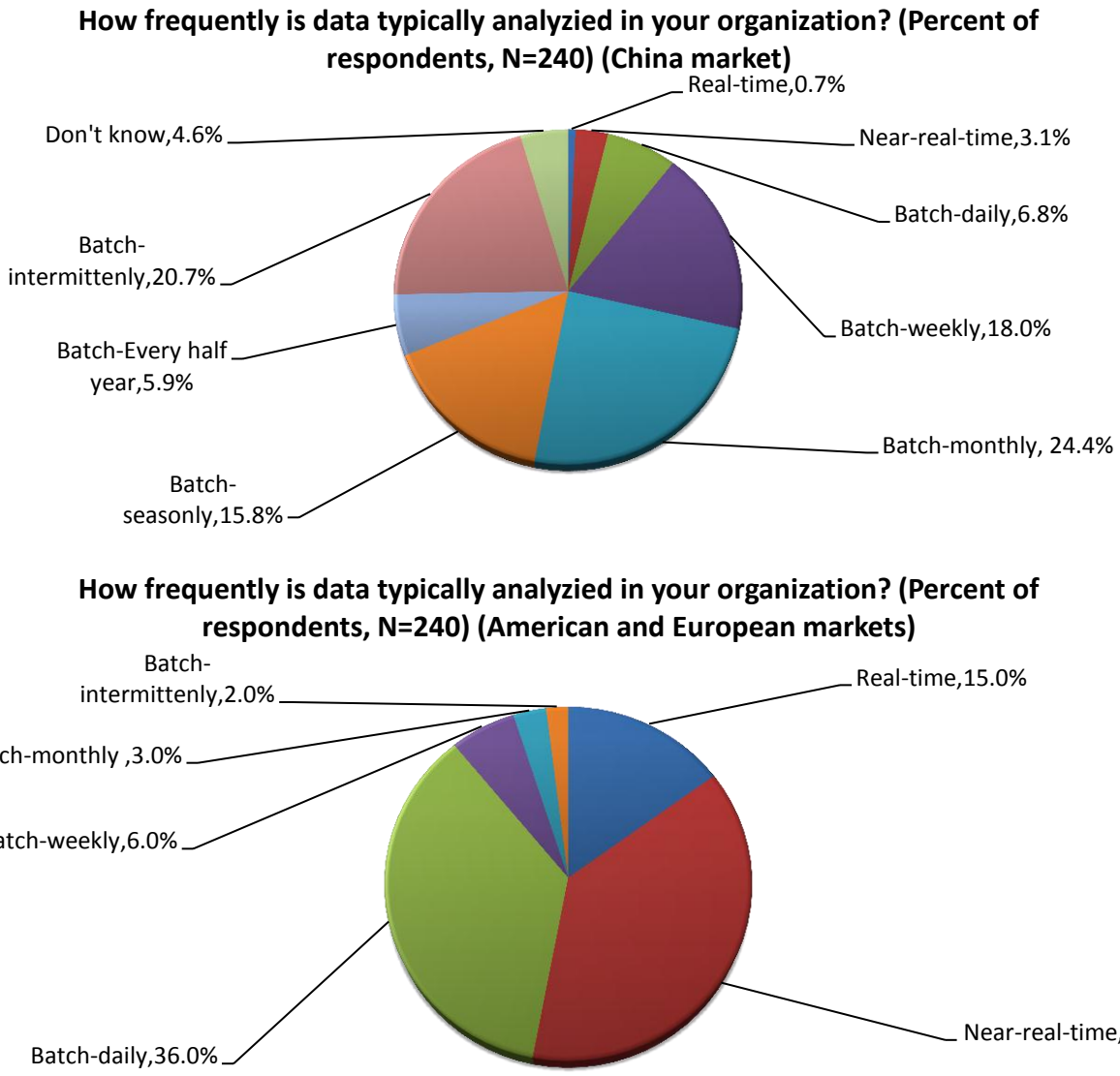
Big Data Analytics Frequency of China Market

The survey results of big data analytics frequency indicate that Chinese users generally lag behind those of European and American markets (Figure 13). 63% of European and American enterprises are in near real-time and real-time analytics (the

2nd and 3rd phase of big data analytics). By comparison, 90% of Chinese enterprises are in the 1st phase. Only 9.3% of respondents from super-large enterprises have deployed near real-time or real-time analytics. And for Enterprise users, their focus at present are evolving near real-time or real-time analytics.

In the 1st phase (batch analytics), 36% of users from European and American have achieved daily analytics vs. 6.8% of Chinese users. 64% of Chinese enterprises' analytics frequency is by weekly or longer. Otherwise, 20.7% of Chinese users mainly conduct data analytics according to business requirements. For the data analytics process, more of Chinese enterprises have not standardized the data analytics process. Furthermore, the low analytics frequency together with a lack of data analytics process will restrict Chinese enterprises in leveraging big data to improve competitive advantages in the global market.

Figure 14. Frequency comparison of big data analytics



Source: Sino-Bridges's Big Data Survey, July 2013& ESG Report

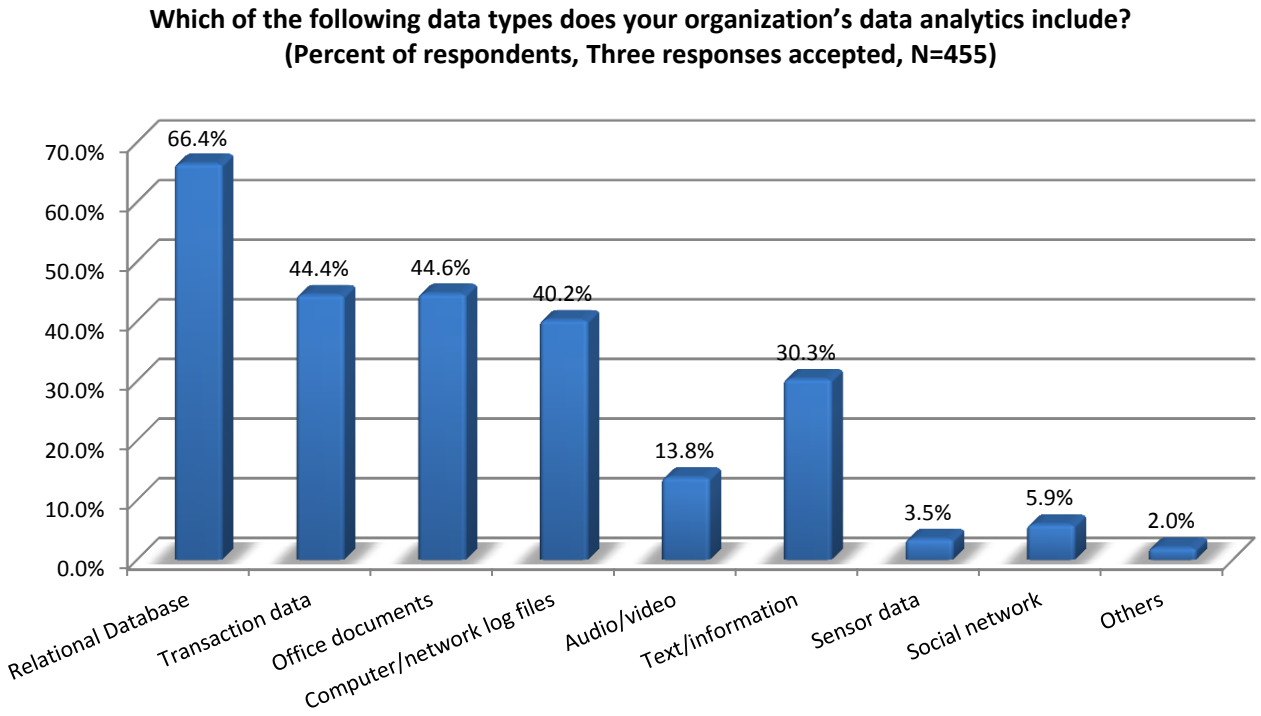
From the above comparison data, it can be seen that there is still a great gap for China market to improve its production

and marketing efficiency through big data analytics and the core competitiveness of enterprises in the global market, which limits their strategic development space of globalization.

Variety of Big Data Analytics in China Market

The research indicates (Figure 14) that, at present most Chinese users mainly leverage data analytics to improve their enterprises' operating efficiency and reduce operating expense. In phase 1, Chinese enterprises are mainly focused on structured data, such as transaction types of data/databases. In addition, office documents, computer/network log files, text/information, etc., comprise the main sources of enterprises' data growth, as well as data types that can tap out values.

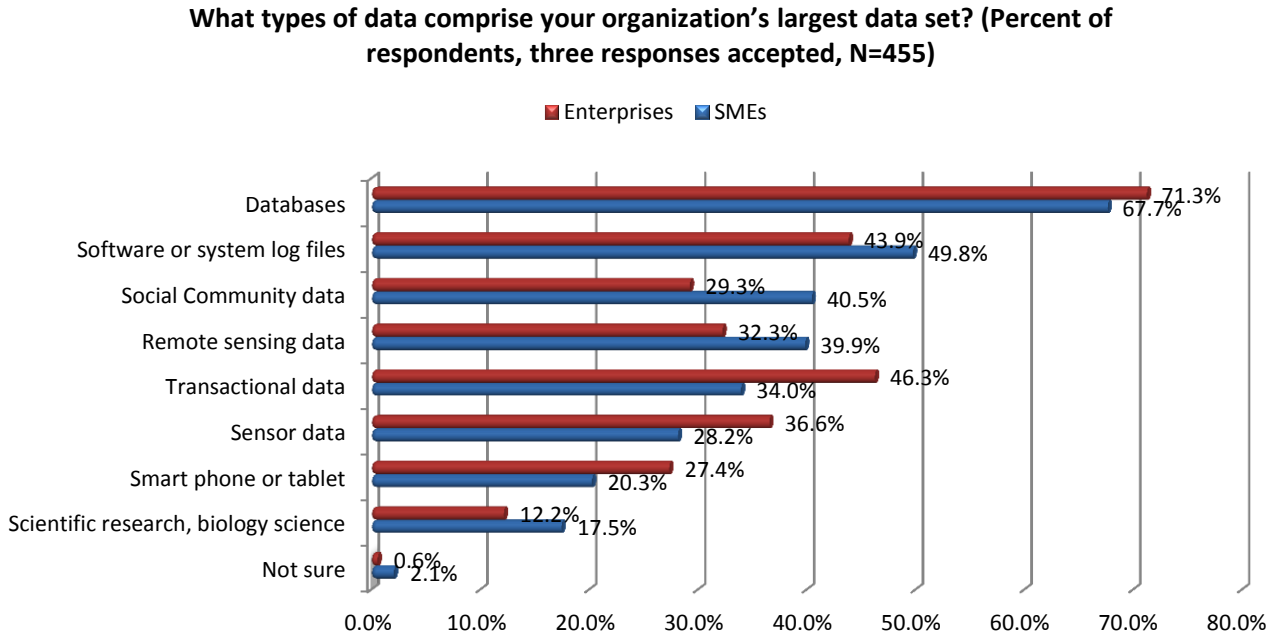
Figure 15. Data types of big data analytics



Source: Sino-Bridges's Big Data Survey, July 2013

The survey (Figure 15) of data sources shows that database ranked the top one as the sources of big data. And semi-structured and unstructured data, such as software and network log files, transaction data, etc., have already been included in the main areas of enterprises' data analytics, indicating that the enterprises have realized the importance of these data to business. It is also the prerequisite to realizing (big) data analytics being transformed from the 1st phase to the 2nd phase and the investment focus of IT creating values for users in the next 24 months.

Figure 16. Data sources of big data analytics

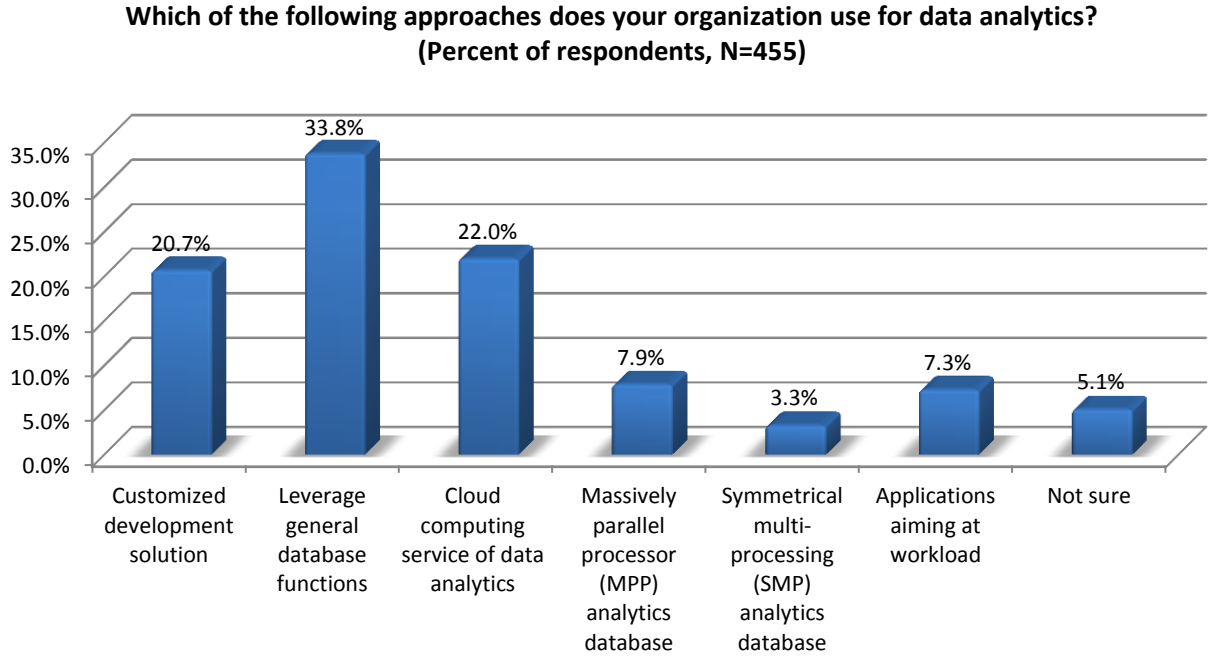


Source: Sino-Bridges's Big Data Survey, July 2013

Data Analytics Approach in China Market

After known the sources and varieties of enterprises' data, as well as data analytics frequency, the effective approach to analyze data is critical for big data analytics. Based on the research (Figure 16), there are 33.8% of enterprises leveraging general database functions for specific workloads and analytics tasks; 22.0% of respondents choose cloud computing services of data analytics; 20.7% of enterprises choose customized solutions. Only 4.8% of users take the massively parallel processor (MPP) database analytics and 3.3% use the symmetrical multi-processing (SMP) analytics database. These results show that most Chinese enterprises are still at the 1st phase of data analytics.

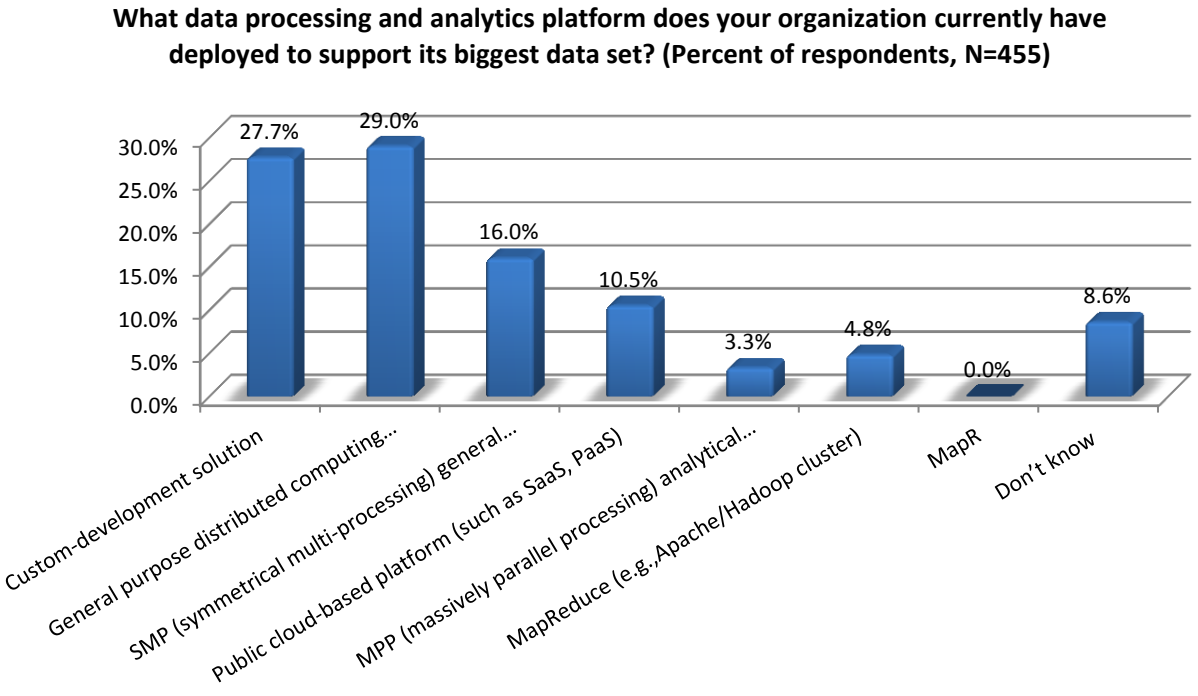
Figure 17. Approaches of big data analytics



Source: Sino-Bridges's Big Data Survey, July 2013

Users can use MapReduce to integrate semi-structured and unstructured data into data processing and analytics platforms, evolving from traditional core-type data distribution to cluster- or grid-type data distribution. From the survey results of data processing and analytics platforms in Figure 17, we can see General purpose distributed computing environment (29.0%), custom development solutions (27.7%), SMP (symmetric multi-processing) databases (16.0%), and public cloud platforms (10.5%), which are generally used in data processing and analytics platforms in big data environment, while MapReduce users are less (4.8%), which demonstrates that Chinese enterprises' use of MapReduce was limited, not only influencing the three phases of evolving rates in data analytics, but also restraining the collection and management of data and further influencing the several stages following the initial four stages of data analytics.

Figure 18. Big data processing and analytics platform

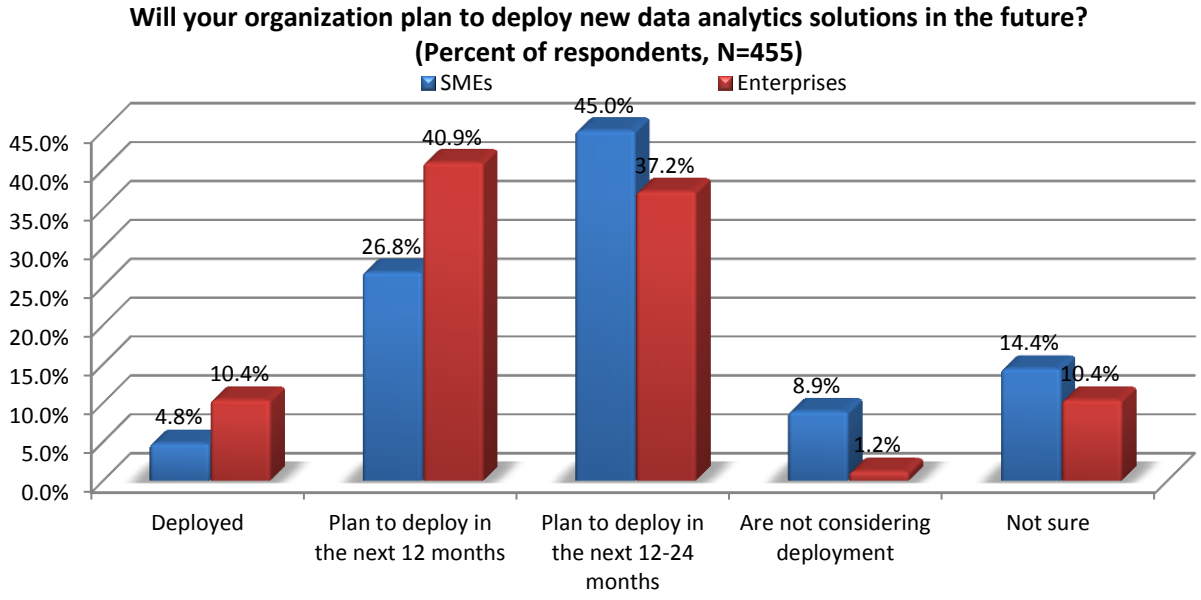


Source: Sino-Bridges's Big Data Survey, July 2013

Market Trends of Big Data Analytics

Research findings indicate that Chinese users have become increasingly aware of business values of big data. Figure 18 shows that considering the great values created by rapid data growth and big data analytics, in the next 24 months, either enterprises (78.1%) or SMEs (71.8%) will invest in big data analytics to improve the efficiency that big data creates value through deploying new data analytics solutions. Among those, there are more SMEs users considering investing in new data analytics solutions in the next 12-24 months than enterprise users. Looking at the numerous SMEs in China market once can see a great impetus forming toward big data analytics.

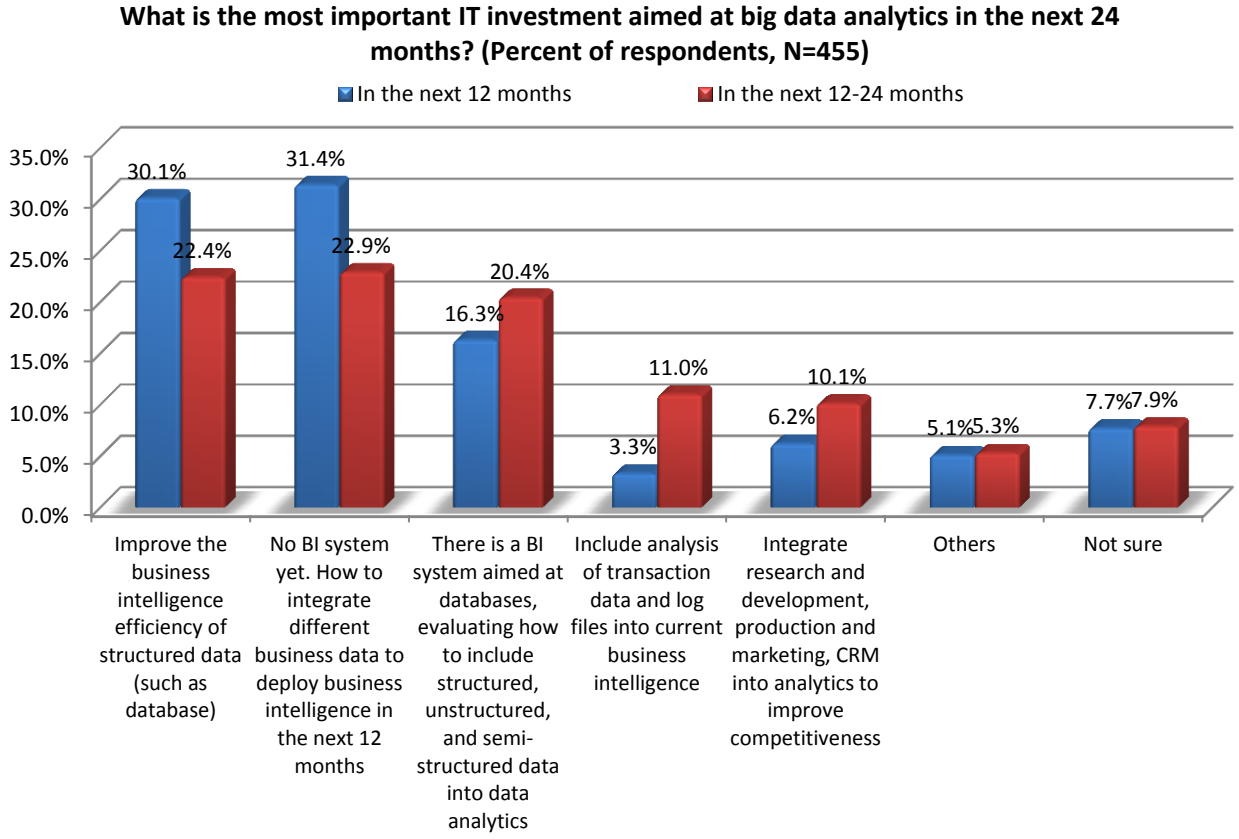
Figure 19. Market trend of big data analytics



Source: Sino-Bridges's Big Data Survey, July 2013

Moreover, most of the enterprises' IT investments will be focusing on business intelligence (BI) of data. In the next 12 months, 31.4% of respondents choose to integrate different business data for business intelligence. 30.1% of respondents choose BI as the most important IT investment priority. In the next 12-24 months, 22.9% choose to deploy business intelligence; 22.4% choose to improve business intelligence efficiency of structured data (such as database).

Figure20. Market Trend of Big Data on Analytics



Source: Sino-Bridges's Big Data Survey, July 2013

Analysts' Views

Big data can create enormous business values, changing the industry landscape. Based on three phases and four main stages of methodology of big data research and analytics, China market still is at the 1st phase (batch analytics stage) of big data analytics. From the perspective of IT investment, except for a small number of large enterprises that have increased investment on the 3rd (big data analytics) and 4th stages (the big data analytics presentation and action trigger) of big data's four main stages, the customers in China are focusing on improving 1st phase (batch analytics) efficiency, positioned toward evolving into 2nd phase (near-time analytics).

From the analytics frequency of big data, we can see that the analytics frequency of about 2/3 (64%) of Chinese enterprises are weekly or longer, which generally lags behind the frequency of 63% users in near-time and real-time analytics in North America and European markets. Absence of data management standardization limits the improvement of core competitiveness in the global market of Chinese enterprises.

From the variety and sources of data analytics, at present, the data analytics of China market mainly focuses on the structured data of internal enterprises. Big data is going to attract more investment priority for Chinese users in the next 24 months to improve big data analytics efficiency.

From the analytics approaches of big data analytics, we can see that most of Chinese users mainly leverage functions within general database, cloud computing, or customized development solutions being proportionally low, while massively parallel processing and symmetric multi-processing enterprises account for less than 10%.

The survey on main business value of big data analytics shows that Chinese users think that the maximum value of big data is to improve the resources utilization rate of production and reduce production expense. And with more and more users changing from the first phase to the second phase in the process of big data creating value, there will be more data variety and dataset volume increasing.

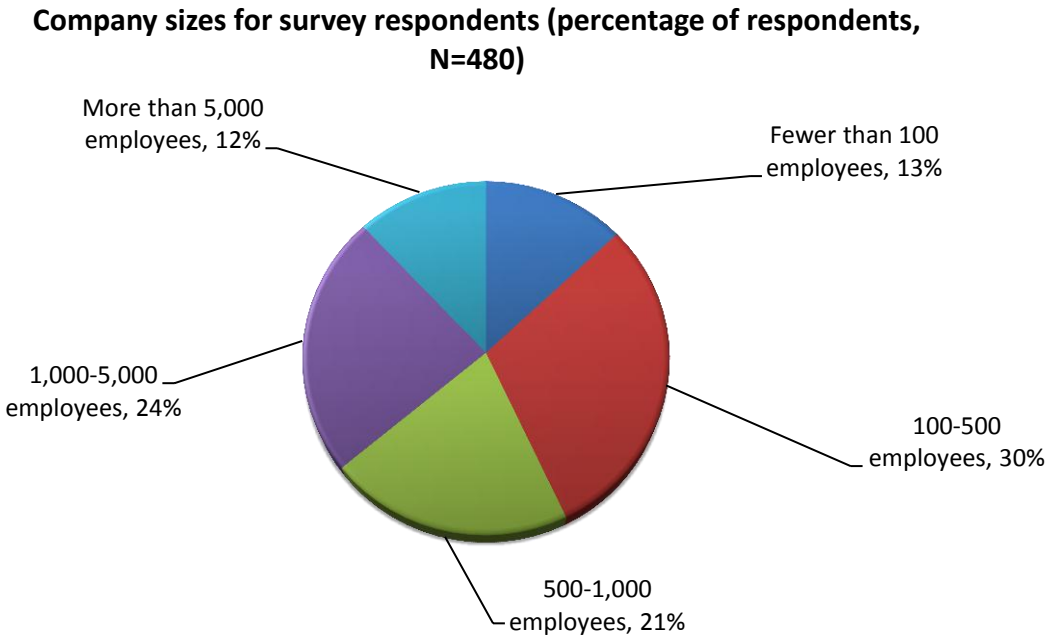
Chinese users have already realized the influence of IT creating value on the competitiveness of enterprises. The research shows that China end-users will increase IT investment on big data analysis in the next 24 months dramatically. The investment of enterprise users mainly aims to improve the user experience and reduce the cost of premier customer acquisition and retention, while the SMEs focus on improving the production efficiency and profits.

To deal with big data era, Chinese enterprises tend toward open, heterogeneous and cross-platform IT architecture, while SMEs tend toward all-in-one solutions. From computing in big data analysis solutions, the enterprises mainly consider the x86 virtualization and minicomputer, while SMEs mainly think about blade server. At present, FC SAN is the preferred storage type for Chinese enterprises. As traditional storage is challenged to meet the performance requirements of business critical applications in big data era, it drives new storage requirements for Chinese enterprises in the next 24 months. Moreover, a series of problems caused by fast growing persistent data also forces the Chinese users to seek new data protection technology and solutions. With the popularization of open source software and the evolution of the data analysis stage of Chinese users, the proportion of distributed and cluster storage will gradually increase.

Appendix

The Distribution of Survey Participators

Figure21. Survey Respondents, by Company Size



Source: Sino-Bridges's Big Data Survey, July 2013

About Sino-Bridges Research and Consulting Ltd.

Sino-Bridges Research and Consulting Ltd., established in 2006, is a company focused on consulting and research in the data center field, committed to providing forward-looking, reliable market and technology trends reference as well as an online learning and improving platform for IT manufacturers and IT professionals from a global perspective combined with survey data and market technology (www.webinars-china.com). Its main services and research fields are focused on data center-related technology, such as storage, server, network, client facilities, business intelligence, and structure management software of data centers, etc. And its main research subjects include: virtualization, cloud, big data, data protection, IT structure, application trends, etc.

The analysts at Sino-Bridges Research and Consulting Ltd. possess many years of accumulation of research and consultation of data center technology and markets in the U.S. and Europe as well as in China. In addition, Sino-Bridges has over thirty thousand end-user data and research members, who can help to thoroughly understand Chinese users' needs, challenges, and problems through enhancing interaction with end-users. The main services of Sino-Bridges Research and Consulting Ltd. include research report, strategic consulting, evaluation of products and solutions, solution auditing, strategic consulting, technology white paper, webinar/webcast.. From 2008 to 2012, Sino-Bridges operated under the joint brand, ESG-Sino, a combination of Sino-Bridges and ESG (Enterprises Strategy Group). Sino-Bridges has offices in Seattle, U.S., Beijing, and Wuhan.Sino-Bridges' serviced clients include IBM, Dell, HP, EMC, NetApp, Huawei, Lenovo, Inspur, and UIT.

For a copy of the survey report, please contact: contact@sino-bridges.com.

Analysts

Kim Wang is the founder of Sino-Bridges Research and Consulting Ltd., and the chief analyst. She has 23 years of international management and consulting experience in Europe, South Asia, and North America, including 14 years of experience in data centers. Kim has in-depth knowledge of storage, server, networking, clients, and data center management software. In 2012, Kim gave more than 60 lectures on data center technology and market trends, online and on-site, in Southeast Asia and China which provided credible reference for users in China from a global perspective to speed up the assessment and acceptance of new technologies in China market.

Mary Ma is a Sino-Bridges analyst. She has a good understanding of Chinese data center technology segments. She joined Sino-Bridges Research and Consulting Ltd., in 2006 and is responsible for performing investigations of data centers and evaluations of various project planning and execution. Mary led complete project planning on a number of surveys, designed surveys and in-depth interviews, and has writtenevaluation reports, white papers, and survey reports.

Lingxiao Yang is a Sino-Bridges analyst. He joined Sino-Bridges Research and Consulting Ltd., in 2013 and has some knowledge of data analytics and relevant technology of Chinese data centers, and who is mainly responsible for the analytics of the technology market and trends of SME data centers.