The Henley Centre for HR Excellence

Henley Business School
UNIVERSITY OF READING

Research

Big Data and HR

Nick Holley, Co-Director of the Centre for HR Excellence

Contents

The power of HR analytics – threat or opportunity?

Background

Every year the Henley Centre for HR Excellence completes two pieces of original research. In our first report in 2013 we are looking at how the power of HR analytics will change HR and exploring whether this is an opportunity or a threat. Over the last few months we have carried out a number of face-to-face interviews with HR leaders, internal HR analytics specialists, HR technology suppliers and consultants and leading thinkers as well as following the conversations taking place online.

The interviews:

We would like to thank all those who gave their time to be interviewed: Accenture, Josh Bersin, British Army, CA Technology, Danone, Deloitte, Deutsche Bank, Dave Ferio, GSK, HRN Europe, HSBC, IBM, KPMG, Marks and Spencer, McAfee, Mercedes-Benz, Mercer, Microsoft, Morgan Stanley, Nationwide, Oracle, Tim Ringo, SAP, SAS, Saudi Aramco, SHL, Supergroup and Vodafone.

- You will find their anonymous quotes in bullets throughout the report.
- You will also find quotes from online conversations and published reports bulleted and attributed in the endnotes.

In this report we will explore:

- What Big Data is and whether it is a threat or opportunity for HR
- Why there has been so much fascination with Big Data
- What differentiates the organisations who are successful with Big Data:
  - Why they are using it
  - Where they are starting
  - Where HR analytics sits
  - Where HR analytics needs to start
  - The key steps
  - The skills and attitudes required
- What it means for HR
- The nine golden rules

In Appendix 1 we will look at examples of the use of Big Data in HR.

In Appendix 2 we will share one view of the key metrics HR needs to focus on.

In Appendix 3 we will look at four levels of Big Data usage.

What is Big Data?

Big Data is one of those terms that has recently come to the fore and is already in danger of becoming a cliché. Put simply it is the fact that the amount of data is doubling every year and the IT tools that are now available mean it is possible to analyse these data in real time to drive insights that when acted on can enhance business performance. IT and data have of course been around for decades but what is new is that in the last few years the sheer quantity of data and the effectiveness of analytical tools have grown exponentially so traditional approaches only scratch the surface.

- 'By using Big Data analytics solutions, and specifically high-performance analytics, businesses and governments can analyse huge amounts of data in seconds and minutes to reveal previously unseen patterns, sentiments and customer intelligence. This speed and accuracy of insight, delivered across any device including smart phones and tablets, means organisations can make better, faster decisions.'[1]

'What is new is that in the last few years the sheer quantity of data and the effectiveness of analytical tools have grown exponentially'

Let's start with some statistics to give some idea of the scale of change that the phrase Big Data encapsulates:

- 90% of all data have been created in the last two years.
- Every two days we create as much information as we did from the dawn of civilisation up until 2003.
- The current amount of data if stored on CDROMs would stretch 80,000 miles beyond the moon.
- 247 billion emails are sent every day.
- *The New York Times* has published 2.9 billion words since 1959. Twitter publishes 8 billion words per day, Facebook 10 billion.
- Every hour the data transmitted over the Internet, if stored on DVDs, would create a pile of DVDs 95 times the height of Mount Everest.
- Wal-Mart hold 2.5 petabytes of data = 167 times the information contained in all the books in the US Library of Congress.

This creates a massive opportunity for business.

- 'As Big Data and its levers become an increasingly valuable asset, their intelligent exploitation will be critical for enterprises to compete effectively. We already see organizations that understand and embrace the use of Big Data pulling ahead of their peers in tangible corporate performance measures. The use of Big Data will become a key basis of competition across sectors, so it is imperative that organizational leaders begin to incorporate big data into their business plans.'[2]

This will be as true in HR as in any function, though HR has been slower than most to see the opportunity and this is at the core of our question. Is this a threat or an opportunity for HR?

- 'Big Data is the last chance HR has to be relevant.'
- 'I think for far too long HR has asserted unsubstantiated rubbish. It's all a house of cards and data will knock it down.'
- 'If we are serious it will tell us shocking things we won't want to hear.'

It would appear to be obvious that data analytics is a tool that when used effectively can transform HR's effectiveness and its relevance to the business. Data analytics provides HR with the opportunity to create game changing

'...a real opportunity to make us credible with demanding customers, an opportunity to apply a bit of science and rigour to what we do'

insights from data within the function, from other functions (marketing, sales, risk, finance etc) and/or from the external world. HR can use this opportunity to move beyond gut feel and intuition to identify the core drivers behind workforce and capability issues, thus ensuring HR doesn't just do what HR has always done because it has always done it, but focuses its activity where it can directly impact business performance.

- 'Phil Simon, in his book *Too Big to Ignore: the Business Case for Big Data*, talks about the popular perception of HR folks tending to almost exclusively rely on gut instincts versus making decisions based on data. I'm convinced that as the profession continues to embrace the use of data and analytics into its practices, that it will also continue to solidify its role within the C-Suite.'[3]

Not only does this transform HR's potential impact but it can also transform its relevance and hence credibility by ensuring it talks the language (data) of the business and engages in issues (profitability, productivity, capability etc) that the business sees as central rather than HR issues (sickness, absence, diversity etc) that the business see as things they can delegate to HR.

- 'HR sees it as a real opportunity to make us credible with demanding customers, an opportunity to apply a bit of science and rigour to what we do.'

So why ask is this an opportunity or a threat? In the research we have seen two worrying trends that indicate this could be a threat:

Threat 1 – HR luddites

Firstly in speaking to a number of internal analytics specialists the biggest threat to their success appears to be the attitude of their own colleagues within HR.

- '"I don't know the numbers but I know someone who does" is fine but "I don't know the numbers so I'll ignore them and protect my relationships" doesn't move us forward.'

They say that in many cases HR generalists are either ignoring or even trying to actively undermine HR analytics initiatives because they see them as a personal threat. They don't have the experience, skills or basic numeracy to be able to engage in an analytics debate.

- 'HR doesn't historically have this capability, getting insight from connections, not from data.'

Instead they have built their careers around a set of soft skills such as relationship building and experience driven intuition and see the emergence of data analytics as a threat to their current position and long-term career progression. They realise they are turkeys and data analytics is their Christmas!

If this is the case then why do some HRDs seem unwilling to address this?

- Are they unaware of Big Data? (Anecdotally when we ask HR audiences about Big Data a worrying number are unaware of it.)
- Are they unaware of the behaviour?
- Are they unwilling to address it because of the tough conversations they'll have to have?
- ...Or are they the turkeys?

Threat 2 – Data centricity

The second threat is the way data analytics is being applied in some HR functions.

- 'If there's no process for applying information in a specific context then you are producing expensive trivia… For most of us in non - data businesses, this translates to "How can we use information to improve the decisions made in our organisation?"'[4]

We have found that the key to successful HR analytics initiatives is to drive action from business problems where insights gained from HR analytics can be applied to drive business performance.

- 'It takes a lot of work to cut the data in a way that's useful. If you start an analytics project by collecting all the data you can find you may never come to an end. Rather you have to start with the problem you would like to solve. How many people have expertise in…? We don't know but, if it's a growth area, we need to know if we have them vs a generic pool of sales reps. A lot of our intelligence is based on the data we have; LOS, gender etc drive what we come up with but we need to focus on the concerns of the business that contribute to shareholder value.'

In many cases this means that the current data collected by HR (sickness and absence, turnover, diversity, grades, training days etc) aren't relevant. They don't answer the need to identify and mitigate critical people and organisational risks to strategy. CEOs care about addressing talent constraints, not attrition and absence.

- 'If we only look at analyzing HR data in a silo, then there will be no business impact. We have to start showing how employee data drive relevant business outcomes. We know that our business partners don't really care about things like days to fill or engagement. We must do a better job of connecting people focused data to what our customers (i.e., business leaders) are focused on (business outcomes).'[5]
- 'HR's current approach to analytics remains anchored in the present and in the past: staff turnover, employee engagement, diversity statistics and promotion rates. It's concerned with what's gone before, with the existing workforce and with its organization's immediate priorities, rather than providing executive-level leadership with tangible intelligence about what's going to happen tomorrow, next year or next decade – and why that will be important to the business.'[6]

'If you start an analytics project by collecting all the data you can find you may never come to an end'

But we see a lot of functions driving their HR analytics activity from left to right, from the data to the problem:

- We have loads of data, how can we analyse them?
- How can we generate a data pack so we can show the business all the HR statistics we think they need?

Rather than right to left from the problem to the data:

- What are the challenges the business is facing?
- What insights can we create that will address these challenges?
- What data do we need to collect?
- What analysis needs to be carried out and how can we present these data in an insightful way that will engage the business in taking actions to address these challenges?
- From what we have, where are the insights, which create questions, which the strategy hasn't considered?

The mindsets of, and the language we use within, HR are the keys here. We need to think not about producing but about translating, not generating reports but

'We should be mindful of the human element and use data with a sense of humanity and not open the door to a world where we lose track of what makes us human'

insights. We need to think in terms of how will this analysis provide insights that, if action is taken, will increase the chance of something happening that impacts performance?

Big Data and HR's soul

Finally we have to ask one philosophical question. In a recent article 'All people decisions at Google are based on data and analytics'[7] the author looked in detail at how Google are using algorithms to drive their decision-making. This raises a worry. The danger is if everything we do in HR is derived from a data-based algorithm this becomes a 21st century equivalent of F W Taylor's scientific management. The danger is that we lose the heart and soul of an organisation. We should be mindful of the human element and use data with a sense of humanity and not open the door to a world where we lose track of what makes us human.

The opportunity

So why the focus on Big Data? There are several factors that are driving it:

- The falling cost of technology in real terms (Moore's law).
- The explosion in processing power and in the volume of data.
- The reliability of data today against 10 years ago when the technology had a habit of falling over or the data were so poor that people wouldn't trust them.
- Advances in the flexibility and robustness of the technology means there is a greater opportunity to tailor whereas only a couple of years ago vanilla was the safest route.
- The availability of more sophisticated and robust analytical tools:
  - ERPs and the like have standardised analytical tools that are user friendly and easily adaptable. These technologies include BigTable, Business Intelligence, Cloud Computing, Data Warehousing, distributed systems, ETL, Hadoop, mashups, metadata, relational and non-relational databases, SQL, stream processing, structured and unstructured data etc.[8]
  - These tools are online and available all the time. In many cases they are embedded in standard desktop software packages. They allow relatively unsophisticated users to turn data dumps into graphs that can be analysed simply and quickly until insights emerge.
  - These tools include sophisticated modeling tools (A/B testing, association rule learning, cluster analysis, data fusion, factor analysis, genetic algorithms, natural language processing, network analysis, optimisation, predictive analysis, regression analysis, scenario planning, sentiment analysis, simulation, spatial analysis, statistical modelling, stochastic modelling, time series analysis etc[9]) that can run multiple instances almost instantaneously, allowing us to move from simply analysing the past to predicting the future. This move from a rear view mirror to a crystal ball makes it more likely that leadership will engage with HR in the way they currently engage with finance.
  - We have moved from a few having access to anyone having access to the data. Mobile enablement means this can be done in real time so analysis and interpretation can be done by the HR business partner, in front of the client, creating another level of engagement and demand from the line.
  - Analytics can be performed not only on objective but also on subjective data, indeed Big Data tools offer the opportunity to get more insights from subjective data without an industrial scale solution:

'Mobile enablement means this can be done in real time so analysis and interpretation can be done by the HR business partner, in front of the client, creating another level of engagement and demand from the line'

- Call centre voice recording where you can not only analyse the words, but even the way the words are said.
- Moving in employee opinion surveys from closed-ended questions to analysing open-ended questions where sensitivity analysis can give more nuanced insights.
- Accessing data from social media.
- 'Use of subjective and objective data together is so powerful so easy to use, true success is to tackle subjective data and back it with objective data to tell a story.'

- 'A major part of this shift is the explosion in new tools. Today nearly every major HR software vendor (Oracle, SAP, ADP, Ceridian, Workday as well as specialty companies like SumTotal, Cornerstone, Lumesse, Silkroad, Ultimate, and hundreds of others) are building and buying end-to-end HR suites, very similarly to the evolution of customer relationship marketing. The clear next step is for these vendors to launch tools to help you analyze and segment this data. Today Oracle (OBIA), SAP (Workforce Intelligence), Workday (Big Data Analytics), and SumTotal have all launched major integrated HR analytics systems. Mercer has their own solution and a variety of smaller vendors are delivering amazing analytics systems as well (Visier comes to mind). And IT departments are now looking at a variety of IT-driven analytics tools (companies like Platfora, Splunk, and dozens of others) which run open source parallel systems like Hadoop and MapReduce to help you combine internal business data with social, location, and many other sources.'[10]

'The tools are only as good as the problem definition. The core factor is HR's ability to create meaningful hypotheses and then interrogate the data.'

- The revolution in our ability to visualise the data as we have moved from tables and charts to animated graphical representations that can bring the data to life and make patterns and insights stand out for busy people who either aren't interested or are easily bored. In this emerging field of data visualisation and infographics we can learn a lot from the ergonomics of data, e.g. cockpit design.

However it's not about the tools.

- 'Remain open minded about the possibilities that analytics can bring to your business – don't get hung up on having to understand the technology or be the expert, you don't – you just need to know that there are tools out there that can help you be a more effective and influential leader within your business.'

The tools are only as good as the problem definition. The core factor is HR's ability to create meaningful hypotheses and then interrogate the data.

- 'But don't let the tools drive your program. The hardest work and most valuable results come from people: the questions you ask, the people you hire, and the process you use.'[11]

We need to think about data in terms of whether they are addressing questions the business needs answers to. The danger is that the fascination with the ever evolving and more sophisticated technology results in raised expectations whilst the tools are only ever as good as the user. Organisations that focus on the problem and standardise the tools around the capability of the end user tend to be the most successful especially where there is no underlying analytical culture or capability. The key isn't the data or the tool but what you want to get from them. So who or what has been driving this focus?

'We need to think about data in terms of whether they are addressing questions the business needs answers to'

What are the drivers behind HR analytics?

We have found a number of drivers behind HR analytics and in our view these often contribute to the success or otherwise of HR analytics initiatives:

1. There is a business problem to be solved.
2. The CEO wants it.
3. Investors are interested in it.
4. Regulators demand it.
5. We can use it to cut more cost from HR.
6. It sounds fascinating and leading edge, the tools are out there, let's use them.

1. Problem focused.

'The HR data analytics initiatives that are getting the most traction and appear to be adding the most value start .....with the business problem'

- 'There needs to be a problem to be solved; on its own it won't get us anywhere.'
- 'Use something they will value, versus the first thing that comes to mind, to get their attention.'
- 'Analysis for analysis sake is useless; the only judgement is do you do anything with it that makes money?
- 'We need to stop data mining for fun we should only do it if there's a sponsor.'
- 'The critical mindset is the appreciation of the competitive business advantage Big Data analysis can provide.'
- 'Focus on business analytics not data, clear priorities, simplicity vs bells and whistles, take some risks to open minds to opportunities, focus on highest value, embed insights, build capability.'
- 'The mindset is "it's not data for HR" but "data for the business" that provides insight at the C table.'
- 'Be really clear about the main business drivers where through analytics you can impact business performance. Then you can connect and get real traction.'
- 'If HR is to get anywhere you have to have a deep sophisticated understanding of the value chain. Only from there can you ask sensible questions. Unless you ask sensible questions you're nowhere in analytics.'

This is probably the single most important insight we gained from the research. The HR data analytics initiatives that are getting the most traction and appear to be adding the most value start from the right of our diagram below, with the business problem, not from the left with the data.

- 'Sometimes we try to use data to get traction as a substitute for quality of understanding.'

Of course this is tough since the business doesn't always see HR as core. It doesn't often see the linkage or defines it's problems in people or capability terms. It isn't always coming to HR for help. This means we have to listen carefully to infer what it cares about or even more importantly we have to be fascinated by the commercial agenda and the numbers so we either prompt it to think in terms of people or capability issues or think about it ourselves. In one of our Henley open programmes one participant when discussing analytics said that 'this is irrelevant to my role as an HR business partner, I don't have to do calculations'. People who think like this are dinosaurs, have no future in HR and underlie our fear that this is a threat to HR or at the least to many people in it.

In starting with the existing data there are several potential issues:

The data are irrelevant to the problem

The existing data tend to be inwardly focused on HR issues (sickness/absence, training days, HR process completion, performance ratings, career history, recruiting costs etc), which generate an internal historical perspective rather than being focused outside the function on future business issues (project profitability, growth plans, building new skills in emerging markets or technologies, unmanaged high performer or critical role attrition etc). Is HR so keen to show off all the information it has collected (apparently randomly) out of insecurity over its role and a need to show that it is doing something?

- 'This is the fundamental difference between analytics in HR and other functions. HR still focuses on the data not on the business problem.'
- 'Many companies will say the biggest issue is data and the quality of the data. Often it isn't.'

Because they are historical, the data are only applied to the business issue through a process of post-event rationalisation so the data become a solution looking for a problem.

- 'Numbers are not important, the message is.'
- 'We see the use of HR data, which on the surface present information, which appears interesting, but there is no hard tie back to how will the business solve its issues, reduce cost or increase revenue or innovation?'

The existing data can't be compared

In many cases different data have been collected in different data centres either within different parts of HR such as resourcing, learning and development, ER etc, or in different formats often as a result of acquisitions. In many cases we are seeing organisations investing huge amounts of time and money in cleansing data and ensuring comparability.

- 'Many companies struggle with the most basic aspects of data management, such as cleaning, verifying or reconciling data across the organisation.'[12]
- 'Other data-related problems are caused by: complex data architecture models, a legacy of multiple reorganizations, mergers and acquisitions; overly complex entry codes for different HR actions – such as numerous termination or hiring reasons; pulling data from separate systems with inconsistent definitions (such as HR, payroll, training and talent systems); a lack of rigour or controls for completeness; and inconsistencies from employee self-service (or lack of self-service).'[13]

'This is the fundamental difference between analytics in HR and other functions. HR still focuses on the data not on the business problem'

This creates a huge pressure to produce a return and delays the ability of the function to derive insights when the business needs them instantly at the pace they are facing the issues.

- 'Most companies are simply overwhelmed by the volume and variety of data available, and the challenges maintaining data quality and making sense of it. In reality, most companies don't suffer from a true Big Data problem when it comes to workforce metrics. Rather, it is mostly a lack of understanding with regard to the best metrics to track, and organizing the right data and setting up processes to communicate these metrics to managers and business leaders.'[14]

'If the culture isn't one where data-driven insights are valued and gut feel is valued, you'll always be raging against it.'

It's also important to be aware of the culture of your organisation. Some organisations are naturally data rational and it's easy to convince them of the need to invest in data analytics though there is a danger that they become so data centric that they end up arguing about data methodologies rather than where the data are pointing. In the research we found four sectors that are ahead of the game:

- **Finance** especially banking – They work in numbers so tend to be numerate and more capable of expressing things in that way. In banking, HR needs to work with people who stare at Bloomberg screens all day so they're hungry for data. There is also a strong regulatory driver with a need to prove competence and CPD.
- **Retail** – They are already using social data and social media whilst the ubiquity of loyalty cards means they are already familiar with consumer data and therefore use employee data more effectively. They really understand the value of social media and can see the link between employee and customer.
- **Manufacturing** – In heavy industry and manufacturing, especially oil, there is a close analogy with supply chain, raw materials, parts, suppliers etc so they tend to have a deep-seated process mindset. It's in the DNA of these companies and they tend to be much more thoughtful about the use of metrics and data.
- **Accounting** – Firms in financial services are numbers-based businesses and are confident around data.

These cultural issues are important. If the culture isn't one where data-driven insights are valued and gut feel is valued, you'll always be raging against it. It will need more of a top down driver.

2. CEO focused.

In several successful initiatives we noted that the driver hadn't come from within the function but from the CEO, COO or chairman:

- 'We have a new CEO since January, much more practical who holds his executives to account. The only way to do this is with metrics.'
- 'The chairman said the HR strategy looks good but how can you tell me you're making progress towards it?'
- 'In the last five years we've had a CEO who gets it, who wants to get the best out of HR.'
- 'We have a new CEO who comes from a position of give me the facts, give me the evidence.'
- 'The edict came from the new COO who is very data driven. It's all too easy to ignore it if it comes from HR.'

'We also saw some evidence of people being sucked into the hype or being sold a technology solution without having any clarity about what exactly the problem is that the solution is for'

- 'The CEO demands an informed decision-making process.'
- 'Big beasts involved early in sponsor group.'
- 'Must be driven from top not from HR.'

In each of these cases we noted there was:

- Less resistance within HR
- More access to the relevant IT skills and investment from other parts of the business
- Fewer questions about budgets

But equally:

- More pressure to deliver relevant, actionable insights

3. Investor focused.

In one organisation we noted a very direct link to investor pressure. Over the last few decades the impact of intangibles on share performance has grown and in this case investors were looking for comparable data around intangibles, linking internal data analytics within HR to external benchmarks developed by organisations such as SHRM and ANSI, with whom this organisation's HR team is working. In this case a set of people and capability metrics linked to intangibles have been developed and HR updates them regularly. The big difference is that line managers are held accountable for them by the CEO who uses them as a key element in his performance reviews as he can see a direct link from them to shareholder value creation. Once again HR analytics is seen as a business not an HR issue.

4. Regulator focused.

In a number of regulated businesses we noted an increasing pressure from regulators for faster more valid data.

- 'The regulator is forcing our hands, more analysis, more disclosure and this will be a big factor over the next 24 months.'

This is creating a strong driver to invest in the relevant analytics capability.

5. Cost focused.

There is no question that there is a huge opportunity for data analytics to support cost saving within the HR function. In one major firm an investment of £40 million in data and ERP implementation resulted in a reduction of 600 HR administrative staff. In another they saved cost through aggregating all their databases, offices and data people in one location. However this appears to us to be dangerous ground. The danger is that the focus turns to the cost of HR rather than the value added. In the first four drivers it is using data to drive value-added decision-making that has driven success.

- 'If you get the numbers right, funnily enough the decisions are easy.'

In this case the driver isn't about creating value but in driving cost down or making one particular organisational model work. This is a double-edged sword especially if the data initiative is driven from left to right. The focus on cost generates a greater focus on cost. If the initiative isn't adding value outside HR then it simply creates ever more pressure on cost.

6. Tool focused.

We also saw some evidence of people being sucked into the hype or being sold a technology solution without having any clarity about what exactly the problem is that the solution is for.

- '…Vast, Volumes of Vigorously, Verified, Vexingly Variable Verbose yet Valuable Visualized high Velocity Data.'[15]

We often see evidence of this in HR where people are looking for best practice without realising that best practice irrelevant of context is irrelevant. There is the danger that people take the approach that if Big Data is the big hype then we really ought to be doing it.

- 'Last week in the CEO meeting the HRDs presented lots of data but so what, what are the messages, what do we need to do, why are we doing this?'
- 'HRDs need to be clear what they're trying to build, what is the mission for the HR organisation, not because it's the latest trend, but be passionate about HR supporting the organisation, otherwise don't do it; leave it to finance.'

Once again this comes back to our initial opportunity or threat question. If the driver is creating value-added insight then the answer is opportunity. If the driver is internally focused on HR costs or an HR analytics initiative that isn't anchored in the business then there is a clear threat. As with so many HR issues the key is not proving a dubious ROI to justify what HR does but to drive HR activity out of an understanding of how HR can add value.

- 'Your CFO won't believe you anyway: any CFO worth his ledger isn't going to believe your stated ROI for a talent or HR program. He's used to making fresh-faced, Ivy League MBAs cry by dissecting a financial proposal's every assumption and pointedly questioning its logic. And that's with investments that have quantifiable inputs and outputs! Your ROI analysis that takes "soft" inputs (engagement, training, coaching) and proposes specific dollar returns (or vice versa) will be met with a polite smile and a hidden smirk.'[16]

'We often see evidence of this in HR where people are looking for best practice without realising that best practice irrelevant of context is irrelevant'

Where should data analytics sit?

- 'Businesses that run on data – they get it. Large corporates who work on a culture of using data to drive performance who don't always get it but know enough. Ones still on the journey. Ones who don't understand there is a journey.'

It is important to understand where you are but once you have made the decision to go down the data analytics route where should it sit? Our interviews identified three approaches:

1. It must sit within HR but as a separate team.
2. It should be an embedded capability in HR not a separate team.
3. It doesn't matter where it sits so long as the right connections are made.

1. In HR but separate

In the first case the argument is that if it doesn't sit within HR it will become divorced from the HR leadership team and the people who have to act on the insights, whilst being in HR helps with the interpretation and presentation of the data. In these cases it was also driven by a concern about the ability of traditional HR people to be data rational.

- 'It's easier for analysts to pick up an HR bias than to train up HR people to be analysts so the analyst team is entirely analysts vs HR people.'
- 'I haven't met enough HR people who are strong analytically.'
- 'Easier to teach HR to people who can analyse than analysis to HR people.'

Our worry is how much is really about this and how much is it about the power

and position of the HR function itself? If we don't get this right are we only one outsourcing step away from having no HR function?

2. Embedded in HR

The second view is that it shouldn't be a separate activity at all but should be embedded in the HR business partner teams, who develop strong data analytic skills, not as a separate entity.

- 'We need to move from HR being gatekeepers to the point where HRBPs can take questions and interrogate the data to find answers.'

The key is less about the depth of data skills in one place and more about developing the whole team to get a lot out of the data. It is interesting to question how much the insight comes from the HRBP and how much from the data. Good HRBPs should know where the business issues are and therefore where to focus the data collection but the danger is that if the HRBPs aren't good enough they miss something.

- 'The biggest issue is capability of HRBPs to sell concept, understand data and position data appropriately.'

Indeed if the HRBPs in this model use data badly they can actually lead to the wrong conclusions and undermine the whole initiative. In particular there is a fundamental difference between correlation and causality and we saw a lot of evidence within HR of seeing the first and assuming the second.

'We need to move from HR being gatekeepers to the point where HRBPs can take questions and interrogate the data to find answers'

- 'The idea is straightforward – "just because there is a connection between two variables, does not necessarily mean that one causes the other." This is very important in the world of Human Resources… HR has long pursued being able to tie its activities to positive business results. However, that pursuit will be fruitless until HR can understand which variables have that type of impact and can then subsequently statistically demonstrate the causal connection between HR activity and profitability.'[17]

This can lead to actions based on incorrect interpretation leading at best to a loss of credibility from people who understand the difference or at worst to value subtracting investments in the wrong actions. Whilst we have more sympathy with this approach we are concerned about the difference between the skills and attitude required to do the analysis, and the skills and attitude required to act on and communicate the insights. Is it realistic to expect these in the same person? Where we see this working, these data skills already exist within the HR business partner teams, often because they work in a business where data skills are already valued and widespread.

3. It doesn't matter

'There is a fundamental difference between correlation and causality and we saw a lot of evidence within HR of seeing the first and assuming the second'

In the third case the view is that an understanding of where the business is going and what factors will be critical in getting there should drive the decision. If the interfaces at a working level are driven by questions asked by the business, not by HR, then it doesn't need to sit in HR. There is also a recognition that most of the skills required don't exist in HR and traditional HR people could struggle to lead a team like this, so in some organisations there is a core analytics team that works across all support functions that can make the necessary connections.

'Can have the most technical person but if they don't understand why, they'll just produce another graph'

Indeed the skills required are rare and expensive and it may be unrealistic to expect HR to build the capability within itself.

- 'A major obstacle to undertaking Big Data analytics is the level of technical skill required to optimally operate such systems. Although software solutions for tackling Big Data continue to become more user-friendly, they have not yet reached the stage where no specialist knowledge is necessary. The requisite skills for Big Data analysis are above those required for traditional data mining, and the cost of hiring Big Data specialists can be prohibitive for many firms.'[18]
- 'There is a dearth of workforce skills required to sift through, analyse and develop insights from big data.'[19]
- 'A significant constraint on realizing value from Big Data will be a shortage of talent, particularly of people with deep expertise in statistics and machine learning, and the managers and analysts who know how to operate companies by using insights from Big Data.'[20]
- 'Retaining and motivating this valuable cadre of talent will, in a way similar to the case of other high-level knowledge workers, require monetary and, more importantly, intrinsic incentives such as interesting problems to solve.'[21]

Equally there is a danger that unless there is one team, islands of data are created and correlations aren't identified.

- 'Can have best Excel monkey in the world but if they don't understand HR and end goals, the "so what", there's a problem. Need the right people to move the data to the "so what".'
- 'I didn't recruit analytical skills. I recruited system skills and attitude. Understanding what we want to do with it is more important than technology skills. Can have the most technical person but if they don't understand why, they'll just produce another graph.'
- 'We have got guys in MI team, basically for them it's all about the tools, they're there because what's important is the tool. We have to break that thinking.'

There is a danger that the core analytics team doesn't make the necessary commercial connections but the model, whilst it allows investment in the right depth of analytical skills in the core team, also allows investment in interpretation, contextualisation and presentation skills outside the core team.

'it is critical to mandate collaboration, not just hoping it happens but ensuring it happens'

In our view it isn't about the power or position of the HR function but about ensuring data are being analysed well and insights are being connected to the right people and to effective action. The key is that it's not about owning the data but about sharing them in an appropriate way. The relationships, at the interface where business needs are translated into HR issues and then into data analytics needs, must work well.

- 'We need to be smarter in joining up data across the organisation.'

Wherever it sits it is critical to mandate collaboration, not just hoping it happens but ensuring it happens. The most successful organisations ensure there are permeable boundaries and that the right internal linkages are made not only within HR but also with other functions in the business such as finance, risk and compliance, sales and marketing and IT.

Finance

The link to finance is critical to ensure that headcount is linked to cost and in the most successful organisations we saw a real effort to link finance and HR with weekly meetings, and in one case co-locating them to break down barriers and ensure constant communication.

- 'A key lesson was to build the organisation around the need. In the past it never occurred to us to bring finance and HR together but we have got great insights when we did. In the past we were told to take the financial element out of the design for the manpower-planning department as cost was owned by finance, even when the drivers of cost were the numbers of people. Finance said "it's not your business". They moved to "it would be useful so long as we control the system". Then there was a light bulb moment "why don't we integrate two departments". It saved £40 million.'

In this case the drive once again came from the CEO who said he didn't want to see different numbers when he talked about people. In addition there was a recognition that finance had a greater credibility when it came to the numbers, so headcount numbers were never reported until they had been validated with finance. This collaboration and respect needs to be two-way for whilst finance can identify the cost per FTE they aren't as sophisticated in thinking about the behaviours and other issues that drive the cost.

- 'When we moved to BAU I knew we had to get finance and HR together to align accountability, responsibility and authority.'

Customers

The link to customer facing areas is also important to ensure linkages are made to revenue generation.

- 'Think bigger than HR – your organisation will have a wealth of different information/data sources, which can be coupled with external data through the use of analytic tools to bring powerful insights to how your business is or could be operating.'
- 'Break down barriers and use data across the organisation; this is where most value is.'

As with finance, historically there seems in many cases to have been a disconnect where marketing or sales want their data 'like this', whilst HR wants it 'like that', with the result that hugely insightful correlation analysis between different data isn't even thought about let alone done. In Appendix 1 you will see dozens of examples of business-changing insights that have been drawn from exactly these types of collaboration across functions.

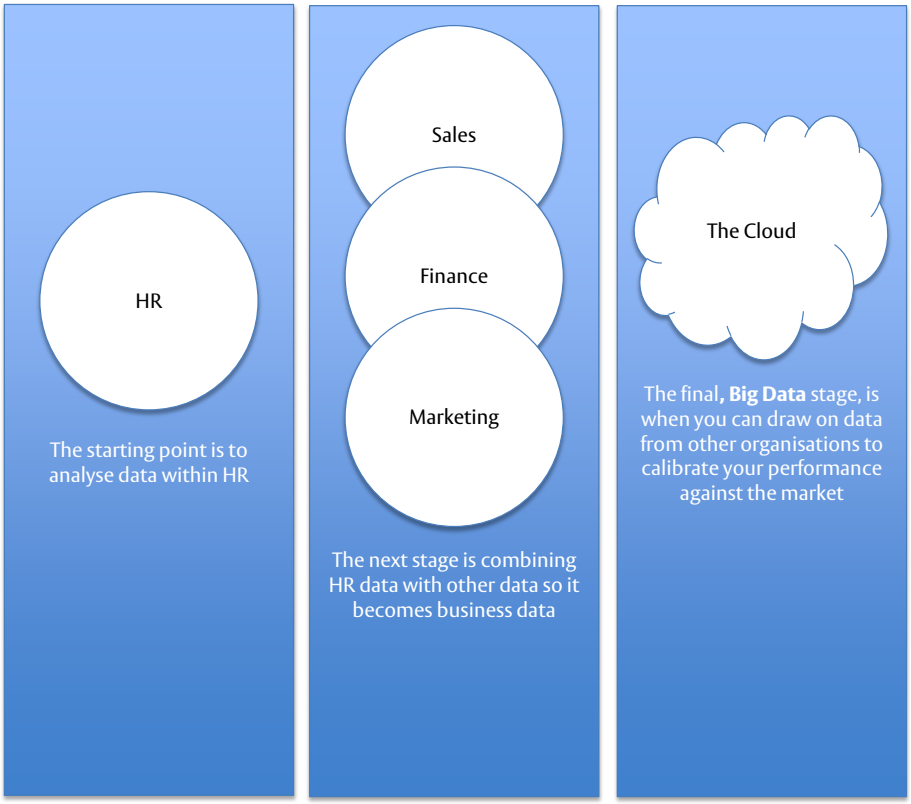
We noted earlier that Big Data is in danger of being a non-HR buzzword.

- 'Everyone is talking about Big Data but our problem is with small data.'

In our research we heard a great HR-centric description of Big Data:

- 'Big Data is outside HR and true Big Data is analysing aggregated data outside the organisation.'
- 'Talk to each other to look at each other's approach; to get a different insight bring together 4/5 companies from different industries to challenge how we do things to talk about differences.'

'...a disconnect where marketing or sales want their data 'like this', whilst HR wants it 'like that', with the result that hugely insightful correlation analysis between different data isn't even thought about let alone done'



'HR won't nail analytics if it tries to do it on its own'

This version of Big Data in the diagram above really shows the power of linking internal data to external benchmarks and data including economic indicators, competitor performance and social media.

IT

HR won't nail analytics if it tries to do it on its own. It needs IT support, but the challenge in securing IT support for this, as in most cases, is that HR is not seen to be a top priority. Without full support from IT, any HR analytics initiative is doomed to failure as the best resources will not be made available and issues around security, integration and implementation will not be addressed until too late. Equally there is a danger that IT leads the definition phase without understanding HR's needs. HR must get in the driving seat with IT ensuring HR has the right tools and data to address the key HR and business issues, not the tools that IT thinks are the latest and greatest from a technology standpoint.

- 'It is far more important to standardise on a set of tools that are supported by IT than it is to constantly search for the next best thing.'

Once again HR must come from the business issue to convince IT of the importance of the initiative or that it needs to be driven from the CEO down not HR up.

'As soon as you start to combine HR with other data it's really powerful but too often different people don't talk to each other.'

The line

These cross-business linkages are important not only with support functions but also with the line.

- 'As soon as you start to combine HR with other data it's really powerful but too often different people don't talk to each other. They fail to see how linking is so powerful. The driver to link isn't usually from HR or IT, it tends to come from the C level or the CEO.'

'The recent adoption of the three-part model in HR has if anything made the problem worse as in many cases issues around the ownership of data or of the analytical capability has reduced internal collaboration'

At one level they are the customers for the insights, and they will have to take action based on them so the issue is addressed. But even at a simpler level they are a critical stakeholder since they provide the data to HR to carry out the analysis. It is critical they see 'what's in it for them' because if they don't see a good reason why they should, they won't provide the data or engage with the insights.

- 'Business leaders ask for data; if they don't get it within 24 hours they forget why they asked for it.'
- 'Where we do get overwhelmed is as a victim of our own success; senior leaders ask for data with no idea what action they'll take or what they'll do with them.'

This is especially true where organisations move to self-service where it is up to the manager and individual to keep the core data up to date. In many organisations self-service has seen a dip in the quality and timeliness of this core data.

- 'It's a cultural shift not just rolling out the technology. We should have been better at change management. We got lots of resistance to managing their own self service data. If you don't get engagement the quality of data will go downhill.'

Successful organisations have focused on lots of tactics, both push (if you don't get your details right you won't get paid) and pull (we can help improve your margins through these insights, which will drive your compensation) to ensure line engagement at every level.

HR

'The cultural aspect is the key piece to make it work – a culture of how do you help your customers make the right informed decisions that can be trusted through the data.'

Finally we mentioned the linkages within HR, which at first wouldn't seem to be a problem, but in the research we kept coming back to it time and time again. The recent adoption of the three-part model (HR business partners, centres of excellence and shared services) in HR has if anything made the problem worse as in many cases issues around the ownership of data or of the analytical capability has reduced internal collaboration. More complex reporting lines often mean data aren't consolidated until they reach the HRD, meaning it is down to the individuals to make them work despite the structure. Different parts of HR collect data on different incompatible systems (resourcing, performance management, LMS etc) for different reasons (in many the cases the reasons appear to get lost over time) making it impossible to compare them even if the desire is there. It is critical that HR does not allow the model to disaggregate HR data and in this as in so many issues HRDs have to drive collaboration from the top. The key isn't where it sits, within or without HR, but that HR understands the power of analytics and applies it to the right issues in collaboration within the function and with other functions.

- 'The cultural aspect is the key piece to make it work – a culture of how do you help your customers make the right informed decisions that can be trusted through the data. It's all about decision-making.'

Where is the starting point?

As stated at the beginning the starting point for HR analytics initiatives tends to be either the issue or the data. The danger when starting with the data is that they can divert you; you get so fascinated by the potential of Big Data that you can't see the wood for the trees.

- 'We all know what this will mean: MORE REPORTS! We have to end this end-of-the-month, mad dash for numbers that are mostly meaningless to our business partners. Simply creating prettier reports or slicing HR-focused data in a different way, is NOT going to get our internal clients excited about HR."[22]

The key skill is the ability to stand back and take a strategic view around business issues as opposed to what HR issues require, what insights and requiring what type of data.

- 'Focus on organisational priorities, don't do irrelevant analysis.'
- 'I think we're rubbish at metrics; we do stacks and stacks of reporting but none has any value. HR collects lots and lots of data but we miss the "so what", so what will we do differently as a result?'

In some cases people have stumbled on the concept of Big Data when faced with these specific issues. In other cases there has been a conscious decision to start small, exploring a couple of areas to demonstrate the power of data analytics to make better decisions using evidence and insights, before expanding the initiative.

- 'Dip your toe and start somewhere – identify your most pressing business problem and use analytics to explore this and you will start to experience the possible insights.'
- 'Don't wait for 100% data accuracy.'
- 'These questions are worth millions of dollars to answer. A company I just met with developed a predictive analytics model for turnover in their restaurants. Did they use Hadoop or parallel databases? Nope, they used Excel. But they had a very smart statistician working with a very senior manager to come up with the hypothesis. And from there they explored all the possible data elements that might contribute to the answer.'[23]

'Dip your toe and start somewhere – identify your most pressing business problem and use analytics to explore this'

But the issue needs to be a business issue. In one case an interviewee had identified six business issues that were driving their approach. When we asked what they were, we were told: organisational design, reward, succession planning, resourcing, international mobility and training – surely these are HR not business issues?

- 'We need to shift the questions from: How many managers do I have? How many open job postings? How many people left last year? How much did I pay in bonuses this year? What is my headcount? To: Do my best people intend to stay? How effective are my leaders? How am I performing compared with my competitors? What people measures drive profitability? How much should I invest in people development?'

It is easy for the business or HR luddites to point the finger saying I don't believe it or I won't make a decision because the data are wrong. This has driven a second data centric approach that has involved investing a lot of time and money in creating one 'golden data source':

- Extracting, validating, mapping, aggregating and cleansing existing data

- Standardising definitions, grades, functions, structures, hierarchies, etc into one data dictionary, not only within HR but also across functions, especially with finance
- Agreeing standards for data security and privacy, data management and governance
- 'As an ever larger amount of data are digitized and travel across organizational boundaries, there are a set of policy issues that will become increasingly important, including, but not limited to, privacy, security, intellectual property, and even liability."[24]

This also requires a top down approach to governance.

- 'To make it work, HR have to take responsibility for data quality.'

There cannot be any disagreement or any potential for ambiguity or there isn't one truth. Where it has worked it has involved getting all HR stakeholders in a room and 'locking the door' until agreement can be reached.

- 'Get conceptual design right from the beginning – didn't get a consultant to do this but ran workshop with us doing it to get ownership.'
- 'The core of our success was that we got the governance right. It was a change programme – right people on project board including very senior decision-makers, right methodology (brought in from engineering world, CADMIT – concept, assessment, design, manufacture, in service, termination); we built the project around that sequence.'

The problem is that in all the cases we saw this takes a huge amount of time (we heard from six months to three years to set up a master suite of data to cover everything) and a massive investment of resources. This is a potential problem for all organisations but especially for smaller ones.

- 'It's a trend rippling through HR but medium-sized companies will struggle as they don't have enough staff in HR to do it.'

The problem is multiplied not only by the complexity and volume of the data but also the fact that organisations are changing so fast that this complexity is increased even further. It leads us to conclude it is dangerous to spend millions on a perfect implementation as it never is and by the time it arrives the danger is that the world has moved on, especially in a dynamic environment of constant reorganisations and acquisitions.

'It is dangerous to spend millions on a perfect implementation as it never is and by the time it arrives the danger is that the world has moved on'

- 'I've tried to implement a data warehouse five times and failed.'
- 'Don't try and build the perfect data store; you'll never ever get there.'

Whilst it is important to have a single source of truth, it is perhaps more important to agree which data really matter and focus there rather than trying to boil the ocean. This needs to be driven by what you'll do with the data: what questions you need answers to, not the other way round. The danger is that it's all produced but nothing is done with it.

- '90% of the stuff we produce is irrelevant; what people are interested in is the 10% but quicker.'
- 'Give it a go, if it doesn't work change direction; don't wait for utopia for a new system. Systems are great but they're only data, don't get hung up on systems.'
- 'Understand technology issues: glue something onto data that sucks them out – what do they need to look like in C suite, how do we analyse them, what do we need to suck? Not the other way round.'

'Don't boil the ocean, start with a problem.'

- 'Start small; take one area to focus on to prove the value, hone in on a problem and demonstrate value in that space.'
- 'Don't assume business wants more, they probably want less, but they want you to tell them what they need.'
- 'Too much data badly used are as dangerous as too little data not used at all.'
- 'It can be overwhelming; the best thing to do is put this to one side, listen to the business and focus on one or two areas.'
- 'Don't boil the ocean, start with a problem.'
- 'Start small and the data don't have to be 100%, don't have to be sophisticated, often just by slicing and dicing data you get insights.'
- 'Don't start doing analytics without strategic business direction as these efforts are likely to stall. Not only does it waste resources, it risks creating widespread skepticism about the real value of analytics… Traditionally, organizations are tempted to start by gathering all available data before beginning their analysis. Too often, this leads to an all-encompassing focus on data management – collecting, cleansing and converting data – with little time, energy or resources to understand their potential uses.'[25]

The effort to create the 'golden source' may result in getting the data 100% right but if you aren't using the data correctly they can produce irrelevant insights. You produce everything for everyone so no one really knows what to do with them whereas focusing on the 10% and freeing up the time to get there quicker might be a better approach.

- 'Many people think more is more when actually less is better.'

Of course there is a catch-22 that you might miss something, that you might focus on the wrong 10%. But this means investing more time in understanding the business and the commercial problems that analytics can be applied to, not churning reports that no one reads, but checking issues and diving into them.

- 'Got to filter, not produce a wodge of reports, need to sift it to give business information it needs in an insightful way.'
- 'Interpret what business needs and then drive what data to collect.'

Equally once you have your data analytics up and running there is some value in looking for what you don't know: looking at the data and trying to find insights to problems you didn't know you had. We saw several examples of the most sophisticated organisations saying to their data analysts 'here's your "data sandpit" go and play in it and see what you can come up with'. In one case the data analytics team said 'now we have seen the data we think there are some insights in it that are of value but we don't know what they are'. The organisation took a leap of faith and invested in their 'play' and they came back with totally unexpected insights that paid off the investment ten-fold.

- 'The thinking that got you where you are today may be the wrong thinking. You need that outside look into the box to challenge fundamental thinking.'

The caveat is when to do this. Don't start with this approach, no matter how appealing, because if you get it wrong it will kill the initiative. Do it after proof of concept when the value of data analytics and the credibility of the team involved are totally accepted.

Let us finish this section with a personal anecdote from many years ago when I ran a large L&D function. When I took over I was told I had two management accountants on my team. When I asked why, I was told 'they produce the

monthly reports'. So after a couple of months I told the two management accountants to produce all the reports but not to send them to anyone. If anyone emailed or rang and asked for their reports I told them to send them their reports instantly and tell a little white lie: 'We sent all the reports so apologies you didn't get yours, it's in your inbox now.' Guess what? At the end of the month hardly anyone had asked for their reports so they clearly weren't getting any insights from them. If we had asked them if they wanted their reports I am sure they would all have said yes. So we stopped producing the majority of the regular reports and focused on producing insights as and when required. The moral of the story is the overuse or misuse of data analytics swallows time, money and resources and is in danger of giving a false comfort and diverting attention away from the real business issues.

- 'The business asks for reams of data but what are they going to do now? We must stop producing loads of data and ask what and why you want them – not metrics for metrics' sake. As an example we asked the business what information they needed three to four years ago and produced a monstrous dashboard of data from every operating company, churning them out monthly, using huge manpower but no one was really doing anything with them. We stopped producing them and six months later someone said "didn't we get that?"'
- 'Hone in one or two things that will really make a difference vs cost to hire and 100 other irrelevant HR-focused metrics – so what.'

'The overuse or misuse of data analytics swallows time, money and resources and is in danger of giving a false comfort and diverting attention away from the real business issues'

In many cases we are simply producing metrics that are irrelevant, which hide the real risks or that drive the wrong behaviour.

- 'Be careful what metrics you put in place because people will come up with intelligent ways to achieve them therefore you need to have in place metrics that drive what you're trying to achieve.'

You spend so much time analysing the data that you have no time to do anything with them or it's simply too late. The answer, as with so much of HR, is to simplify and focus where it can make a difference, not create a data monster. We have to accept that the data are ambiguous and no matter how big a data initiative you have, they will never provide all the answers, so start small, hypothesise, pilot, test, engage with the ambiguity, spend less time on backward looking aggregation and assimilation and more time on forward looking analysis.

- 'It is paramount that HR professionals be able to differentiate between a neutral, unbiased interpretation of data and one that uses the data to tell a desired story. Darryl Huff's famous work, *How to Lie With Statistics*, is full of timeless cautions on this topic. He reminds us that despite its mathematical base, statistics is as much an art as it is a science… Let me offer a simple rule to keep in mind – "Even if you can't see any demonstrable bias in the data, – always allow yourself a reasonable sense of skepticism; especially when the source of the data being provided is from someone who has a point to prove or a product to sell.'[26]

'The answer.... is to simplify and focus where it can make a difference, not create a data monster.'

Perhaps the lesson is that talking about Big Data is a double-edged sword where a big investment creates big expectations, when actually this is simply about making better decisions using evidence and insight, where simply starting with what you have and making better use of it is enough to prove the concept. Perhaps a low-key stealth option could be a good start?

- 'My instinct is don't make it a big bang.'
- 'Start small, take one area to focus on to prove the value, hone in on a problem and demonstrate value in that space.'

What are the next steps?

Interestingly the last step appears to be the first step. This last step is being clear who will be using the data (the line) to do what (address business issues). If this is the case, whilst the analysis is critical it is equally important to translate it into actionable insights.

- 'Never invest in multidimensional analysis if business doesn't have in place a system to action the insights.'

'Understand what is relevant to the audience: present data that are relevant to the business strategy and operational challenges in a way that makes the links obvious.'

The danger is that the data are so large no one knows what to do with them. In one case an organisation did a fantastic job of proving the correlation between engagement and performance but the problem was that the organisation wasn't itself engaged, and didn't believe it because of the way it was presented so nothing was done with the insights. There was no obvious 'so what' that related to their need. Therefore we have to:

- Understand what is relevant to the audience: present data that are relevant to the business strategy and operational challenges in a way that makes the links obvious. Sometimes this means using their data not your data, no data or pure intuition, because they recognise theirs and are immediately in tune with the message.
  - 'Who is the audience, and how will it read and interpret the information? Can you assume it has knowledge of the terminology and concepts you'll use, or do you need to guide it with clues in the visualization (e.g., indicate good is up with a green arrow)? An audience of experts will have different expectations than a general audience.'[27]
- Start with the burning platform: what is the problem we are trying to fix, what are the two or three killer things they need to know to fix it?
  - 'You will be a real business partner when you start bringing people strategies to drive sales, profits etc with the evidence to back it up. Make the evidence practical and actionable for front-line leaders, and you will be the HR rock star!'[28]
- Keep it simple: no one wants to wade through 60 or 70 pages of irrelevant HR metrics, that are basically the same every month, searching for a relevant insight. Twitter provides an interesting model. Can you get your message across in 140 characters before you lose your audience? This means spending time getting to the right level of simplicity.
  - 'Presentation skills are vitally important and you can produce great data, but the way they look and feel isn't good enough.'
- Make it impactful: does it pass the intraocular test – if you look at it does it make you blink?
  - 'What's interesting is that I've noticed that the likelihood that any insight will be acted upon is related to how you present it and if they trust you, not the data.'
- Provide clear actionable messages: business people understand numbers and respond positively if you answer the question 'so what are you asking me to do that will help me achieve my objectives?'

'Keep it simple: no one wants to wade through 60 or 70 pages of irrelevant HR metrics, that are basically the same every month, searching for a relevant insight.'

'Tell stories: move from 'here's lots of data then in case you're still awake here's some more statistics' (by which time no one can see the wood for the trees) to 'what is the story behind the numbers, what are the key messages' and using the data to back them up'

- 'What is critical is the way you present the data: a way that gets the audience engaged and willing to act on it.'
- 'Needed one person with the vision to see the problem, take a risk and engage key stakeholders – presented options and consequences to decision-makers.'

- Soften up the data: are they easily consumed? Make them user friendly, attractive and obvious.
  - 'Creativity – more lateral thinking to get message across, tendency is to deliver everything very dry.'
- Tell stories: move from 'here's lots of data then in case you're still awake here's some more statistics' (by which time no one can see the wood for the trees) to 'what is the story behind the numbers, what are the key messages' and using the data to back them up.
  - 'Really think abut how to display data so they understand the insight. The biggest mistake is decks with 100s of numbers that no one can make sense of. Make graphs simple and obvious, highlight insights and make linkages even if insights are half-baked. If you show them, they will come back for more. You need to take them on the journey.'
  - 'Visualization in its educational or confirmational role is really a dynamic form of persuasion. Few forms of communication are as persuasive as a compelling narrative. To this end, the visualization needs to tell a story to the audience. Stories package information into a structure that is easily remembered. Storytelling helps the viewer gain insight from the data.'[29]

'There is a need to educate the business as to what HR analytics can do for them'

- Use relevant language. We recently read an example where after detailed analysis HR had reduced the time to hire from 58 to 37 days. On presenting this to the CEO he exploded 'what do you mean it takes 37 days to hire, that's way too long?' If instead they had said 'the analysis has resulted in reducing the time to hire by 36% and reduced overall costs by $400,000' might the same analysis have had a different impact?[30]
- Prepare for their questions: there is a danger that they will be better at the analytics than you are and will ask questions you can't answer so think through what they might ask before they do or get someone to do it for you and prepare answers.
- Get the timing right: never present amazing findings to an executive who is preoccupied with other things that are more urgent and important.

This also means thinking about the nature of pull versus push.

- Will the business always turn to HR for data insights or will it naturally turn to finance?
- Does the business always know what it is looking for from the data?
- Do line managers always make the link between business strategy and people and capability issues?

It is not enough to have a data analytics team beavering away at their red-hot keyboards. The role of the HR business partner is critical not only in presenting it well but also in creating the demand. There is a danger that we think the business is just dying to hear our insights whereas there is often an issue about the maturity of the audience to have these data-driven capability conversations.

Indeed in many of the interviews the assumptions that line managers are more data rational and less intuitive than HR weren't always correct. This is a journey for the business as much as it is for HR. There is a need to educate the business as to what HR analytics can do for them.

There is a saying 'you can take a horse to water but you can't make it drink'. If our data and our insights are our water then we'd better make sure the horse is thirsty before we try to get them to drink it. If the maturity of HR analytics gets ahead of the maturity of the business we are in trouble. It's no good providing them with insights if they aren't set up to do something with them. So perhaps we should start with those people who can make the linkage between HR issues and their business, who get it because of their background. Starting with the sceptical or the inexperienced may not be the best idea.

What are the skills and attitudes we need to have?

There was a clear message throughout the research: it is not the technology.

- 'We should be more interested in the quality of the people than in the software. If you don't have the right people your business will suffer.'

It's people's ability to use it effectively that matters. This is partly about the data skills but is more about the attitudes towards it.

- 'The adoption barriers organizations face most are related to management and culture rather than data and technology. The leading obstacle to widespread analytics adoption is the lack of understanding of how to use analytics to improve the business, according to almost four of ten respondents. More than one in three cite lack of management bandwidth due to competing priorities.'[31]

'It's people's ability to use it effectively that matters. This is partly about the data skills but is more about the attitudes towards it.'

Attitudes

There are several attitudes that must be present for Big Data to be an opportunity for HR:

- **Commercial:**
  - Passionate about the business
  - Going from right to left
  - Interested in the people strategy
  - Always questioning what difference it will make to the business not HR
- **Action oriented:**
  - Outcome vs analysis focused
  - Asking 'so what will we do as a result of the analysis?'
  - Asking 'so what difference will it make or are we doing it because we've always done it?'
  - Recognising we're there not because we're good statisticians but because we make a difference
- **Focused:**
  - On the key insights
  - Not getting lost

  - Hiding the complexity that you started with
  - Presenting it in a way that is consumable
  - Excited by the story not the data
- **Willing to challenge:**
  - Not agreeing to do the analysis until the need has been articulated
  - Always going back to the business issue the analysis is the answer to and questioning its relevance and materiality
- **Agile:**
  - Juggling lots of data and issues looking for connections and patterns
- **Curious:**
  - Asking the right business question, not getting stuck in the data
  - Never assuming the analysis or the question is the right one
  - Never assuming that the first simple answer is the right answer
  - Never assuming the common understanding is the right understanding
  - Never confusing correlation with causality even when the answer seems attractive
  - Trusting your gut feeling when what the data clearly say simply doesn't feel right
  - But equally not being totally driven by intuition, so willing to get into the data

Skills

There are also critical data analytic skills that are required. To use analogy, the attitudes noted above win the gold medal but you can't compete without these:

Analytics:

- Identify, validate and cross-tabulate the data
- Carry out basic and advanced analytical techniques.
- Whilst they have to be able to manipulate the data they must be able to generate the critical insights that are the point and not get lost in the task and the fascination with the analytical tools themselves

Technology:

- Have enough of a vision of what it looks like without necessarily having the technology knowledge to know how to get there
- Have to be able to integrate all the different data and technologies
- Work with IT or with external venders to identify the right technology solution based on needs without getting sucked into buying the latest whizzy tools and applications

Reporting:

- Good at storytelling and presenting data as insight

Programme and project management:

- Able to divide their work up into projects and have strong delivery skills, discipline and focus to ensure they don't get sidetracked

The interesting question is where to get these people. They are hard to find and therefore worth their weight in gold. For the best data scientists, HR might not be top of their career list. Equally it is unlikely that these skills will be present in traditional HR people. Finally it is unlikely that you will find all of this in one person since they require detailed data skills with big picture systemic thinking.

'Most organisations recognise they have to build teams, often involving core full-time roles at the right-hand end of our model where context is more important than content and contractors and consultants at the far left end.'

'Big Data actually isn't a threat to HR people if they recognise the needs of this data analytical world.'

Where they are succeeding, HR is often harnessing these skills from different parts of the business in cross-functional teams rather than trying to do it all themselves. Most organisations recognise they have to build teams, often involving core full-time roles at the right-hand end of our model where context is more important than content and contractors and consultants at the far left end.

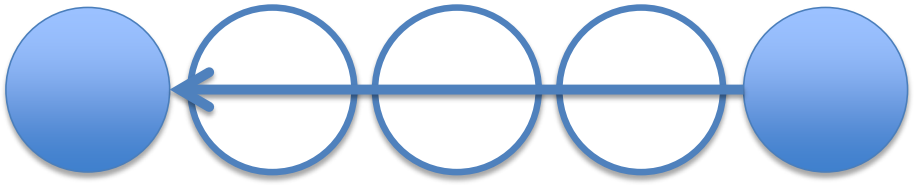
- 'Need right team willing to use contractors and consultants where didn't have skills in house.'

It is also important to recognise that whilst you will find few people at the left-hand end within traditional HR roles, HR skills become increasingly critical as you move to the right. Big Data actually isn't a threat to HR people if they recognise the needs of this data analytical world. They don't have to have the skills at the far left, they simply need to know what a good person looks like and be able to access them, respect them, listen to them, choreograph them and ensure they focus them on what matters from a people, but also a commercial, perspective. Indeed most people at the far left-hand end can't or don't want to make the connections to the business. They are often interested in the technology, not in the context it needs to be applied to.

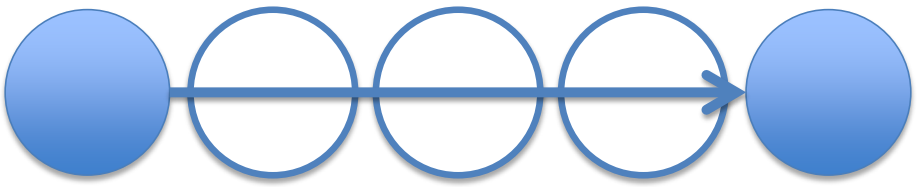
'It is critical that internal HR functions take the lead in upskilling HR to have enough knowledge and skills and lots of the right attitudes'

- 'It takes three years to train an enterprise architect to understand business and communicate; you can't create them in five days.'

There needs to be a partnership between the data scientists who run the models and the HR people who commission them. It's this blend that is so effective. Even in those organisations with deep analytical capabilities the HR person at the interface is critical, translating in both directions:



Business challenges into data analytical tasks:



Data-driven insights into action:

These skills are actually complementary to traditional HR skills, as the analytics still need to be interpreted and actioned. The key is the word I used above – respect – from both sides that they are fundamentally different people who together are an incredibly powerful combination.

Equally it is important to develop these complementary skills in our core HR teams and in developing HR careers. The danger is that the profession is not preparing people for this new discipline. It is frightening that when we looked at 27 HR degree courses offered at UK universities, only seven had any mention of data skills (we used a liberal vocabulary of words, not just data). In this environment it is critical that internal HR functions take the lead in upskilling HR to have enough knowledge and skills and lots of the right attitudes. It takes 10

to 20 years' deep experience to become a true data scientist but we believe that in the future HR professionals don't need to become data scientists but they do need to know enough about data analytics to act as translators. They certainly need to see data analytics as an opportunity for the function and themselves. They don't need to be intimidated by it but embrace it, as their traditional skills can still be relevant when coupled with new data analytics awareness. Equally they can't rely any more on saying 'I'm the HR guy and I can tell what the problem is'. Their clients will increasingly challenge how they can tell what the problem is, to back their intuition with hard facts.

So what does this mean for HR?

- 'It will become a core skill for HR like managing relationships, like understanding learning theory, understanding how to extract insights from data and present them.'
- 'I agree 100% with the assumption that if the function is to be relevant to them it does take the HR function out of its comfort zone. It's critical we have the capability to understand key business themes and the levers to drive business success. It means we have to be more comfortable with data, analyse them and draw the right conclusions.'

'We have to move from being pure HR experts to business experts who use analytics to drive our actions.'

There is a danger that the world of data analytics is far removed from the HR organisations of the past. Where there has been a legacy of policy, compliance and process this is new territory. We have to move from being pure HR experts to business experts who use analytics to drive our actions. Since HR is the guardian of the people and the organisational element of strategic risk, and if deployment of strategy via people and organisation is the ultimate differentiator of business success in an environment where everyone has a strategy, then if HR is not providing these insights, nobody is and the business is therefore exposed to risk. We have to think in terms of business effectiveness not HR process efficiency and use data accordingly. We have to move beyond our focus, for instance from diversity to think how it drives performance, from engagement to how it drives productivity. If we don't there is a danger we will do the wrong things even though we'll do them in a more data-driven way. The problem is that the majority of HR professionals don't seem to get it.

- 'Less than 25% of CHROs are using analytics to make future workforce decisions.'[32]
- 'Only 6% of HR departments believe they are "excellent" in analytics and more than 60% feel they are poor or behind.'[33]
- '85 percent of respondents said their HR team doesn't excel at providing insightful and predictive analytics.'[34]

In speaking to vendors, they said they find that even where the majority of senior HR people get this, only 50% practise it. This 50% will adapt and thrive. They like data and lots of them. They use their HR experience and instincts to test the validity of the data. They know it makes them more credible and is an opportunity to impress the business. They make the case to the business not in HR terms but in terms of 'how I can use these insights to help you improve the odds of you meeting your targets'.

In many cases the 50% who don't practise it see it as a discrete project rather than a core part of their job. They make last minute requests for data ('I have a meeting with the CEO, can you turn this around in the next 24 hours?') but

without a real understanding of what the hypothesis is that they are testing, without a sense of the business driver and what action they will take. In one example when the data analytics team pushed back on 14 requests for data from within HR by asking what the hypothesis that was being tested actually was, 13 of the requests disappeared. Many analytics teams feel frustrated that the HR people at the interface don't understand either the business issue or the data analytics piece. In many cases HR business partners will simply use the excuse that the line wants the analysis. They can't go direct to the line or they will alienate their HR business partners but if they don't go round them they get stuck in generating meaningless HR data decks that no one reads and which do not lead to no value-added actions.

The question is, if these HR business partners can't change are there roles that play to their strengths or can we configure roles so they can add value? But in our view whatever the answer, it is a lack of data rationality that will restrict their career progression. This means HR, as a function, has to educate its people to embrace this new agenda.

- 'Make sure people in the HR community are: a) aware of it, b) see it as an opportunity, c) have the right sort of skills to be able to work with data.'

We have already noted the lack of a focus on analytics in HR business education in the UK (in the USA we found some great examples at Rutgers and Cornell, which teach deep skills but also focus on linking business issues to human capital factors through analytics) so it is up to organisations to fill the gap.

- 'The primary failures of analysis are less due to insufficient data than to flawed thinking. To succeed analytically, we must invest a great deal more of our resources in training people to think effectively, and we must equip them with tools that support that effort… We succeed only as well as the users of the tools that we provide succeed with our aid.'[35]

We saw some great examples of this that the relevant organisations saw as critical to the success of their data analytics efforts but equally examples of a lack of investment in education.

- 'It's frightening when we talk about insight-driven decision-making as a key capability we need to improve in HR. In terms of running specific programmes to improve analytical bench strength, we struggle to think what we've done. Many HRDs chose not to engage.'

Examples of educational sessions run by HR analytics teams include:

- Face-to-face coaching
- Show and tell sessions
- Travelling around telling stories about the power of data
- Courses – one example of 'data to action' looked at basic statistics skills, how to derive insights, how to present them, and how to get the target audience to recognise the value
- Linking to specific agendas to demonstrate the power of data in a context – in one case this came from linking it to the strategic workforce planning agenda where data analytics is core to success

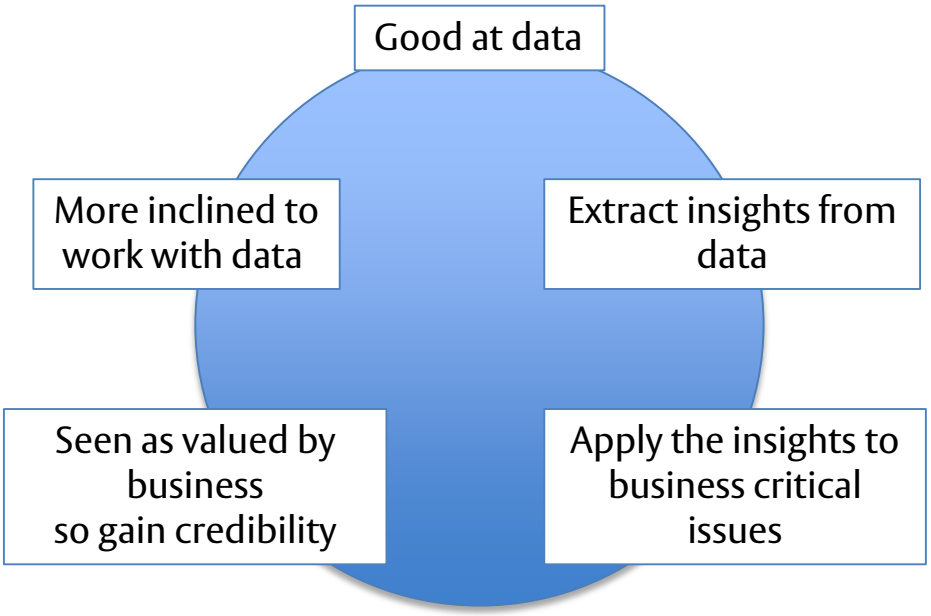
'The key is how to get people to practise it as a core part of their job so they build confidence little by little'

But the key is how to get people to practise it as a core part of their job so they build confidence little by little.

- 'In the case of data-savvy managers and analysts in a big data world, the level of training and mathematical aptitude is much lower than that required for deep analytical talent. People in these roles simply need enough conceptual knowledge and quantitative skills to be able to frame and interpret analyses in an effective way. It is possible to develop such skills through a single course in statistics and experimental design… A basic statistics program or a series of classes in data analysis at a local college or university, for instance, could create a team of highly motivated managers and analysts that could begin this transformation.'[36]

There is a virtuous circle that can be used to encourage people who have a latent interest in data to really engage with the agenda:

'The key is that the profile of the business partner must change.'



In addition, being good at providing insights through data gets HR involved earlier and earlier in the strategic discussion – because they are seen to be a valued partner in it rather than simply a receiver of strategy once it's set.

The key is that the profile of the business partner must change.

'Even in senior HRBPs the reaction to anything to do with data and process is horror; we have got to shake and break this, it wouldn't be tolerated anywhere else in business.'

- 'What we see is that our HR generalists aren't comfortable using data as a tool even at a high level.'
- 'You need a new skill set in HR to 20 years ago: more hard edged, more numerate, more commercial, more blurring of skill sets to be successful in business and in HR. To too many it's not interesting. They shy away from it because they aren't interested.'
- 'The true HR pro of the future has got to be a great project manager, business person, analyst and got to be able to negotiate and influence. When I look around here an awful lot of them don't fit the bill even at senior levels.'
- 'Two examples: we sent two people from the centre into country HRD roles. One wasn't naturally process oriented but surrounded herself with people who were. People struggled with her because she's not so into relationships but she does a great job. The other wasn't interested in it, spent a fortune doing talent programmes. When you talked to her about numbers and processes she stood back. She didn't survive.'
- 'Even in senior HRBPs the reaction to anything to do with data and process is horror; we have got to shake and break this, it wouldn't be tolerated anywhere else in business.'

'Without exception when I look at the performance of our high-potential people in HR they are strong at analytics.'

Relationships will continue to matter but when you shake their belief that that's what it's all about, it makes them uncomfortable. If they cannot change then senior leaders must be decisive in bringing the capability in so this needs to be hardwired into HR's recruitment strategies. HR needs to look to a different pool to fish in, looking to recruit from MBA programmes with an HR element but also with a strong commercial and data bias rather than from the usual targets, or looking into the line to recruit people who have this natural bias. If you make the roles interesting then few will want to go back as the agenda is potentially so rich and interesting. Indeed if you move the function closer to the business then an HR career becomes more attractive to a wider potential population. This sends a strong message. If the data-rational people are being recognised and promoted then it creates momentum.

- 'Without exception when I look at the performance of our high-potential people in HR they are strong at analytics.'

It also means applying the attitudes framework as a guide not only for HR data analytics but also to inform who we look for in our business partners.

- 'When I interview junior people I am very interested in asking them about their ability to work with numbers, how can they manipulate data in Excel. If they can't do quick things with data, not hard analytic skills, then I'm not interested.'

Again it doesn't mean we are looking for data scientists but some of the data-rational qualities that haven't always been seen, as key in HR should play a part. The key is that it's not enough to build the technology infrastructure and the analytics team. You have to work with the whole of HR to raise the importance and then the capability of the function to work with data.

Conclusion

HR needs to look closely at Big Data and understand its relevance to enhanced decision-making and ask itself some key questions:

- 'What sources of data currently exist that we produce, purchase, capture, review, measure, or utilize for organizational purposes? How am I keeping abreast of developments in the area of Big Data (and in related areas, such as analytics)? What relationship do I have with those that manage the systems through which data flows in, throughout, and outside of the organizational structure (e.g., system administrators, technology vendors, Chief Information or Chief Technology Officer)? Are our current systems and methods producing worthwhile intelligence as opposed to just data? How is this intelligence being used to advance organizational objectives? Are we getting that intelligence into the hands of those that need it most? Are we doing it as effectively and efficiently as possible? What, if any, investments do we need to make to improve organizational capabilities in this area? How am I contributing to the success of the organization in this key area?'[37]

Finally let's return to our question:

Is Big Data a threat or an opportunity?

Our conclusion is it's a massive opportunity for HR so long as we follow **nine golden rules**:

1. Drive your data analytics from the business issue not the data.
2. Don't be seduced by the tools and technology; focus on people's ability to use them to address business issues.
3. Don't overinvest in your data initiative; start small and prove the concept.
4. Join your HR data with your finance, marketing, risk and other data.
5. Don't worry too much where your data analytics team sits but make sure they are connecting the data to the business issues and the HR solutions.
6. How you present the data is as important as the data – insightful, impactful, simple and relevant.
7. This will change HR so recruit HR people who get it: commercial, action oriented, focused, willing to challenge, agile and curious.
8. Develop data comfort in the whole HR function.
9. Data are a tool, not the answer; never lose track of the human element in HR.

Appendix 1: Examples of the use of Big Data in HR

Retail	
Hypothesis	Can we avoid the law of unintended consequences?
Solution	• To increase profitability the company penalised managers for overstocking fresh food by the amount of wastage. • The managers therefore stopped stocking fresh food to avoid wastage and lower bonuses. • This resulted in unhappy customers, as the shelves were empty. • This resulted in loss of revenue as customers went elsewhere. • By analysing customer complaints against manager decision-making on stock levels, they were able to change manager metrics/bonuses to drive appropriate wastage that in turn drove up revenue.
Learning	The key is the ability to link different data between Ops, CRM and HR: wastage, sales, customer feedback and manager bonuses, and rebalance them to produce the optimum result.

Banking	
Hypothesis	Current decisions on training were largely down to guesswork, could analysis focus training on increasing revenue?
Solution	• HR analysed how long it takes to maximise revenue (three years) and made appropriate decisions on comp and hiring by being able to place a value on retention. • The detailed analysis meant they could look at attrition and build plans from the bottom up, focusing on whom to train, in what, to maximise revenue. • They also looked at major areas of risk in terms of money laundering, fraud etc where the regulators were fining them and could then target whom they trained to avoid these risks.
Learning	In both situations the analysis moved from 'training as a cost' to 'training as an investment' based on measurable correlated outcomes such as how much revenue was generated and how much risk was avoided.

Post-merger integration	
Hypothesis	Most mergers fail for people reasons, so could analysis of the workforce drive a successful post-merger integration?
Solution	Following the merger HR delivered 50 reports looking at: • Mobility of people – if we go from here to there do we have the talent? • What is the style of talent we're attracting? • Is the EVP effective? • Do we lose talent during the recruitment process? • Is the talent programme building a leadership pipeline? • Do the competencies actually map to success? Correlating successful leaders to competency assessment and looking to see whether graduates fitted the profile.
Learning	It is critical to do analysis not just of the talent process but link it to outcomes and follow it over a period of time to correlate success against the criteria used to make talent decisions.

Manufacturing	
Hypothesis	CEO knew he had a problem. 200 project managers cost £20 million per annum, projects delivering over costs, under quality. His suspicion was that the industry doesn't attract the best project managers.
Solution	• Revisited competencies: identified 'can do' mentality as opposed to technical skills and industry experience as key to success; refocused hiring around this. • Matched best people against key projects. • Performance managed underperformers against clear correlating behaviours that drive success.
Learning	Need to move away from 'cost per hire' to 'how do I know I'm attracting the right quality of people?'

Business services	
Hypothesis	Moving from transaction to solution-based selling is more than rebadging.
Solution	Looked at different behaviours required amongst sales force as they moved from product to solution selling. Analysis looked at: • What differentiates good from bad? • How many have required behaviours? • Of those who don't how many can make the journey? • When to build, when to buy? • If we buy can we attract them? • What does the business services sector look like? • Should we fish in that pond or another pond? • Is the salesforce fully engaged in the new role? • Are rewards and recognition reinforcing the right behaviour?
Learning	The analysis demonstrated that not only was the recruitment process wrong but the way it was measured actually sent the wrong messages.

Financial services	
Hypothesis	Changing people metrics could drive business performance.
Solution	• Analysis of the KPIs for managers of >100 people based on P&L; client feedback but also people metrics connected to business results and bonus. • Analysis showed clear correlation between poor client engagement and management of internal population. • In addition the customer base is getting greyer and more female so need to change profile of people to engage clients.
Learning	Changed debate with business over HR metrics from 30 minutes 'yeah, yeah let's get it over with' to two hours of highly engaged debate.

Retail	
Hypothesis	Store manager has a direct impact on sales.
Solution	• Sales in Sheffield had gone through the roof where the only variable was a change in the store manager. • Analysed what was it about that store manager that made a difference and how could it be applied across the network. • Marketing had been doing a lot of work on best margins and most profitable customers but without linking it to people, so were missing the key drivers of performance.
Learning	Need to link HR and marketing metrics.

Professional services	
Hypothesis	70% of cost is people so analysis of people issues can directly impact business profitability.
Solution	• Currently talent acquisition group measured on cost to hire but didn't produce people the business wanted to recruit. • Business saying 'I want them quick and to the right quality; don't care about cost', so needed to change data analytics. • Analysed attrition in sales: when do we need to hire to deliver sales quotas, how long to ramp up, seasonality. • Know top performers so check attrition in that group. If it's going up, why? Key is to use these insights to make decisions on retention tactics.
Learning	Opportunity to model different scenarios and drive key insights to impact business performance through recruitment and retention.

Technology	
Hypothesis	Can we use social media to enhance recruitment?
Solution	• Used LinkedIn profiles to identify competency match from people outside the company. • Created talent pools of external people who expressed an interest in working for the company. • Targeted them when needed, reducing cost and time to hire.
Learning	The use of analysis of external social media platforms to drive better recruitment

Energy	
Hypothesis	Global businesses need to analyse local data to challenge whether global is always the right answer.
Solution	• Very proud of a long-established talent programme. But in China no talent pipeline. • So the question was 'what's going on?' Are they different, not following process or not promoting talent into senior roles? • Looked at 30/40 pieces of data: tenure, where from, how quickly moved, first degree etc. • The key learning was that in China talent was promoted from business, not technical roles, whereas the rest of the world tended to promote from technical roles. • This led to a questioning of the core talent model and where to source people.
Learning	Linking different pieces of data to challenge operating model.

Airline	
Hypothesis	Challenged assumption that ex-military made the best commercial pilots.
Solution	• Properly analysed the role of pilots moving beyond flying skills to look at data on key metrics such as on-time arrivals, flight safety etc. • Insight generated was that ex-military pilots don't necessarily make the best commercial pilots. • As a result they improved the selection process, reduced selection costs, time to hire and the need for training by 20%.
Learning	Need to use data to challenge assumptions that drive HR approaches.

Retail	
Hypothesis	In the drive to reduce costs you can destroy a business.
Solution	• In response to cost pressure laid off 3,400 highest paid sales people. • This pumped up the short-term bottom line. • But they were the most experienced so customer satisfaction fell. • The competitors cherry picked the best. • Two years later the firm went bankrupt. • HR knew this and had pushed back but hadn't put forward a data-driven case so were ignored as being 'non-commercial'.
Learning	When faced with short-term financial pressure HR needs to use data driven 'what if' analysis to model potential outcomes so it can push back on short-term knee jerk actions.

Retail	
Hypothesis	New customers require new sales profiles.
Solution	• The marketing department are targeting a new demographic: 25/35-year-old women. • 90% of the current sales team is over 40 and male. Looked at their ability to connect with new target customers. • So looking to recruit women from different industries such as hospitality as opposed to purely retail who can develop greater empathy with target customers.
Learning	Changes in marketing mix will impact people mix so HR and marketing need to be fully connected.

Retail	
Hypothesis	Management behaviours drive business results.
Solution	• Translated vision into management behaviours. • Measured management behaviours against site results. • Identified five key components, rated managers on each, put next to site results. The league table showed an almost perfect correlation. • Reviewed the results as a leadership team and linked it to decisions on talent coming through the organisation: what we're doing with top guys, get rid of bottom.
Learning	Data can create an objective debate when looking at talent decisions so avoiding the 'but he's a good bloke syndrome'.

Retail	
Hypothesis	Engagement drives results.
Solution	• Measured engagement though an EOS broken down by BU, grade, age, ethnics etc. • Created a huge amount of data about how people feel about working here. • Every week run numbers for every store mapped against rich performance data. • Over 12/18 months best performing stores have strong correlation to engagement – top 50 above market by 3%, absence 4% lower. • Concluded that if you raise engagement by 5%, you'll raise profit/revenue by 10%. • One insight was If you develop managers who are able to work with the local community it puts pounds in the till.
Learning	Plugging customer data into HR data is a great sell to the business.

Professional services	
Hypothesis	Analysis of data can reduce attrition.
Solution	• Developed a retention tool, which analyses a number of different types of data (tenure, education, where working, married/single, performance history, roles in last 12 months, type of work, length of projects, have they had a change of career counsellor or an absent career counsellor). • Out of this produced a predictive algorithm of who might be at risk. • On a monthly basis used this to identify who is at risk and then fed back to line managers and HR so they can take steps to address issue.
Learning	Power of multi-factor analysis to predict future risks.

Professional services	
Hypothesis	Can drive revenue generation by identifying key competencies.
Solution	• Processed loads of data from assessment centre about what makes a successful revenue generator. • Identified that not all the competencies are equal. • Rated them on a four-point scale. • For each point, you got £450K in extra revenue once they were made a partner.
Learning	Don't simply run assessment centres; you need to correlate success to actual success in role.

Appendix 2: Key data HR should analyse

Tony Ashton of Success Factors has created an interesting analysis of what metrics HR need to focus on:[13]

1. Foundational knowledge: the shape and dynamics of your workforce

As its most basic, every HR leader should have a really solid understanding of the shape, composition, profile and major dynamic elements in their workforce. Key elements of this are the foundational metrics that are then used to build all other analysis. These include headcount, hires, terminations, transfers, promotions and the entire core demographics associated with these metrics, e.g. location, job family or role, salary grade, employment status, diversity, gender, tenure, age and so on – essentially, the nature and shape of the workforce in terms of the number and proportion of people in different employment groups and the numbers entering/leaving and moving through the company. This information represents the starting point for decisions regarding employee deployment, understanding risk and effectively delivering talent to the business. HR leaders can then leverage this data to predict and anticipate future staffing needs, better understand employees' behaviour and help create teams that fit well together.

2. Human capital risk

It is now somewhat trite to say that people are your greatest asset. Imagine the average cost of an employee in your company. Now think about your best performing people and the contribution they make to drive your business forward through the development of new products or services and/or their leadership and influence within the business or broader industry. Shouldn't these people be considered an asset to the business instead of a cost? Add to this the likelihood that many of these people have more than three-to-five years' tenure, and your company has been investing in their learning and development over that time. By applying the techniques of workforce segmentation, you can readily identify which groups are most at risk and formulate appropriately targeted strategies. For example, are you losing key talent in specific roles, locations and/or functions? Are you losing high-potential future leaders who are sitting in a succession pool, but not getting opportunities for promotion or other stretch projects?

3. Productivity and performance

One of the most challenging topics for the HR discipline is the issue of workforce productivity. Arguably the whole modern discipline of HR has been formed to help companies effectively harness, utilise, organise and focus the contribution of people to deliver business goals. There are a wide range of metrics that provide critical insight into productivity and performance. Often these will vary based on job role and expectations of deliverables. Sometimes this is fairly straightforward, e.g. revenue as a measure of performance in a sales role, but sometimes this is more difficult where the role has an indirect link to business performance. Thinking about the topic of productivity and performance holistically, though, the most impactful metric to track is employee engagement. Employee engagement tells you what people think and feel about working in your company and, when combined with other traditional metrics, gives you a really solid view on the intrinsic strength of your workforce and ability to execute on strategy.

4. Talent management

Imagine that a senior manager has been with a company for more than 30 years, and is critical for managing the day-to-day business operations. Without warning, he or she announces he or she will be retiring, leaving the company scrambling to find a suitable replacement to prevent any hiccups in business continuity. Unfortunately, no current employees were being trained to take over that position and the company is left spinning its wheels trying to recover. Beyond the top-level management team, how well are you managing talent across your entire company? Metrics such as successor pool coverage are great to identify the average number of people identified as successors for positions requiring a successor, but it is this last piece, requiring a successor, that suggests the most important aspect of talent management metrics – segmentation and differentiation. Not all positions in the company require successors, because not every position is critical from a risk management perspective. Some roles and people disproportionately impact business performance compared with others. Focusing strategies on critical roles helps you prioritise scarce HR resources.

5. Financial workforce metrics

At the end of the day, all businesses must answer to their bottom line, and every employee plays a critical role in helping the company generate a profit. Linking people to business performance through metrics such as profit per employee is a great way to analyse this relationship and also track corporate performance and workforce productivity. There is debate as to whether or not revenue per employee is the more important metric, but the specific financials of your company will influence this decision. These metrics need to be used thoughtfully as you can quickly fall into the trap of using headcount as a blunt instrument, the major lever to change company financials. Of course, you want to have a highly productive workforce and achieving better business results with the same or fewer people is a great way to demonstrate that. But as mentioned above, people are an asset you are investing in, not just a cost.

A metric I really like is return on human investment ratio. This measures the amount of profit returned for every dollar invested in employee compensation/remuneration and benefits. There are many variations on these and other financial metrics that take into account the investment in people and business performance, but all too often HR isn't involved in this really important analysis. Thinking in these terms is critical for HR leaders to be effectively aligned to the business context in which they are working to influence. Monetising issues like turnover and modelling the impact of initiatives like improved retention, or engagement strategies can have a huge business impact.

Appendix 3: Stages of evolution of companies' use of Big Data

SAS and the EIU have identified four organisational stages of Big Data maturity:[14]

Data wasters

To be fair, 30% of data wasters don't prioritise data collection. Yet 70% collect data, and still severely underuse them. These companies underperform financially, and can be found in any industry. Unsurprisingly, they suffer from poor alignment between business and IT and they are much more likely to put a mid-level manager in charge of their data strategy. Other characteristics include the following:

- They are far more concerned with improving their internal operations, and are focused on internal reporting in particular.
- They struggle with nearly every aspect of data management (with the exception of security).
- They lag well behind other companies in their data management investments.
- They struggle the most by far with maintaining adequate data management skills.

Data collectors

These companies recognise the importance of data, but lack the resources to do anything about them, beyond storing them. They are submerged in data. Companies in the healthcare and professional services industries are likely to be found in this category. Other characteristics include the following:

- They are the most likely to put a senior IT executive in charge of data strategy.
- They suffer from poor IT/business alignment, with nearly one-quarter maintaining that IT does not understand the importance of data; another quarter says the same of the business side.
- They struggle the most with data quality, accuracy and reconciliation.
- Their data management efforts are most likely to be driven by meeting regulatory requirements.
- They do not invest as much in almost every aspect of data management, but especially in skills.
- They are unlikely to have any kind of formal process for data governance in place.

Aspiring data managers

This is the largest group. These companies have fully embraced the importance of Big Data to the future of their company. They allow data to inform strategic decisions, and invest in them aggressively. But they still lag behind the leaders. Companies in the communications and retail industries are most likely to be found in this category. Further characteristics include the following:

- They are slightly less likely to put their CEO in charge of data strategy.
- They are currently leveraging data to learn more about their internal business operations, but are hoping to put more data to customer facing uses.
- Unlike strategic data managers, they still struggle to clean and reconcile their data fully.

- 66% put only about one-half of their valuable data to good use.
- They are the most likely to complain that they have too much data, and not enough resources.

Strategic data managers

This is the most advanced group of Big Data managers, with the most mature capabilities. They are most likely to be found among manufacturing, financial services or technology companies. Strategic data managers first identify specific measurements and data points that align closely with corporate strategic goals. Other characteristics include:

- They select the most appropriate data to make decisions, and use a high percentage of the data they collect.
- A C-level executive runs their data operations.
- They invest heavily in all aspects of data management, especially ensuring accurate, complete and integrated data.
- They explore emerging data sets for potential value.

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For information, please contact:

Henley Centre for HR Excellence

Henley Business School
Greenlands
Henley-on-Thames
Oxfordshire, RG9 3AU

Lucia.proffitt@henley.com

Tel +44 (0) 1491 418 715

www.henley.com