

Big Data

There's a lot of big talk about big data. In fact, it's become one of the most widely used technology industry buzzwords, frequently heard in the news, online and around the office. Everyone knows big data is important – but what exactly is it and how can you take full advantage of it?



At its core, big data is about extracting intelligence from the vast amounts of data available to an organisation to facilitate better decision making. This includes all the data that flows in, out and across an organisation, as well as information available externally. It includes data from business applications, customer records and multimedia content as well as publicly available information, such as weather patterns or planning applications. It covers structured and unstructured data and can even include customer comments and feedback.

Collecting, merging and analysing data from this wide range of sources has the potential to improve organisational performance and can offer solutions to problems you didn't even know were there. Big data can yield insights that deliver tangible business results, such as increased sales, better productivity or higher quality products and services.

Already, retailers are using big data to suggest a customer's next purchase, employers are running analytics to discover which candidate is most likely to stay in the job beyond 18

months, and marketers can translate an internet footprint into highly targeted online and mobile advertising.

Big data also has an important role to play in helping organisations overcome narrow, silo-based outlooks toward working with data. Within departments certain data sets will be more important than others in day-to-day work. Sales teams look at sales, marketing teams look at web traffic, and so on. Working with big data means getting away from these localised points of view and factoring a wide range of data-driven insights into analysis and decision making. By consolidating an entire organisation's data into one single, highly concentrated, source of information – and using powerful tools and frameworks such as Hadoop – far greater value can be extracted.

Although many organisations have begun to take a wider view of big data within their business, they remain focused on internal information only. However, external data is also essential to gaining a full picture of an organisation, its customers and its stakeholders. Data from search engines, social

media, weather stations and governmental agencies can help us examine past trends, predict what will happen in the future, and make the best decisions right now.

With vast amounts of data to be uncovered internally and externally, there is always room to further develop big data strategies. On its own, big data is just a big pile of information. If you can't work with it effectively then you will never discover its value, and attempts to use big data will lead to frustration and wasted resources.

Only with the right tools to analyse big data can you start to understand a company or industry, internally and externally, better than ever before. When applied correctly, big data makes business more proactive – improving efficiency, reducing costs and readying the company to better meet industry and customer needs in the future. Get it right, and the rewards from big data can be staggering.

Who uses big data?

Every industry needs insight to learn and grow, which is why big data is becoming ubiquitous in the private and public sectors. Big data is especially relevant to:



RETAIL to predict emerging trends and seasonal buying patterns



HEALTHCARE to track adverse events and prevent pandemics



BANKING to generate reports quickly, prevent fraud and reach new customers



PROPERTY to predict the profitability of locations and set prices accordingly



MARKETING to understand trends and create targeted, personalised campaigns

Here we look at some typical examples of how big data can improve performance in different industries.



PUBLIC SECTOR

Big data gives public leaders new insight to make the right decisions in different areas, such as urban planning, public health and even public education. In Japan, data sensors analyse traffic to reduce jams and crashes. Data collection in China is tracking adverse health events to predict and avoid a pandemic. In the USA and Singapore politicians and NGOs are analysing thousands of social media posts to better understand public opinion. Cities around the world are learning how big data can improve urban operations, reduce spending and help leaders make the right choices more quickly.



RETAIL

In today's highly competitive sales environment, global fashion brands fear losing loyal customers. Big data service providers can help by offering infrastructure and service support to collect thousands of pieces of data, such as price points, demand for sizes and colours, sales numbers during discount periods and lots more. With the help of WiFi, GPS and facial recognition technology, it's easy to add anonymous data on gender, age, time of day and geographical location.

As a result, retailers can collect a huge amount of data, analyse it instantaneously and use it to optimise prices, store layout and staffing. Big data retail infrastructure can also help a company tailor its marketing to each customer and send adverts or coupons directly to their mobile device – increasing brand loyalty by making offers both timely and highly relevant, and directing the in-store customer to a multi-platform shopping experience online.



COMMERCIAL PROPERTY

Shopping centres need a steady stream of up-to-date information on property values and expected profit returns in order to accurately price shop rents. That's why shopping malls across the globe are developing big data infrastructure.

A big data system can help a mall collect and analyse data on property prices in the local area and at similar commercial centres throughout the region. Big data tools can collect information on estimated store returns, accurately predicting the expected profits of any given shop.

With that information in hand, shopping centres can offer tenants a competitive price while maximising rental returns.

What's more, big data also allows a shopping mall to provide a host of cost-effective services to its tenants – including detailed profiles of shoppers for targeted advertising, and data on movement through a store for a layout that will encourage more sales.



FINANCIAL SERVICES

Before big data, banks needed dedicated members of staff to collect and input financial data from a multitude of business units. Creating a cost report took days or even weeks.

Nowadays, many financial institutions are investing in big data solutions that allow them to gather information and compile cost reports instantaneously.

Managers no longer have to wait 24 hours for a report and staff no longer have to enter details into an Excel spreadsheet. Free to focus on strategy and analyse incoming reports for anomalies and trends, manpower can instead be put toward reducing fraud and improving business and financial intelligence.

Big data can also provide financial marketing teams a more comprehensive picture of current and potential clients' needs. When banks can conduct targeted campaigns to reach new customers and offer optimised experiences to long-term clients, higher levels of customer engagement and investment returns will follow.



MANUFACTURING

Manufacturers in Asia who want to get ahead of the curve are updating data systems to promote the long-term collection and storage of digital information.

Even in companies that are already thriving, this kind of big data investment can lead to unexpected insights. Manufacturers may discover that they can reduce energy costs by re-thinking temperature and coolant pressure settings – a realisation that can only be uncovered through complex analysis of a huge variety of factors.

Big data can also help businesses switch to a more effective supply chain. A comprehensive study of production timing, transport routes and even weather patterns may reveal the best supply and transport partners to reduce storage cost and improve delivery time.

An upgraded big data infrastructure can better prepare businesses for adverse events. In the case of a natural disaster, for example, a vast array of real-time data will aid companies in deploying contingency plans and communicating them across the supply, production and management chain.





What big data means for retail marketers at Asia's busiest airports

According to forecasts by market research firm Verdict, the global airport retail market will be worth \$59.2bn in 2019 – a growth of 72.9% from 2013. Asia is home to eight of the world's 20 busiest airports – as measured by total passenger traffic in 2014, and Verdict forecasts that Asia Pacific will have the fastest growth in airport retailing sales, with the market more than doubling. The Economist revealed that retailers in Asia's airports will have more than twice the sales of those in Europe by 2016.

Big data can help marketers at Asia's largest airport retailers to customise their offerings by analysing a combination of historical spending habits, flight information, transit duration and ticket class of certain passenger groups – among other variables.

These data trends can help marketers to attract affluent passengers to make more

frequent, and more expensive, purchases each time they fly by altering the locations of certain products, positioning of marketing collaterals and even access to the stores themselves.

For example data may show that passengers travelling in first class may prefer to shop at stores located in close proximity to airport lounges, rather than those by the boarding gate. Other data may show that passengers travelling as a family may decide to purchase duty-free souvenirs for relatives at home just before boarding flights. At China's Shanghai Pudong and Beijing Capital airports, passengers can now shop for duty-free goods on arrival rather than before departure. The data gathered at these locations enables marketers to consider whether this concept should be adopted elsewhere.

Risk management

Big data isn't just about optimising marketing and product development. It's also helping companies to mitigate risk.

Big data can:

- **Predict when certain events and outcomes may occur – allowing firms to prepare countermeasures and contingency plans**
- **Detect anomalous and suspicious data – which can be easily reported and dealt with accordingly**
- **Improve compliance with international regulations on risk data management – enabling financial institutions to avoid penalties and reputational damage**





Why JOS?

A leading provider of integrated IT solutions in Asia with a track record of success spanning more than 60 years, JOS has a strong heritage in the region. We have earned our customers' trust through a reputation for high quality, reliability and always taking the long-term view on their best interests.

Our core capabilities include big data, cloud computing, enterprise applications, enterprise security, mobility, internet of things and next generation infrastructure. JOS has built partnerships with highly capable IT partners across the globe to deliver on customers' worldwide IT requirements. Wherever our customers want to do business in Asia, we have trusted partners they can turn to. Carrying a broad selection of enterprise technologies from market-leading and pioneering vendors, our independence means that we can always choose the solution that's right for them.

JOS is your one-stop shop for big data technology consultancy and solutions.

Our big data solutions include visualisation tools, large-scale data storage and processing on the Hadoop platform, Hadoop cluster set-up with APIs for access to data inside and outside the organisation, ETL to extract, transform and store data, and algorithm development for predictive analytics.

Our starting point is in gaining a thorough understanding of the unique circumstance of your business. From there, we can provide a tailor-made big data solution for your organisation and help you deliver it.

Our expertise spans across the whole range of big data capabilities, whether you require real-time data collection from across the organisation, secure storage for critical information, or easy-to-use tools to analyse data and extract relevant intelligence and insight.

Our involvement doesn't end there. We provide ongoing consultancy to help you stay at the forefront of your industry with the latest big data innovations.

JOS operates nine offices across Asia's major business hubs in China, Hong Kong, Macau, Malaysia and Singapore.

Do you know...

According to IBM¹, at least

**2,500,000,
000,000,
000,000**

(2.5 quintillion) bytes of data are produced every day.

Since 2014, the number of organisations that have deployed or implemented data-driven projects has increased by

125%².

51% of organisations consider big data analytics to be an important investment³.

SOURCES:

- 1 IBM (2013)
- 2 IDG Enterprise (2015)
- 3 Forbes (2015)

Contact us

HONG KONG +852 2565 2011
enquiry@jos.com.hk

SINGAPORE +65 6551 9611
enquiry@jos.com.sg

MALAYSIA +60 3 7883 3688
enquiry@jos.com.my

jos.com JOS it solutions JOS