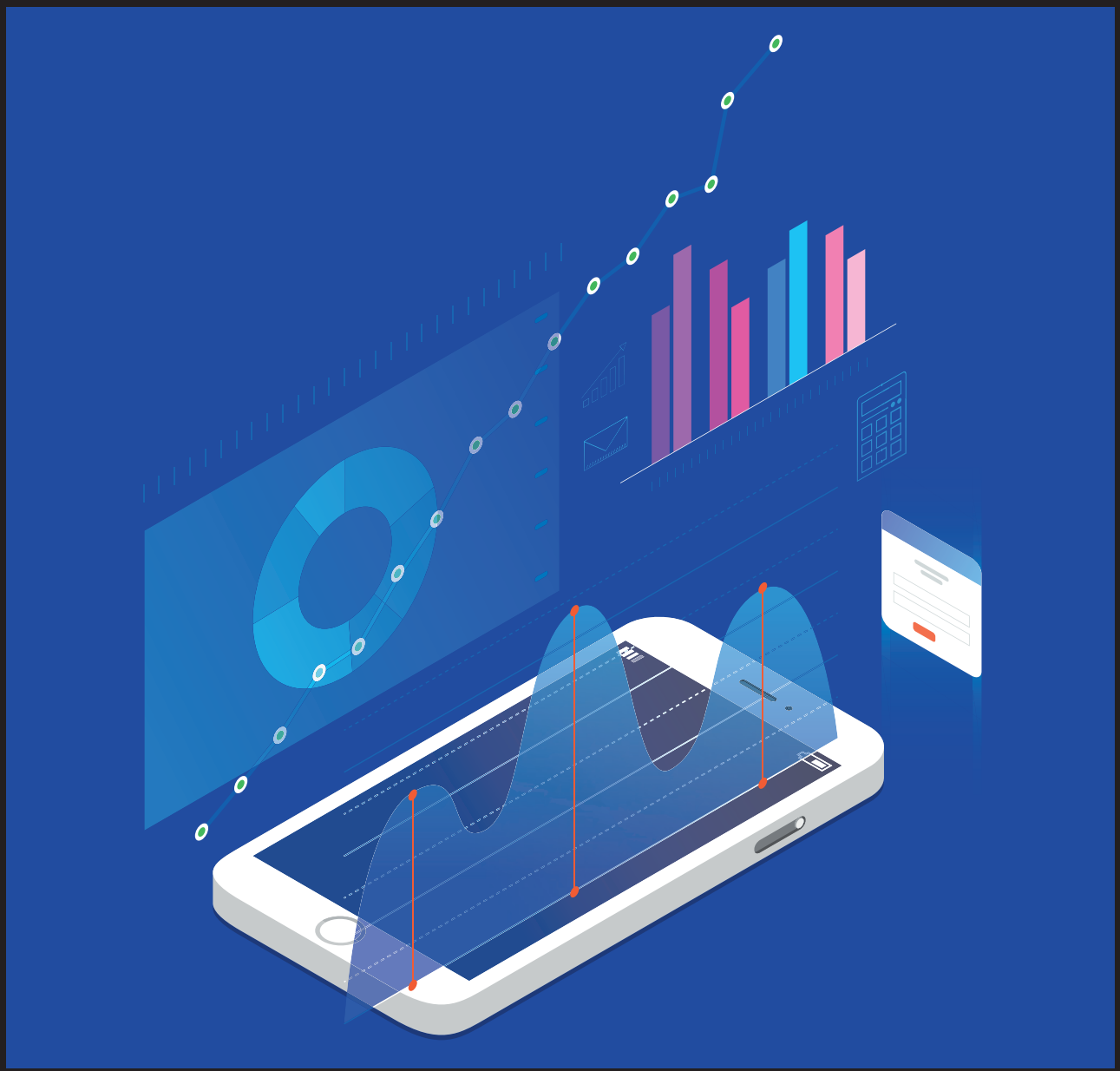
Man Vs. Machine



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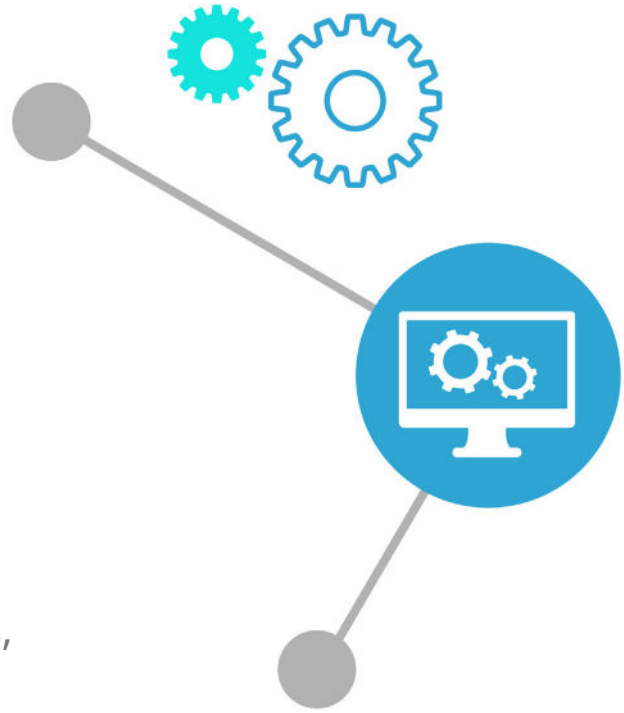


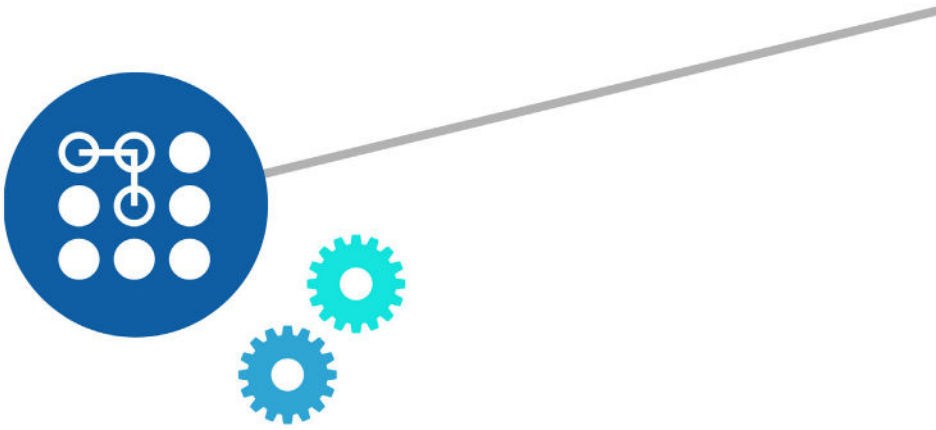
The human role in analytics, in the age of automation.

Data and analytics only have value if the actions identified are acted upon. It is imperative that an organisation has the right people in place who have the skills to not only capture and organise the data but to interpret the information, and the soft skills required to be able to articulate insights back to decision makers effectively enough to drive change. In many cases, this is where organisations are falling short, they do not bridge the gap between capturing data and using it.

At Jarmany we work with a wide range of blue chip clients - supporting them to harness the power of their data by applying the essential human touch, creating insightful analysis to overcome business challenges, deliver efficiencies and drive growth.

Click here to find out how we have helped organisations across multiple sectors refine and optimise the way they sell products and serve their customers.

Hannah Murcott
Head of Insights



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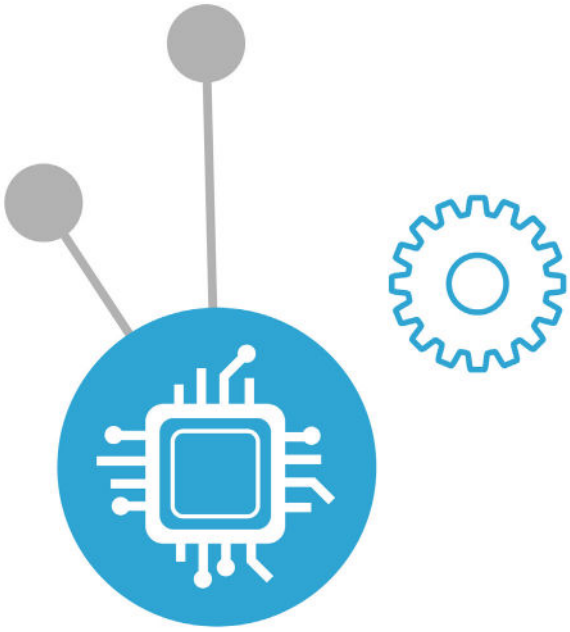


Introduction

What makes a data driven company and do organisations who claim to be 'data driven' fully understand the fundamental aspects which make up data analytics? Whilst many companies are successfully gathering a multitude of data, when it comes to generating insights and actions from the data, why do so many organisations fall short?

The 'big' in big data is simply a derivative of the sheer volume of data involved. Data and analytics are transforming how organisations operate and when used effectively, businesses can improve processes, reduce fiscal risk and increase ROI.

There are four specific technological advances which are set to drive business growth within the next five years:

1. **High-speed mobile internet**
2. **AI**
3. **Internet of Things (IoT)**
4. **Big data analytics**

Whilst IoT is 'digitalising the physical world' and AI and machine learning are revolutionising the efficiency of business operations with data automation, many companies are still missing the link between data and business value – namely insights!

Algorithms cannot tell the whole story; the real value of data and analytics lies in their ability to deliver outcomes. But how do organisations move from data collation to translated insights?

Before we establish the role of data analytics and why human interaction is fundamental to driving value from the data, let's first examine how 'big data' has become such an integral part of everyday business practices.

1 The Industrial Revolutions driving the advancement of Analytics

The Third Industrial Revolution (TIR)

The Digital Revolution or the TIR, technically began somewhere between the 1950s and the late 1970s with the adoption of digital computers and digital record keeping.

However, if we talk about the Digital Age as a collective, we consider this to be the technical advances of the 21st century, where economies and business practises have been transformed by innovations such as the domestic computer, digital mobile phones and the Internet.

As the TIR developed, the importance of one key component has grown dramatically - data.

As the TIR developed, the importance of one key component has grown dramatically - data. Data, and it's value, has increased at an exponential rate particularly in the last 5 years – mainly driven by IoT - and continues to do so with the continuation of technological breakthroughs. This has led us into what is now being described as the Fourth Industrial Revolution (4IR).

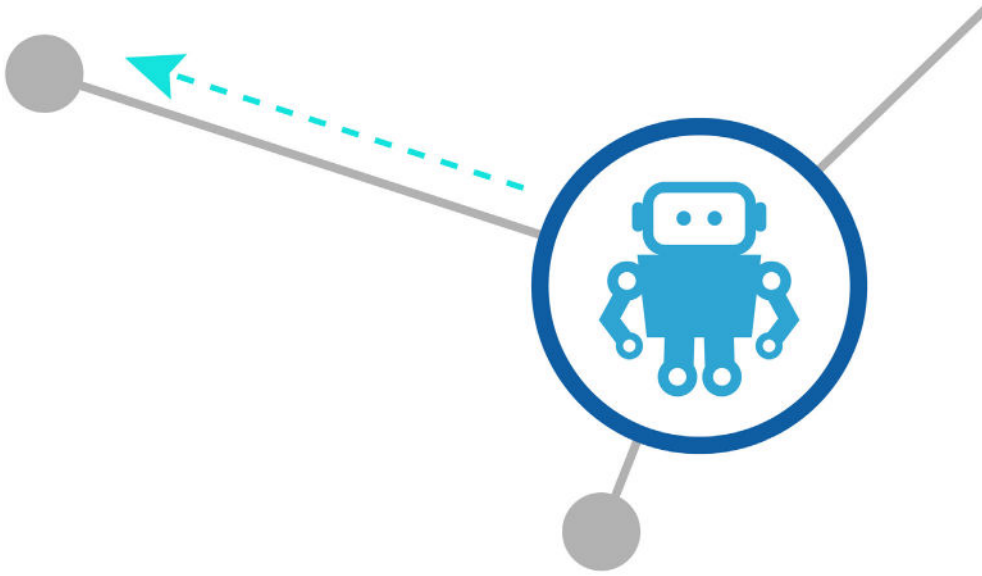
Like it's predecessors, the 4IR will demand progress, from the way businesses define their processes to how they design and develop job roles.

The Fourth Industrial Revolution (4IR)

According to Professor Klaus Schwab, founder and executive chairman of the World Economic Forum (WEF), we're on the cusp of the Fourth Industrial Revolution.

> In an interview, Schwab stated that *'The Fourth Revolution will impact our lives completely, it will not only change how we communicate, how we produce, how we consume, it'll change us, our own identity, everything will feed into an ecosystem driven by big data.'*

Although this revolution has the prospect of increasing earning potential on a global scale and improve our quality of life, the multitude of disparate data sources that is currently being accumulated by organisations will soon



require a considerable shift in the way data is analysed, governed and how businesses generate value from it.

Taking this one step further, the 4IR can be seen as a progressive global movement, or 'Globalisation 4.0,' a phenomenon which has been driven by technology and the movement of ideas, people, and goods. The focus of corporations for the future should be ensuring sustainability, and a key element of this sustainability is people.

> *'We feel Globalisation 4.0 has to be more human centred...we can't afford anymore to leave people behind,' -*
> **Professor Klaus Schwab, World Economic Forum (WEF).**

AI and the Fourth Industrial Revolution

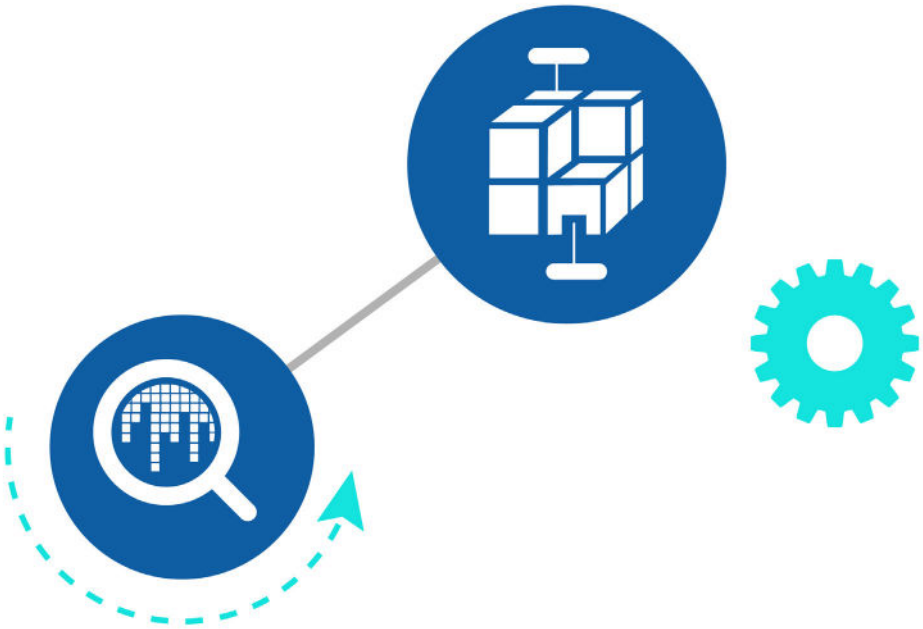
According to Alan Crameri, CTO of Barrachd, the rise of Artificial Intelligence (AI), will lead to the 4IR and will transform all of our jobs in the next 10 years.

There has been a considerable rise in the adoption of AI around the world and across industries, with businesses using it to improve operations, generate new innovations and refine the customer experience.

Data is the fuel to the engine of AI. The collection of data, the analysis and storage capabilities have drastically improved in recent years. Yet, there was a period where many organisations experienced a resource knowledge gap and were under equipped technically to manage such high volumes of information.

Although the advancement in human knowledge is now closing the gap on technology, there remains to be a lot of complexity around how data is handled and utilised.

Businesses are progressing in their understanding of the specific skills now required in order for the organisation to profit from their data, and better map the skills required to train and recruit.



Big Data and IoT

The ecosystem of the 'Internet of Things,' or IoT, is revolutionising the way organisations operate.

Put simply, IoT encompasses all devices which are connected to the Internet. IoT is relevant to everyday objects such as smart home devices, smartphones and wearables. Where IoT becomes interesting, is in it's ability to transfer data over a network without requiring human interaction.

The adoption of IoT will enable companies to monitor their overall business processes - gain a greater understanding of their customers, increase productivity and enable better decision-making practices to grow the value of the business.

With the surge in information which IoT will generate, data management and analytics will inevitably become even more prevalent in how the future of business is shaped.

IoT and Big Data are interconnected.

As the adoption of IoT increases, organisations which already consider themselves as data driven, will be expected to further adopt flexible and scalable solutions to enhance security, store data and develop data analytics capabilities.

Data collected from IoT, further digital developments and the increasing significance of AI will play a critical role in supporting companies to reduce costs and create new business opportunities.

To fully exploit the benefits of this increased volume of data, organisations must ensure the right processes and technology are in place to collect and analyse the data.

However, it is essential, as recognised by Professor Klaus Schwab, founder of the WEF, that *'it is having the right people in place which will be fundamental to identifying the most profitable insights and determining how the findings can move business forward.'*

2 Data Analytics & the role of Humans

Analytics is often misinterpreted as simply the process of data collation and reporting but this couldn't be further from the truth. Until a business has developed the skills to bridge the gap between the 'what,' the 'how,' the 'why' and the 'what next,' the organisation is not practicing true analytics and their data will exist without value.

The data driven ideology

'Data driven' has become a commonly used term by organisations today, but what do they actually mean by this? Do they know?

If a business is truly data driven, they will base all business decisions on data and transform statistical findings into actionable insights to drive positive change.

In the 'State of Analytics 2016' research by user engagement agency Amplitude, 86% of workers stated they believe that data is critical for their decision-making processes, but is this truly the case or has this just become business rhetoric?

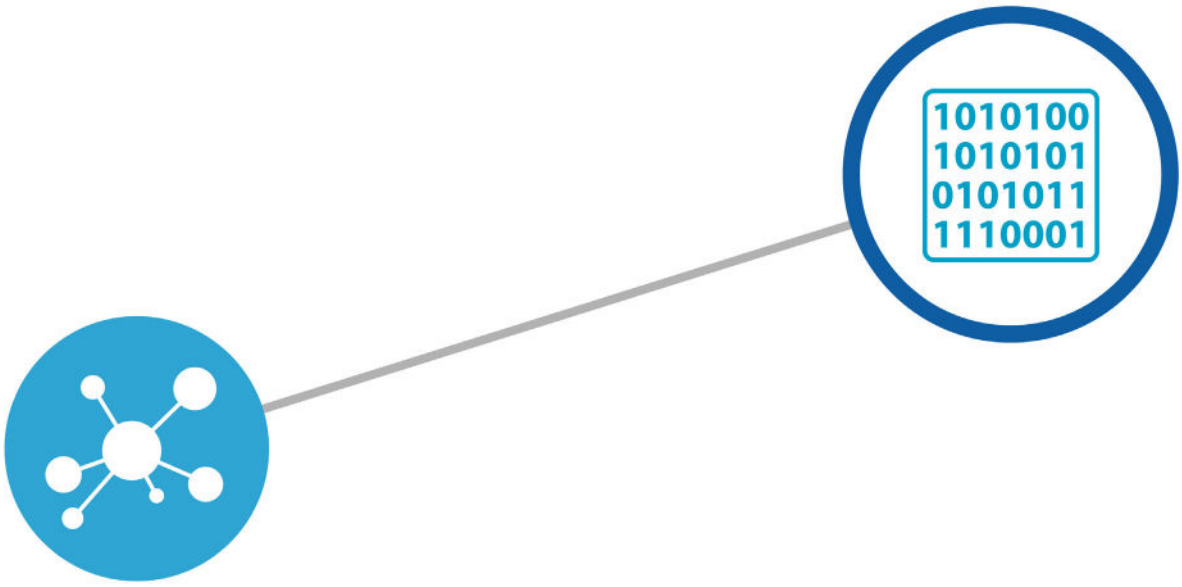
Most companies think being data driven means having large data sets and technologies in place to extract and store the data that produce dashboards, KPIs, online reports or automated monthly reporting. This is a great start and we often impress on organisations the first step is data integrity, but this needs to be quickly turned into tangible opportunities and results.

In research conducted by Forrester, 74% of companies want to be data driven, but only 29% are able to build the bridge between analysis and actions. 2 in every 3 companies don't know how to make data-based actions.

It is key to understand the difference between data and insights. Data is information which establishes the phenomena but does not provide the path for what to do with it.
The most influential insights reveal behaviours and point to solutions or generate ideas.

'Insights requires a focused discipline of curiosity' - **Jane Fulton Suri, IDEO Partner Emeritus & Executive Design Director.**

Analytics and AI are powerful methods for identifying trends and learnings hidden within data. However, these methods alone are not



enough to convey insights. Visualisation is a key requirement for explaining analytical findings, but graphs and charts by themselves are not enough to explain data, especially if you are talking to a non-technical audience. This audience may need a different approach to understand the findings.

Advances in technology have accelerated the amount of data available to organisations and the increasing use of AI and analytics has enabled companies to profit from this surge in data through more intelligent collation, analysis and storage. However, people still outperform technology at human interactions and complex decision-making that as an example can identify patterns and distinguish when patterns in data are meaningful. Insights is the critical-thinking needed to interpret data:

> *'It's the ability to tell a story that gives insight into a problem'* – **Dan Sommer, Trilogy's founder and CEO.**

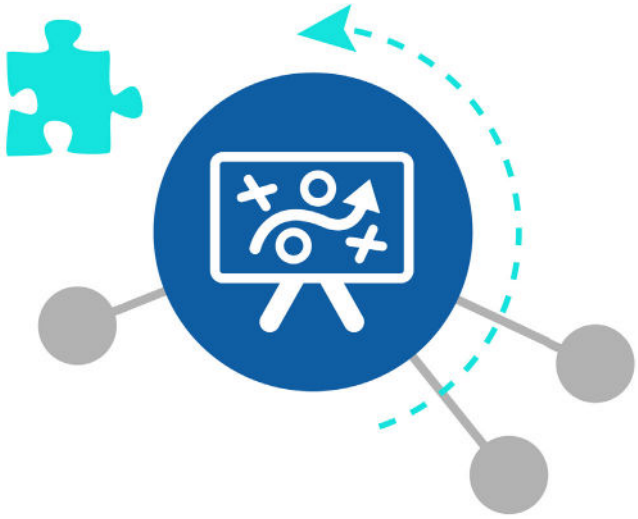
Until recently the primary focus has been on data and technical skills. The soft skills required to understand and communicate the data has been underestimated. Communicating the story of the data is as important in driving outcomes as the quality of the data.

The storytelling is your most important data-to-insights activator:

> *'Without storytelling, data offers just a rear-view mirror,'* said **Clive Humby**, cofounder of **Dunnhumby**.

Communicating the results

With this influx of data and the advancement of technologies to process and analyse the numbers, there is much enthusiasm around analytics and big data across organisations today. However, without the stakeholder's understanding of what the analysis is showing and what the implications of the results are, they may not change their behaviour nor adopt a data driven approach whilst making business decisions.



Despite the respect which it commands, analytics can be difficult to explain and to understand. If findings are not communicated effectively, analytical capabilities may not be used effectively, if at all, and stakeholders might fall back on intuition or habitual decision-making practices.

Essentially, big data technologies can determine the 'what' of a problem, but they can rarely determine or converse the 'why.' The communication of the 'why' is essential to influencing change and engage the key decision makers who will implement the changes needed to drive the business forward.

The communication of insights goes far beyond machines and automation. It requires human interaction to not only establish what the data means, but to communicate the findings effectively, potentially to a variety of audiences.

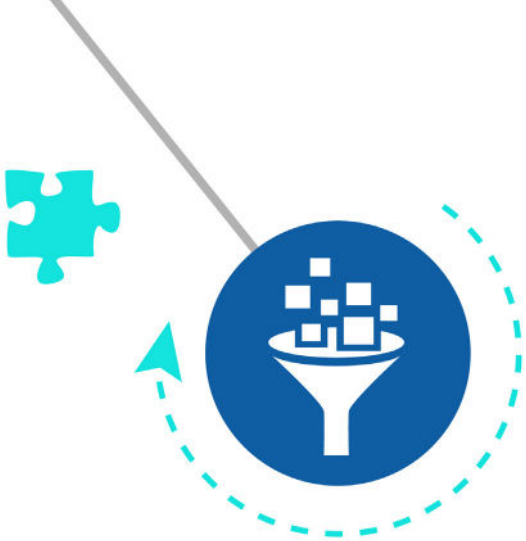
The challenge can come when the insights require change.

Change costs money and challenges the stakeholder's views, ego even. Such recommendations that require the stakeholder to change or stop doing something they are already doing can often be challenging to implement. It is important to engage with the right individuals and decision makers and work with them in the right way.

Demonstrating the impact insights will have on a business is one of the most critical challenges and also one of the most effective ways of engaging the decision-makers. In a survey conducted by Boston Consulting Group (BCG), it found that more than 50% of consumer-facing companies do not measure the return on the investment derived from insights. Many senior executives and company shareholders are often unclear as to the tangible benefits that can be gained from insights.

Ultimately, company stakeholders must focus on establishing an ROI measurement framework to increase the value that insight teams deliver to the organisation and to establish where to direct it's attention to drive the business forward.

BCG research also demonstrated that an ROI framework – which increases transparency and organisational discipline – can accelerate the advancement of the insights functions and support departments to become more innovative and progressive. Companies who invest in insight teams often perform well in terms of customer loyalty and growth rate metrics.



Don't be selective!

'Data should not be used as a drunk uses a lamppost: for support rather than illumination!'

Conversely, insights can also be dangerous in the hands of a decision-maker whom selectively uses data to support something which suits their belief. Some managers fall guilty of only using numbers which support their pre-determined decisions.

It's easy for data to lead organisations astray if the statistics are used to justify or defend bad decisions, rather than challenge them to make better ones. All too often data is used to provide evidence for only one side of a multi-sided issue and ignores factors which challenge their belief.

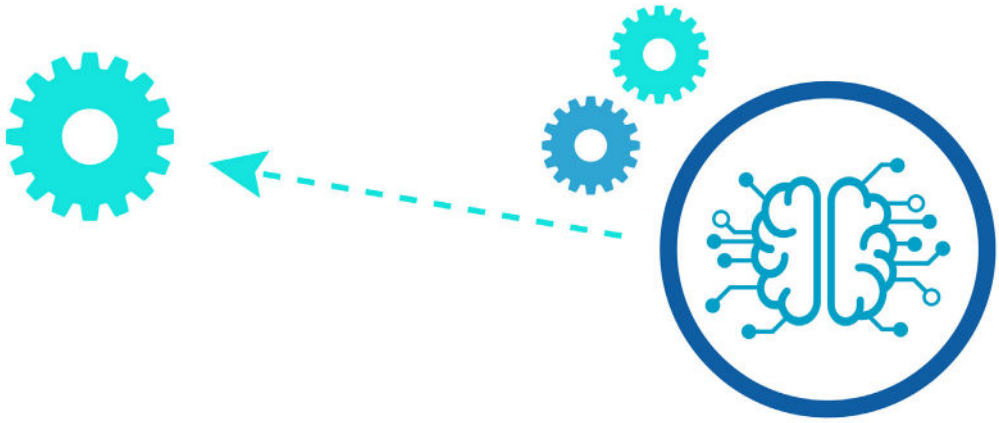
Using data selectively can lead people to believe that opinions presented in numerical form are automatically objective and credible, and the larger the volume of data involved, the greater the risks of misdirected confidence.

It is integral to the future of a business that statistics used to direct decision-makers is analysed by impartial specialists, whom set the narrative with unbiased opinion, whether this be an in-house team or an external consultancy firm. This is essential because with partiality, data can be manipulated and misquoted and if false data is referenced often enough, it is eventually considered to be truth.

An article published by The Economist in 2010 provided an example of where data was not only misquoted, it was innumerate. A pamphlet was published by the UK Conservative party which claimed that in low socio-economic areas 54% of girls had gotten pregnant by the age of 18, compared with only 19% of girls living in higher socio-economic parts. If we moved the decimal point one place to the left, they'd have got to the right figures.

This significant inflation of data supports the decision-maker's pre-existing beliefs and misguides the audience into forming an opinion based on what they perceive as fact.

Numbers are very powerful, they stimulate trust and if they agree with one's conscious or subconscious beliefs, they will be remembered. So, it is imperative that analysis is approached with impartiality with no predetermined conclusion.



It's a great time to be a Data Analyst

According to the World Economic Forum, over the next five years, data analysts will be one of the most sought-after profiles.

As big data is changing the way organisations operate, it has never been a better time to have a career in data. A study conducted by the IBM reported that between 2017-2020, the demand for big data jobs will have grown by 28%. Furthermore, a report released by PricewaterhouseCoopers (PwC) has forecast 2.7m new jobs will be created in data science and analytics.

Through significant technological advances and increased data availability, it has never been easier for businesses to harness the power of big data, and the demand for candidates with analytical capabilities is growing.

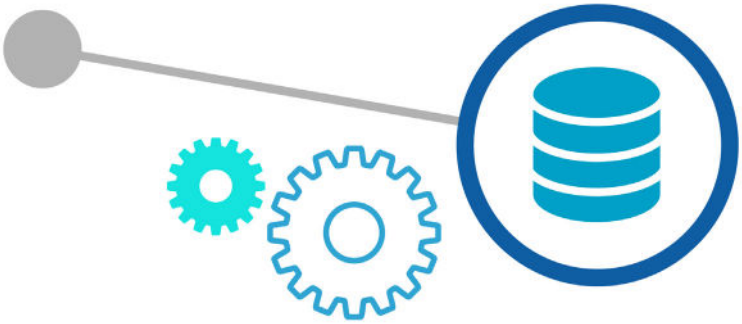
> *'Numbers have an important story to tell. They rely on you to give them a clean and convincing story'* – **Stephen Few**.

Numbers alone are useless unless there is human interaction to interpret the data, identify trends and create insights which lead to actions. The former CEO of HP, Carly Fiorina, highlighted that:

> *'there are key steps to analytics which draw the value from data; reporting turns raw data into information and analysis turns information into insights. If we take this one step further, without established actions insights remains simply information - no action, no value.'*

But are organisations bridging the gap between measuring performance and investigating performance? 65% of organisations claim to be effective at capturing data, but just 46% are effective at creating insights - *MIT Sloan Management Review*.

With this disparity between data and insights, is there a misunderstanding within some organisations as to what data analytics is and are hiring requirements limited to data management capabilities?



Data specialists are generally grouped into two camps; data science and data analytics. In spite of the growing demand for an analytically skilled workforce, research alludes to organisational ambiguity between data management and insights. 'Reporting' and 'Analytics' are two terms used interchangeably by a lot of companies to describe the process of their use and application of data. However, they are not the same, one states the 'what' and the other explains the 'how,' the 'why' and supports the discovery of the 'what next.' Reporting raises questions, analytics endeavours to answer them.

In order to disambiguate between the two – very different – functions, it is first important to define reporting and analytics.

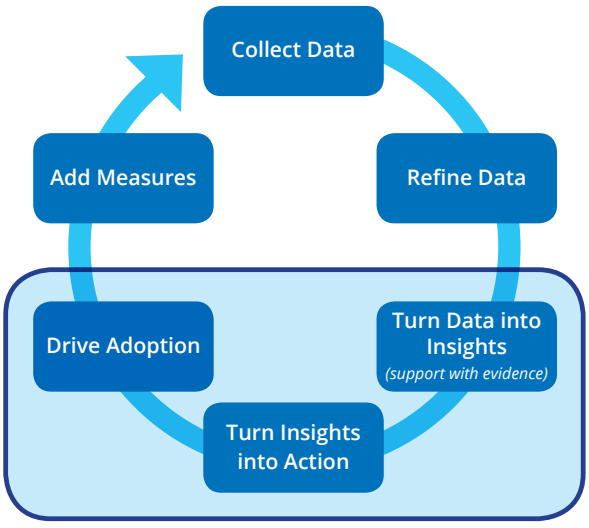
a. Reporting is 'the process of organising data into informational summaries such as a dashboard, slide deck or an email, in order to monitor how different areas of a business are performing' - Adobe

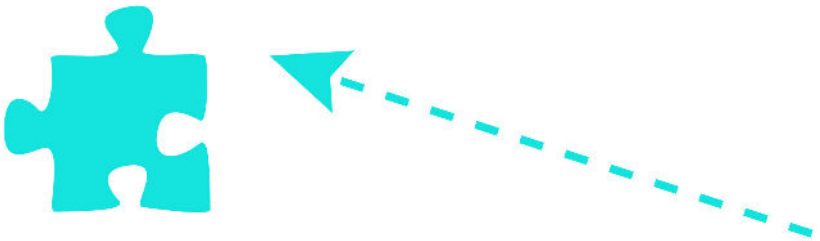
b. Analytics is 'the process of exploring the data and reports in order to extract meaningful insights, which can be used to better understand and improve business performance' – Adobe

Analytics is the ability to see the grey area, to interrogate the data and funnel down until one has the light bulb moment, going beyond the black and white which reporting is limited to.

As an analytics specialist, a company would rely on this person to make sense of the data and advise senior stakeholders and the applicable team members how the business should respond to the insights provided, and how to move the business forward based on what the data is showing.

Understanding the grey area and establishing the why often takes experience, so it is beneficial for the person in this role to not only possess solid analytical skills but a business acumen too. A background in business is attractive if not imperative to this person's ability to go beyond reporting.





A great analytics specialist would be described as:

- **Inquisitive** - they have a natural sense of curiosity and a drive to get to the root cause of a problem.

- **A problem solver** - they are in a position which pursues solutions, this person looks to connect the dots through exercising logical thinking, predictive analysis and uses statistics to support recommendations.

- **A critical thinker** - this person does not endeavour to share all the data they have collated, but to scrutinize the numbers and select only those which are relevant to the story and which will provide clear direction to support decision making.

- **A visualizer** - they know how to organise the data and create a story in a concise manner which is easily understood by audiences without too much explanation. They use effective visualisation techniques to engage their audience.

- **A good communicator** - they have the ability to present findings in a clear and concise manner and to shape the way they share the findings depending on who they're talking to.

- **Detail orientated, but a big picture thinker** - whilst they are able to work with large volumes of complex data, they also understand what the business needs are and how their recommendations will affect the bottom line.

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