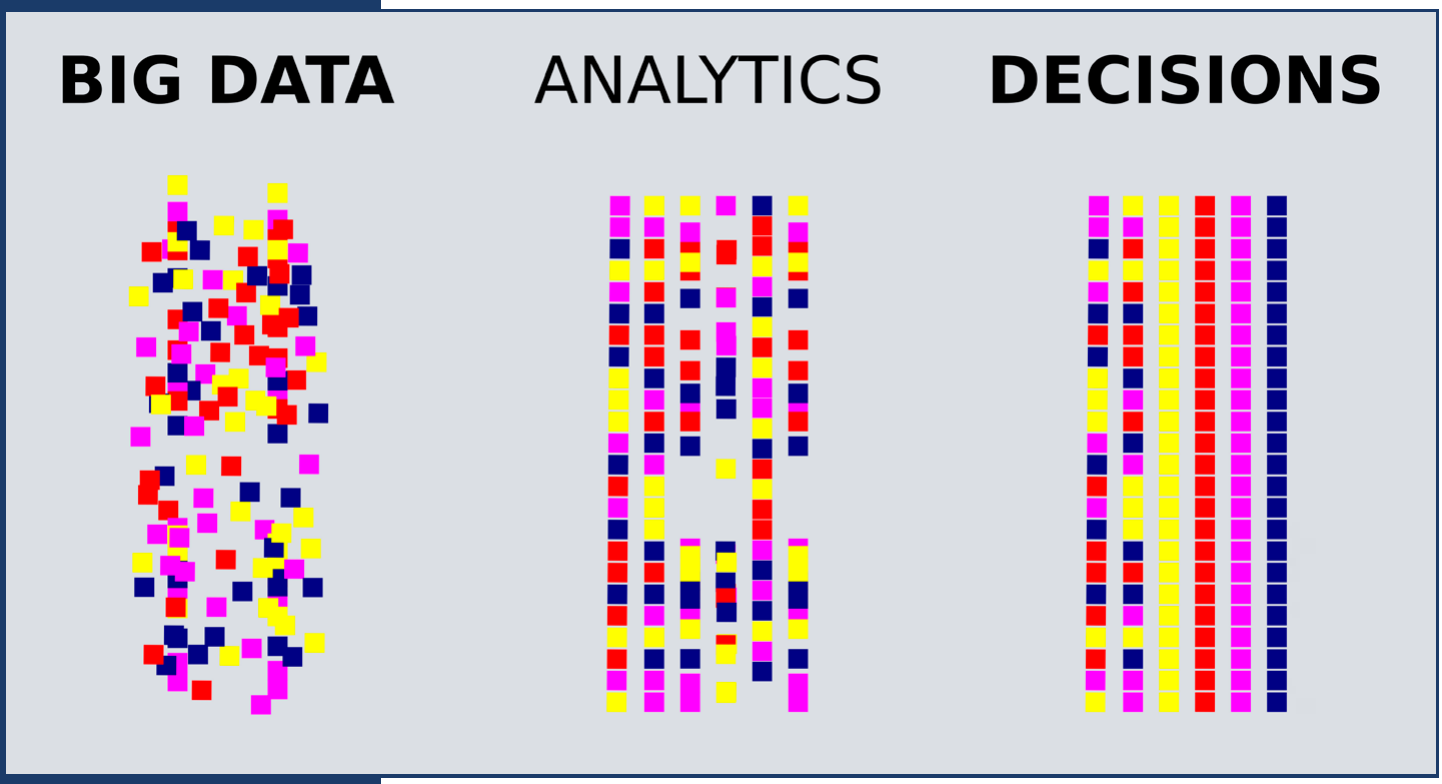
eBook

HOW TO MANUFACTURE A SMARTER FACTORY

CHAPTER 3: BIG DATA ANALYTICS

k3 syspro



CHAPTER 3:
Big Data Analysis

Manufacturing businesses are no strangers to data collection. Every day organisations are collecting valuable data about their customers' orders, production schedules and performance, delivery rates, transactional costs and expenditure, profit margins, etc., but how often are we using this data to make better informed, and faster decisions? The role of Big Data is prevalent throughout Industry 4.0. With more integration and increased technology stacks, information is going to be coming into your organisation thick and fast – you need to extract it thick and fast as well.

Big Data analytics is the process of examining large data sets containing a variety of data types to uncover hidden patterns, unknown correlations, market trends and other useful business information. By analysing the data your business is collecting, you can insightfully switch to new and more competitive business models, understand in more depth what you customers want from you – and when they will want it, identify areas of supply chain waste, and streamline your own costs and processes.

But it can be difficult to know where to start and this is where integration becomes important. By channelling all your business data through a centralised ERP solution, you can quickly access a single view of your supply chain information and begin to track patterns, spot trends and empower your own people to make better decisions that will improve your overall business performance.

JARGON BUSTER

Data Scientist

The role of the Data scientist is an evolutionary role that has stemmed from business and data analyst roles. Whereas a data analyst often only looks at data from a single source or application, a data scientist will explore and examine data from multiple sources, whether or integrated or disparate. They are highly trained at discovering insight, patterns and trends from masses of data, which organisations can then turn into competitive advantage, or use to solve a business problem.

Big Data

Big Data is the term used to describe extremely large data sets that can be analyse computationally to reveal patterns, trends and insight relating to human behaviour, interactions, and performance.

TOP TIPS

1 Start with a business problem. Identify an issue in your processes and gather customer insight to see how you can improve this process. Understand how your customers view the problem and collect the relevant data pertaining to that process. Then access a tool such as Microsoft Cortana Analytics to turn that data into useful information that you can solve the problem with.

2 Think strategically. Once you've had a go at data analytics, start to build this into your wider business strategy. Explore ways you can use this data to disrupt your industry and improve your service offering, engaging key stakeholders and decision makers within the business.

3 Employ a data scientist once you are ready to take the next step into Big Data analytics. There's a lot you can do yourself, but hiring a professional can really help you to exploit the data within your business. They will be able to extract and manipulate data more thoroughly than you, so that you can turn it into insight that senior members of the team can execute.

Why embrace it?

Big Data analytics is not as difficult as it may sound. The accessibility of cloud services today makes it easier for manufacturers to store data securely in one place and transform large data sets into small data insights that can be acted upon. You can do a lot with your existing ERP solution, just by extracting the data you are sending to it regularly, and Microsoft also has a number of tools that can help forecast product demand, predict customer churn, predict machine failure or even product failure rates and causes.

Data analytics has accelerated a lot from the days you needed complex and often, inaccessible data algorithms, to analyse your critical business data. Your ERP system and data held in the cloud can quickly give you all the information you need to improve areas of value for your customers. Take inspiration from the consumer space and eCommerce's popular recommended purchases tactic. Or from Google Maps on your phone, which can start to understand your behaviours and tell you how to get to your meeting automatically. This is all done through data analytics and trend forecasting.

Industry 4.0 is about bringing manufacturers closer to their customers and there are few more effective ways to do this than through Big Data analytics. By having the right information at their fingertips, engineers can make the right design choices, your machines know what products to assemble and your maintenance team can increase machine utilisation. This all results in a more immediate and exacting customer service, increased retention rates, and ultimately, improved revenue streams.

JARGON BUSTER

Cortana

Cortana is an intelligent personal assistant created by Microsoft for many of its applications. It can be used by the enterprise in conjunction with a powerful Cortana Analytics Intelligence Suite, which can help manage and analyse large swathes of business data, helping turn this into intelligent action.

SYSPRO ERP

SYSPRO Enterprise Resource Planning software is a specialist manufacturing and distribution application, which can empower businesses in these sectors to streamline efficiencies, automate processes and extract more value from simple, linear manufacturing processes. The application successfully automates and integrates core business processes, such as taking customer orders, scheduling operations, and keeping inventory records and financial data. K3 Syspro is the UK and European partner of SYSPRO.

In Practice

PZ Cussons Beauty is a wholesale business providing personal care and beauty products to high street retailers including Boots. In order to successfully respond to demand, the business must work closely with its retail and distribution customers as well as its network of global manufacturing partners, in order to scale production up or down on demand.

Big Data analytics plays a significant role in this business planning process. The company uses a multiple technology stack for analytics, but it all starts by analysing the transactional data being entered into its SYSPRO ERP solution. This gives PZ Cussons the ability to view growth and decline of sales, and the company can target this down to an individual product or brand. This data then helps the company forecast ahead for the future, planning for demand down to an individual SKU code. This enables PZ Cussons to advise its global network of manufacturers on future production schedules, as well as allowing PZ Cussons to align future sales plans with its own financial targets and budgets for the year.

The company's Big Data analytics does not end here though. In order to be immediately responsive to demand, the business needs to understand and predict consumer behaviours and trends. The company is integrated into many of the EPOS systems used by its retail network. This allows it to view real time sales of individual products and brands in order to draw comparisons between different calendar years. This enables the business to understand consumer behaviour, which drives retail behaviour and manufacturing production schedules. If PZ Cussons can understand what its customers want before they know themselves, it can alert its network of manufacturers and successfully balance supply and demand.

Leading Practice

General Electric is a power user of Data Analytics and Machine Learning across the globe, particularly in predicting performance of its jet engines, turbines and medical scanners. GE uses this information to feed back into the design phase, increasing the quality, operational efficiency and extending the maintenance intervals for its products. This in turn reduces the Total Cost of Ownership of its products for its customers without GE having to reduce margins.

GE shares this data with its customers, informing them how fast to run trains in order to conserve electricity in a cost effective manner, and providing software to enable pilots to manage fuel consumption, saving the airline industry billions.

In addition, the use of data informs GE's own servitization strategy. Over a third of the business is now focused on servicing equipment – moving to a zero (unplanned) downtime regime through intelligent devices with sensors and implementing controllers that can be configured in real time. To give an idea about the amount of data being analysed, a day's worth of Twitter feed amounts to about 80GB of data, one gas turbine engine generates 520GB per day.

Useful references

General Electric
Data analytics case study

Forbes
Ten ways Big Data is revolutionising the supply chain article.

SNEAK PEEK

CHAPTER 4: Robots & Automation - OUT 18th Nov

No longer just a privilege of automotive manufacturers, chapter four covers robots and automation. Robotics and automation products are more affordable now than ever before and are a staple of Industry 4.0. We'll cover the jobs that are created, not lost, as a result of automation and how robots boost productivity, competitiveness and therefore overall margins. Our top tips include: thinking where robots integrate into your existing technology and focusing on added value not cost reduction. K3 customer BPW. Civil aircraft engineers, Airbus are world leaders in robots and focus of our leading practice, going as far as experiments with wearable robots.

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