UNIVERSITY OF WINCHESTER

The Human side of HR Analytics:

A case study exploration of the reaction to, and potential consequences of, HR Analytics implementation.

Michael John Coleman

ORCID Number 0000-0001-8052-7950

Doctor of Business Administration

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This Thesis has been completed as a requirement

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The African proverb says that it takes a village to raise a child – well, based on my experience it's the same for completing a DBA.

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ABSTRACT

The Human side of HR Analytics:

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HR Analytics is the use of data to take more evidence-based people decisions. It is generating
high levels of interest in the HR practitioner community due to its promise of significant
impacts on both costs and the strategic effectiveness of the HR function. It is however also an
area that is currently under-researched, with much of the existing literature coming from a
practitioner and consultant perspective, rather than an academic view. Where impact analysis
is performed, the existing literature is predominately focused on immediate measures of
success that arise directly from the implementation of HR Analytics, such as cost savings in
recruitment or employee retention programs. To embrace HR Analytics and the use of data to
drive decisions about employees is an inherently positivist approach, and this is the dominant
philosophy in the literature. This research, however, adopts a more subjectivist stance
performing a qualitative study of UK based managers working for a respected early adopter of
HR Analytics. Their understanding of, and reaction to, HR Analytics implementation and its
role in managerial decision making is explored through a Thematic Analysis of data from a
series of semi-structured interviews. The contribution of this research lies in three areas.
Firstly, through the identification of themes that provide an insight into the practitioner view
of HR Analytics. Secondly, through the presentation of a series of potential consequences that
may arise from HR Analytics, acknowledgement of which could improve future HR Analytics
implementations. Thirdly, through the identification of areas for additional research arising
from this study.

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CHAPTER 1 – SETTING THE SCENE

It was one of those chance conversations that opens your mind to a fresh insight and offends your sense of right and wrong.   With the passing of time, memory of the exact circumstances has faded, but the clarity of the insight is fixed.   I'd recently started my DBA at the University of Winchester and, as part of considering possible research areas, was developing an interest in how analytical techniques could be applied to HR decision making.   At an event unrelated to the DBA, I found myself in conversation with someone - we'll call her Alice.   Our conversation turned to my interest in the analytics-based approach to HR decision making, which prompted her to share a story.   She recounted how she had recently been selected to receive a pay rise, and described the unexpected reaction she felt (personal communication, 2016).   Interpreting the raise as an indication that she was valued by the organization, and seen as performing well, she initially felt very positive. She was eager to understand in more detail what specific skills and behaviours she was exhibiting which had led to this recognition. Alice approached her line manager and asked, only to be told that they didn't know. The recommendation for her pay rise had been produced by an analytic system the organization was using, and simply passed to them for implementation.   No insight was available as to the factors which had led to the outcome. Alice now found herself in the situation of knowing that she was seen as performing well, but with no context. How could she plan her future development without the insight into what was currently working well, she wondered? In her head she knew that the pay rise was positive recognition, but the overall experience left her feeling demotivated. The organization had invested in systems to provide pay rise recommendations, and those may well have identified exactly the right people to reward. It seems likely, however, that they would not have wanted to demotivate these employees and yet, at least in Alice's case, this is what had happened.   Our conversation left me pondering how and why did we get here, and what other consequences might there be when systems are used in this way to take HR decisions?

Corporations using analytics can also encounter the potential for adverse effects.   Xerox, for example, was investigating the use of analytics to help in its hiring process (O'Neil, 2016b). Looking to improve their hiring process, their goal was to develop filters which could be applied to job applications they received.   These filters were to be based on an analysis of factors that would indicate the likelihood of that candidate staying with the company. Implementing a system like this would, it was suggested, help to reduce the number of new hires who left within a comparatively short period of joining the company.   One correlation found in the data was between the distance applicants would have to commute and average

tenure. Those living further away would have lower average tenure if hired. Filtering out these applicants from the recruitment process would hence make sense in terms of achieving the goal. Xerox's leaders however realized that this would have the effect of filtering out many candidates from poor neighbourhoods. They hence removed that factor from the model, foregoing some efficiency savings for fairness. Without careful consideration of the consequential impact of applying the analytic, this would have been missed. It is also worth noting here that a factor such as distance to work could also have the potential to introduce discriminatory behaviour in the hiring process due to residential segregation (Bodie, Cherry, Mccormick, & Tang, 2016). The unanticipated consequences from applying analytics to a decision like this could hence also have legal ramifications.

We won't specifically hear from Alice again, or consider the specific case of Xerox in more detail, but the questions these examples raise runs through this research. As these two stories show, alongside any positive benefits that they deliver, the use of advanced analytical techniques can potentially have unexpected, unpredicted, and undesirable consequences. Those effects can show up at an individual or organizational level and have the potential to derail initiatives that set out to make improvements. Managerial understanding of the analytics will also be key to allowing the right questions to be asked and decisions made.

I am a long-term IBM employee, having worked in a range of roles in the company over the last 33 years, including over a decade in various management roles. I've taken decisions that directly affect people in areas such as recruitment, pay rises, and promotions, and have seen many new processes and approaches being implemented over the years. I've witnessed people's reactions to the changes and observed some unexpected consequences. Sometimes they have been visible in the short term, such as employees being guarded in how they respond to a survey. Sometimes they have been longer term, where a change in one system today may affect other systems or processes years later. They could affect managers, reporting employees, or both, but the effects are there.

The combination of my personal background, and having my interest piqued as to what could be going on at a human level when HR Analytics based systems are being implemented, led to the selection of this as the area for my research.

CHAPTER 2 – INTRODUCTION

"We want new ideas but make sure that they're supported with data, not with information from the last person you talked to, or with all the experiences you've had in your past. Base it off what's really happening in the markets and what's really happening with our people."

This quote is attributed to the CEO of Johnson Controls (Hirsch, Sachs, & Toryfter, 2015, p. 7) and is a good example of an increased focus on the use of data and analytics in taking decisions.   The importance of the "data" is elevated above the people's experience and given greater validity. It isn't an isolated view. IBM's study of over 6,000 global executives (2017) found that 66% of Chief Executive Officers believe that the use of advanced analytics can drive significant value in HR. In the same year Deloitte had a similar finding, with analytics appearing as one of the top 10 priorities in HR with 71% of business and HR leaders ranking it as "important" or "very important" (Deloitte, 2017). This rose to 84% the following year and they declared the "people data revolution, predicted for years, has finally arrived"(Agarwal, Bersin, Lahiri, Schwartz, & Volini, 2018, p. 89). In their most recent Global Human Capital Trends report, they note that "demand for new workforce insights is reaching new heights" (Deloitte, 2020, p. 91) and 53% of their survey participants report they have seen leadership interest in workforce information increase over the last 18 months.

An interest in greater use of data in HR is not new. For example, Boudreau & Ramstad (2006) argued the need for what they termed a "decision science" to emerge in HR. In doing so they suggested that HR would be following the same evolution that had been seen in marketing and finance functions, where decisions were increasingly being taken based on data. Embracing a decision science approach to HR, it was suggested, would enhance people-related decision taking and lead to HR being seen as a more strategic part of the business.   Over a decade on from their call to action, there is a growing body of work from practitioners and suppliers of HR solutions which, unsurprisingly, hold out the promise of significant rewards from the adoption of analytics. Typical claims are the generation of "more than $100 million in savings" or success in reducing "retention bonuses by $20 million – and employee attrition by half" (Fecheyr-Lippens, Schaninger, & Tanner, 2015). IBM's approach to predicting workers planning to leave their jobs is reported as 95% accurate (Rosenbaum, 2019) and it is asserted that "improvement in employee retention has already saved IBM nearly $300 million" (Kiron & Spindel, 2019, p. 5).   With claims like this, it is not surprising that senior leaders have high expectations as to the potential impact of applying analytics in this way.

As recently as five years ago it was noted that academic research, however, was largely non-existent (Bondarouk & van den Heuvel, 2016). The literature that did exist had a rather normative emphasis with a focus on questions of "what should be done" instead of the "interpretive and analytical questions of how it can be done, with what results in what contexts" (Angrave, Charlwood, Kirkpatrick, Lawrence, & Stuart, 2016, p. 4).

Three years later, in their systematic literature review, Cheng & Hackett (2019) were only able to identify 22 high-quality research papers, leading them to highlight this as an area with many opportunities remaining for scholarly work. They did however identify a surge in HR-related algorithm coverage in trade journals and mass media since 2014. It has been suggested though that this popular literature, "currently resembles more hype than substance" with suppliers and consultancies "more often than not amplifying the noise rather than clarifying for purpose" (van der Togt & Rasmussen, 2017, p. 128).

The next chapter will explore the existing literature in more detail and lay out the background to today's focus on the application of analytical techniques in HR decision making, which I will refer to as "HR Analytics".

In this research, I have intentionally not taken a position on whether the use of HR Analytics can, or cannot, deliver the claimed business results. Similarly, no consideration is given to the broad topic of how those systems are constructed at a technical level, nor to the relative merits of different approaches that can be taken to building analytic models. Here, the focus rather is to look beyond these aspects and to consider the human side of HR Analytics and the perspective of the first-line managers affected by the implementation of such systems. The overarching aim of the study is hence to contribute a different perspective on HR Analytics to that which dominates the current literature, enabling fresh insights, and identifying implications for practice that hold the potential to improve future HR Analytics implementations.

IBM has been an early adopter of HR Analytics. As an employee of IBM UK, I have been able to access this well-suited context as the case setting for my qualitative research. The participants in the study were first-line managers, meaning they had reporting employees but were not managers of other UK based managers. The participants were interviewed, and a Thematic Analysis (Braun & Clarke, 2013) performed, to address the following research questions:

1. What conception of HR Analytics do first-line managers have?
2. What implementations of HR Analytics are first-line managers aware of in their own company?

3. What is the view of first-line managers on the role of HR Analytics in decision making as it relates to the people they manage?

Research questions one and two provide insights into the context that the participants are viewing HR Analytics from.   Working within this context, research question 3 then allows for a deeper exploration of their views and experiences. A wide breadth of opinion was expressed, and consideration of this question forms the bulk of the findings and discussion in the thesis.

As the previous chapter noted, my own personal experience, and Alice's story, suggest that a change in approach to how HR decisions are taken could have unintended consequences. Considering one specific HR process and having performed an extensive review of the literature, Franco-Santos and Otley concluded that the introduction of Performance Management Systems could lead to a range of unintended consequences (2018). These included changes in employee behaviour to "game" the system and examples of intentional manipulation of information. There is hence good reason to ask what effects might be triggered by the introduction of new data-based decision-making approaches in HR.   This leads to my fourth research question:

4. What consequences could arise from the implementation of HR Analytics in a company?

Through addressing these research questions, this thesis makes a contribution to an under-researched field by providing insights from the case of a company that has been an early adopter of HR Analytics. Taking a more human centred approach than the prevailing discourse provides a different perspective, and highlights implications for practice as well as informing future research. The identification of consequences that could arise from the adoption of HR Analytics enables more informed decisions to be taken in future implementation of these systems.

The rest of this thesis is structured as follows:

Chapter 3 - provides a review of relevant literature.   Drawing on both academic research and practitioner articles, the evolution of HR Analytics and drivers for its adoption are considered. By doing so, the current state of HR Analytics is put into perspective.

Chapters 4 & 5 – cover the philosophy underpinning the research and details the design of the study. The progression from initial selection of participants through to the Thematic Analysis of the interview data is covered to show how the research was performed.

Chapters 6 & 7 – report and discuss the findings from the interviews and address the first three of the research questions posed.

Chapter 8 – turns to consideration of the final research question and the identification of unanticipated consequences arising from the adoption of HR Analytics.

Chapter 9 – discusses implications for practice in the adoption of HR Analytics that are indicated by this research.

Chapter 10 – concludes the examination of the study findings and identifies areas for additional research.

Chapter 11 – draws the thesis to a close with a series of personal reflections both on this specific piece of research, and the broader DBA journey.

Hans Eysenck tells us that "sometimes we simply have to keep our eyes open and look carefully at individual cases – not in the hope of proving anything but rather in the hope of learning something!" (Eysenck, 1976, p. 9). In presenting my thesis I share this goal, that something of value may be learned from my study.

CHAPTER 3 – LITERATURE REVIEW

This research takes a qualitative approach to exploring the first-line manager perspective on HR Analytics implementation. Drawing on both academic and practitioner content, this chapter considers the relevant literature to provide background to the study.

Huselid suggests that HR Analytics as a field of study "is at once both a very old and a very new phenomenon" (2018, p. 680). It is very old due to its deep roots in the substantial body of social science research which has been undertaken since the early 1900s. During that time, many of the key questions, such as what makes a good manager or a good hire, have been studied for years (Cappelli, 2017). It is also at the same time very new, due both to increased recognition of the potential business impact, and the availability of computational tools that make it possible.

Starting with the question of what is meant by the term "HR Analytics", this chapter considers some of this history, and the drivers that have led to how this approach is positioned today. Various academic and practitioner definitions are discussed leading to the definition that has been used in this research. Having provided a definition of HR Analytics, consideration is given to the evolution of data usage in HR, and some of the business drivers behind the push to adopt an analytics driven approach. A discussion on how HR Analytics is being implemented follows before the chapter concludes with an examination of some notes of caution that are emerging in the literature. Through looking at the roots and evolution of HR Analytics, this chapter provides insight into the dominant discourse in this emerging field and positions this piece of research in contrast to it.

3.1 Defining HR Analytics

Whilst this research will refer to the term "HR Analytics" it is important to note that a range of broadly synonymous terms are used in the literature, the most common (Falletta, 2014) being "HR Intelligence", "Workforce Analytics", and "Talent Analytics".   Since 2015 the term "People Analytics" has also gained traction (Guenole, Ferrar, & Feinzig, 2017).

This section explores a range of definitions of HR Analytics to show how it is conceived by academics and practitioners. As a highly topical area it is inevitable that we will see, particularly in the practitioner community, people who will adopt the label of HR Analytics and apply to pre-existing systems and approaches. This will contribute to it being seen as a

continuum of ideas from simple HR metrics through to sophisticated attempts to create actionable predictions about the future, based on analysis of current and historic data. Here, however, I have focussed on specific definitions that are suggested for HR Analytics rather than associations that people may have subsequently made of it to other systems.

Business analytics more generally can be defined as the "use of data to make sounder, more evidence-based business decisions" (Seddon, Constantinidis, Tamm, & Dod, 2016). This broad perspective on analytics, with its focus on making better decisions through the use of data, is very evident in the definitions of HR Analytics. An early example states that "Analytics transforms HR data and measures into rigorous and relevant insights. … Analytics ensures that insights from HR data provide legitimate and reliable foundations for human capital decisions" (Boudreau & Ramstad, 2006, p. 29). This comes from an article where the authors are arguing the need for a decision science to emerge in HR, which will be discussed further in section 3.3 below.   From the perspective of the definition though, it is immediately clear that the mindset of the natural sciences is being adopted.

Examples of other definitions of HR Analytics include the following:

"a diverse collection of data analytic approaches for uncovering unique insights about people in organizations that enable faster, more accurate, and more confident business decision-making" (Feinzig, 2015, pp. 14–15).

"HR analytics is fact-based decision making"(Cascio & Boudreau, 2015, p. 21)

 "the systematic identification and quantification of the people-drivers of business outcomes, with the purpose of making better decisions" (van den Heuvel & Bondarouk, 2017, p. 160).

All these definitions position HR Analytics as having a purpose in pursuing a business goal. The focus is squarely on improving the business in some way through the analysis of the people. They also share an implicit, and unchallenged, assertion that Insights gained from analysing the data have legitimacy and can provide the basis for decision making.

One set of authors, with a focus on practical implementation rather than conceptual discussions, offer the following definition: "We define HR analytics as demonstrating the impact of people data on important business outcomes, but landing on a proper definition of HR analytics is less important than using the process to affect the overall role of HR in an organization" (Mondare, Douthitt, & Carson, 2011). Embracing a perspective that the skills needed to implement HR analytics can lie outside the HR function leads to "HR analytics is a

multidisciplinary approach to integrate methodology for improving the quality of people-related decisions in order to improve individual and organizational performance" (Mishra, Lama, & Pal, 2016).

The UK's Chartered Institute of Personnel and Development (CIPD) has also recently produced a general definition as follows:

> People analytics is about gathering and analysing data about people in a workforce. It's sometimes called HR analytics or workforce analytics. People data is found in HR systems, from other departments like IT and sales, and from external sources such as salary surveys. Using people data offers the opportunity to contribute to an organisation's strategy by creating insights on what people can do to drive change. (CIPD, 2021a)

This set of three definitions may feel a little scaled back compared the first set, but they still encompass the same implicit assumptions, albeit in softer language.

Though not a definition of HR Analytics, the following quote illustrates a similar dehumanising perspective. Note how the "it" which they assert requires better methods, are the people their business relies on.

> Organizations are in a worldwide war - a war to acquire a diminishing resource, an asset that is more valuable than oil and more critical than capital. The resource can be bought but not owned. It is found in every country but is difficult to extract. Leaders know that without this resource they are doomed to mediocrity, yet most of them use outdated methods to measure and understand it. The resource is skilled workers. (Isson & Harriott, 2016, p. 55)

This view of employees as objects to be controlled in order to optimise the output of the organization is consistent with Thunnissen's view that current talent management literature favours this sort of approach and a focus on "measuring, controlling and increasing performance and productivity of employees" (2016, p. 60).

In this research, I want to put the focus squarely on the individuals and investigate their views on HR Analytics.   I needed an accessible definition that captured the key elements of the term but remained broad enough to allow for the inclusion of diverse perspectives. It should also be readily understood by the research participants, irrespective of their level of prior engagement with, or understanding of, HR Analytics.   Consistent with the positioning of this research, it was also important to avoid the assertive statements of data supremacy inherent in many of the definitions considered above. The definition I created and used for the study was that HR Analytics is "the application of analytical techniques to data about people, in order to provide guidance or make decisions".

3.2 Evolution of Data in HR

From the initial focus on Industrial Relations, to Personnel departments, and to today's Human Resources functions, the evolution of the profession has been charted by a number of writers (eg Jamrog & Overholt, 2004).   It has been suggested that there is an increasing need for HR to provide analysis that can help the organization to make decisions on the basis of strategy, rather than internal HR metrics (Boudreau & Ramstad, 2003). Indeed, an inability to link decisions to strategic outcomes for the organization, because of a lack of appropriate analytics, can be one reason for HR not being seen as a strategic part of the business (Lawler III, Levenson, & Boudreau, 2004). There is also increased scope for the application of information technology in the HR function, providing both opportunities and challenges (eg Stone & Deadrick, 2015).

Using analytics in business is by no means new. Frederick Winslow Taylor (1947), often referred to as the father of scientific management, considered how different variables affected employee performance. The importance of data specifically in the HR function is also not new, but the focus has shifted over the years as the profession has developed. As long ago as the 1940's there was some use of analytics by a very few companies and governments, who sought to improve their activities around selection and talent management(Lawler III, 2015). Dating from the late 1970's, the idea that, not only could the HR function use measurement to demonstrate its value, but it was beholden to do so, is widely credited to Jac Fitz-Enz. He was seen as a "renegade pioneer who consistently championed the economic value of human resources despite the fact that initially nobody seemed to care" (Caudron, 2004) and his extensive writing since then (Fitz-enz, 1995, 2000, 2010; Fitz-enz & Mattox, 2014; Pease, Byerly, & Fitz-enz, 2013) mirrors much of the development of the use of data in HR.   The development of metrics, "an accountability tool that enables the assessment of a function's results" (Dulebohn & Johnson, 2013), came in the 1980's. Focusing on internal measures, such as the average cost to fill a vacancy, allowed for discussions on HR efficiency.   This focus on data derived efficiency measures inevitably creates a shift towards assessing value based on what can readily be measured. I suggest that this focus on metrics also lays the foundations for the HR Analytics approaches that are in use today.   Analytics can only work on the data that is available to be used and, in an HR organization where efficiency metrics have been consistently gathered, that will be the basis available for analysis.

The 90's brought a focus on benchmarking, enabling companies to compare their performance on standard metrics. Considerable work being required to establish those metrics, the American Standard ANSI.SHRM 06001.2012 (ANSI, 2012), for example, standardises a common approach to measuring "Cost-per-hire" which runs to 50 pages. Such benchmarking activity, however, provided no recommended actions to follow, or insights into the reasons behind any identified differences. Huselid (1995) is credited (Bernstein & Beeferman, 2015) with establishing a new line of research interest into links between "High Performance Work Practices" (United States Department of Labor, 1993). With this came the start of demonstrating how HR practices could be linked to financial outcomes for the organization. The following year Kaplan & Norton published their book "The Balanced Scorecard"(Kaplan & Norton, 1996) which popularised the production of scorecards in business. Whilst this drove an interest in data from HR, the information used has tended to continue to be internally focused efficiency metrics. This further entrenches the perspective that this quantitative data is the basis for assessing the HR function and is hence the information to be gathered and stored.

The early 2000's saw the continued evolution of increasingly sophisticated Human Capital metrics. Combining an organization's finance data and HR measures of individuals, these aim to get beyond simplistic measures such as "revenue per employee" (Fitz-enz, 2000, p. 58). Again, this reinforces the unchallenged assumption that the quantitative approach is the way to measure the individuals in the organization.

Today, beyond the world of HR we are increasingly seeing "math-powered applications powering the data economy" and delivering verdicts that "land like dictates from the algorithmic gods" (O'Neil, 2016a, p. 8). These same analytical tools and approaches can of course be applied to any data and, as discussed above, HR has data available. The technical capability comes at a time when many notable thought leaders have called on the HR profession to take a more evidence based approach to the management of human capital as they seek to improve both organizational and individual performance (Boudreau & Ramstad, 2007; Fitz-enz, 2010; Pfeffer & Sutton, 2006).

As is obvious from the definitions considered in the previous section, the prevailing emphasis when using HR Analytics is on taking a data driven approach. Pfeffer and Sutton refer to this as evidence-based management which they say

> is based on the belief that facing the hard facts about what works and what doesn't, understanding the dangerous half-truths that constitute so much conventional wisdom about management, and rejecting the total nonsense that too often passes for sound advice will help organizations perform better (2006, p. 13)

They warn that the use of data to drive decisions also has the potential to run into commonly held but incorrect views, challenging the authority of the leaders who espouse them.   A mindset is recommended that enables experimentation, and the challenging of these deeply held assumptions, in order to use data and analytics to optimal effect. In a similar vein, Pease, Byerly & Fitz-Enz (2013, p. 103) note that they have seen examples where supposedly mandatory training programs were only being taken by 40% of the population and perceptions on which parts of the business performed best were years out of date.   What is needed here, they suggest, is a culture of ensuring that decisions are based on evidence and a shared understanding of basic metrics. It is worth pausing for a moment to consider some of the assumptions and values behind their assertions as they are common in HR Analytics usage.   It is immediately apparent that a focus on the quantitative data is being placed ahead of any qualitative insights.   Furthermore, it is most likely that what is known is that the reporting system says that only 40% of the population have taken the learning. A likely implicit assumption being that this means that only 40% have actually taken the learning. The call to the organization is that decisions should be based on these facts.   An alternative approach would be to ask why that is what the data says.   Are people taking the learning but it is not being recorded, is there a reason why employees or managers in the organization might be making an active decision not to take the learning, have they indeed been told about it? Fundamentally, where have these so called "hard facts" come from, and what were the choices and assumptions made when the data was gathered and stored. The data tells us something, but perhaps not as much as it is being assumed.   On the side of the "half truths", what has become of the century plus of research that Huselid highlighted in the quote at the opening of this chapter?   I suggest it is perhaps naïve to rely solely on the data when taking HR decisions.

That is not to say that there won't be times when data analysis is in some sense right and commonly held views are wrong - Hans Rosling's work being an excellent example (2018). When data analysis challenges prevailing thought patterns it can easily lead to the results of the detailed analytics being rejected out of hand (Levenson, 2011). Festinger, Riecken & Schachter's work on cognitive dissonance (2008) is highly relevant here. They show that when evidence is presented which challenges existing beliefs, this creates dissonance which needs to be resolved.   This can be achieved through acceptance of the new evidence, or more likely by its rejection. This was dramatically demonstrated in their work with a cult following the "disconfirmation" event when they were not picked up by UFOs and the world did not end as expected on a prophesyed date. Indeed, their adherence to their faith increased, the exact opposite of what we might have expected to be the case. In keeping with this we find that in

many cases data and analytics are employed to validate decisions that have already been taken, rather than to raise questions that challenge the status quo (Falletta, 2014). I'd suggest that this gives further weight to my assertion that a focus just on the data in HR Analytics is potentially problematic.

This section has explored how the use of data has evolved in HR. There are clearly high expectations of what can be achieved by following a data-based approach and there is evident self-confidence in the approach.

> At this point, everyone agrees that analytics and evidence-based decisions are the future. The path to the ultimate goal has been identified, steps have been defined, and successful cases and "how we did it" stories are ready to guide our way (Minbaeva, 2017, p. 111)

The next section will look at some of the organizational pressures helping to drive the emergence of HR Analytics.

3.3 Emergence of HR Analytics

A significant theme in various explorations of the emergence of HR Analytics is the desire for HR to be seen as, and operate as, a strategic partner in the business. Authors such as Lawler & Mohrman (2003) agree but note that, despite the desire for HR to take a more strategic role, little change is being observed in how HR time is allocated, with less than 25% being spent on the "Strategic Business Partner" role. Jamrog & Overholt (2004) provide a summary view of the last 100 years of evolution of the HR profession from the initial founding of personnel departments during the 1920's through to becoming a strategic business partner. They argue that in order to increase its strategic function HR "needs measurement tools that go beyond assessing HR's output to focus more on the impact HR is having on the execution of the business strategy". Boudreau and Ramstad (2003) make the same point, distinguishing between adding more internal HR metrics and failing to contribute to strategy, versus providing analytics which help make improved talent decisions in support of business strategy. Lawler & Levenson (2004) opine that one reason HR falls short in its strategic contribution may be a lack of relevant strategic level data and analytics that relate human capital management decisions to organizational outcomes. Likewise, and building on their earlier work(Boudreau & Ramstad, 2005), Boudreau & Ramstad (2007) argue the case for a new decision science in HR which they term "Talentship". They suggest that HR can learn from organizations such as finance and marketing where there is a distinction between the profession and what they term a decision science. Whilst there is a professional practice of accounting and a separate decision science of finance, this distinction is not present in HR. Adopting this decision science

would, in their view, help to move beyond a focus on internal metrics that relate to the efficiency of the function (such as cost per hire) and instead develop a focus on strategic business level goals (such as making sure that you hire the right people). A former CFO talking about importance of HR speaking the language of the rest of the business makes a similar point.

> Perhaps the best argument for HR to adopt and use human capital metrics and analytics is that it puts numbers to people that CFOs and the rest of the organization can finally begin to understand – and from which HR can change the game to drive superior decisions about people and talent using fact and numbers woven into a story that HR is uniquely qualified to tell. (Higgins, 2014, p. 12)

It is worth pausing here to reflect on some of the unstated assumptions and choices being made in the statements about what HR needs to do. Agreeing that HR wants to be viewed as being as strategic in a similar way to other functions in the business, such as finance and marketing, does not necessarily mean that the route to that must be to mimic what they have done.   Deciding to take people decisions in similar ways that decisions of finance and advertising are done is certainly a choice that could be made, but is it the only one?

HR Analytics continue to gain in credibility and recent years ”have shown an increased focus on workforce analytics and the importance of workforce analytics in helping HR professionals to be more useful business partners” (Kryscynski, Reeves, Stice-Lusvardi, Ulrich, & Russell, 2018, p. 715). The adoption of analytics in HR to support evidence-based decision making has however been slow compared to other functions (Vargas, Yurova, Ruppel, Tworoger, & Greenwood, 2018).

Industry reports show continued growth in HR Analytics usage and its sustained importance in the eyes of business leaders (e.g. Bersin, Geller, Wakefield, & Walsh, 2016; Deloitte, 2017, 2020; IBM Institute for Business Value, 2014).   There is also significant growth in conferences aimed at practitioners (Tursunbayeva, 2020) and a mismatch is noted between the topics and those revealed in the author's recent literature review (Tursunbayeva, Di Lauro, & Pagliari, 2018). It is suggested that this is due to emerging uses to address evolving challenges faced by business.

Various frameworks for adoption have been produced articulating recommended approaches, often aimed at larger organizations. (Cascio & Boudreau, 2015; Feinzig, 2015; Fitz-enz, 2010; Gorry & Scott Morton, 1971; Schiemann, Seibert, & Blankenship, 2018).   Reflecting their consulting perspective Douthitt and Mondore (2014) offer an alternative approach with the perhaps optimistically named "Five Proven Paths to Success" in which they articulate a number

of different angles of attack depending on the nature of your organization. This includes a specific path for small businesses which is a useful contribution and one not noted elsewhere.

McKinsey's report on "How to be great at people analytics" (Ledet, Mcnulty, Morales, & Shandell, 2020) is perhaps typical in presenting their "Stairway to impact" that focusses on the data, technology, and specialized analytics skills needed to advance.   No mention being made of insights or skills around working with the employees of the organization – either as individuals who will be affected by the results of the analytics or as those who will be charged with using the analytics to inform their decision making.

Practitioners continue to push the benefits, for example urging that "With better predictive analytics on business outcomes comes more value from HR analytics." (van der Togt & Rasmussen, 2017, p. 128).   There is also a strong bias for actions which Piyush Mathur, Global Head of Workforce Analytics, Data Strategy and Governance at Johnson & Johnson, encapsulates with his statement that "insight without action is overhead" (D. Green, 2020b). A suggested link between HR practitioner competence at analytics and their perceived job performance could also be helping (Kryscynski et al., 2018)

Expectations from senior leaders also continue to be high, "CEOs are reading about this topic in the business press, so they are pressing their CHROs to build this capability."(Bersin et al., 2016, p. 90)

There is an interesting observation though that despite this, things don't always work out as expected. One paper reports how the authors frequently hear stories of HR presenting leaders with evidence from analytics and getting congratulated on how they have made HR more "analytical" only to then see those results ignored "often in favour of leadership decisions based on copying HR practices of an admired CEO, or the opinion of the latest guru" (Boudreau & Cascio, 2017, p. 120).

Having looked at definitions of HR Analytics, the evolution of data in the HR function, and the emergence of analytics within the function, this chapter closes with a consideration of some of the potential issues that are being identified.

3.4 Notes of Caution

My fourth research question, "What consequences arising from the implementation of HR Analytics are indicated in the study?", seeks to understand the potential impacts of following the HR Analytics approach.   In this section I'll look at some of the emerging literature that is starting to ask questions in this space.

Some authors include warnings on the use of analytics. In one of the earlier papers on the topic there is a series of warnings on common mistakes made (Davenport, Harris, & Shapiro, 2010, p. 58). These include the use of analytics becoming an "excuse to treat human beings like interchangeable widgets" and only using a small number of metrics as this would enable employees to more easily "game the system". There are also examples emerging in the literature where narrowly focused algorithmic approaches are having unintended, and harmful, consequences (eg Angrave et al., 2016; Cascio & Boudreau, 2015). More broadly in society whilst predictive models are increasingly being used to "run our institutions, deploy our resources, and manage our lives" (O'Neil, 2016a, p. 218) their use does raise serious potential issues. This is especially true when the inner workings of the models are not understood by the people affected by the decisions they drive.

A helpful paper on AI in HR management (Tambe, Cappelli, & Yakubovich, 2019) provides some good examples of potential consequences and considers how relationships will be changed by the use of analytics. This includes consideration of what happens when job applicants discover the content of the algorithm being used to make hiring decisions.

> they are likely to adjust their behaviour to it and render the algorithm worthless: most applicants already know, for example, to answer the question "what is your worst characteristic" with an attribute that is not judged as negative, such as, "I work too hard."(Tambe et al., 2019, p. 16)

They also note that:

> When employees do not understand or accept how decisions are made, they are capable of gaming the system or disrupting it in ways that affect organizational outcomes. While a human decision maker can monitor adversarial behaviour and adjust his or her decisions accordingly, even state-of -the -art algorithms find this to be a challenging problem. Dealing with manipulation of this type is the focus of a machine learning technique known as 'adversarial machine learning'(Tambe et al., 2019, p. 18)

The old adage "garbage in, garbage out" holds true for HR Analytics implementations. Getting the data right will be important as this example from a project where the author was working with a Fortune 1000 company and predictively modelling how long new hires would stay at the company if they were hired to work in the call centre.

"Candidates with previous outbound sales experience proved 69 percent more likely to remain on the job at least 9 months. Other factors included the number of jobs in the past decade, the referring source of the applicant, and the highest degree attained. This project dodged a land mine, as preliminary results falsely showed new hires without a high school degree were 2.6 times as likely to stay on the job longer. We were only days away from presenting this result to the client - and recommending that the company hire more high school dropouts - when we discovered an unusual combination of errors in the data the client had delivered. Error-prone date - noise - usually just means fewer conclusions will be drawn, rather than strong false ones, but this case was an exceptional perfect storm - a close call!" The error in this case was around inconsistency in the coding of degree status but not randomly.(Siegel, 2016, p. 63)

With the increasing amount of data available on employees, including from publicly accessible social media sites, organizations will need to address the question, not just of what can legally be done, but also what is appropriate to do. The fact that an employee may have chosen to share information publicly on social media, doesn't mean they will necessarily be happy with their employer harvesting and using that public data. There is a growing trend for HR Analytics to include the use of external data, including information from social networking sites and LinkedIn (Bersin et al., 2016) but, as Sommer graphically puts it, use of these sorts of non HR data "scare the willies out of HR leaders" (2015, p. 19). An article about the application of People Analytics at National Australia Bank provides a quote on this from their People Analytics General Manager Thomas Hedegaard Rasmussen that summarises it well. Discussing a residual concern in the organization as to how far they should take People Analytics he said, "We're trying to stay on the right side of creepy because if people analytics crosses that creepy line, we're going to erode our opportunities to do good" (Crozier, 2020).

Falletta (2014) states that success "hinges upon our collective ability to harness the power of advanced analytics, ethically and responsibility (sic), while raising the bar to be more evidence-based…". Bassi (2011) agrees that this is an important consideration, and notes in particular the pace at which developments in software technology are allowing disparate data to more easily be included in the analysis. There are also potential legal issues to consider, including what Burden & Harper (2014) term "info-structural discrimination". When analytics derived connections in the data are used to drive decisions on recruitment for example, they observe that "discriminatory decisions can now also be founded on random attributes generated through endless correlations of predictive patterns and segmentations founded on prescriptive actions."(Burdon & Harpur, 2014, p. 680). These concerns are well founded as demonstrated by the emergence of a possible class action suit on the unintended discriminatory effect of a personality test being used in employment decisions (O'Neil, 2016b). Even if the use of analytics makes an organization less biased it may still increase legal risks for the organization.

Letting supervisors make employment decisions without guidance, on the contrary, may well lead to far more bias and possibly more adverse impact than the algorithms generate. But that bias is much harder to hold accountable because it is unsystematic and specific to each hiring manager. Algorithms used across the entire organization may have less bias than relying on disparate supervisors, but bias that does result is easier to identify and affects entire classes of individuals. All of this makes it much easier to challenge hiring decisions based on algorithms because it is easier to identify. Will employers find it worth-while to take on greater legal risk in order to reduce total bias? How will the courts consider evidence concerning algorithms in these decisions? So far, we have no experience on these issues (Tambe et al., 2019, p. 31).

Research into the use of "active monitoring", which would include video recording of employees at work or close monitoring of computer usage, suggests that it "lowers potential employees' perspectives on an organization's ethics as well as the likelihood of job acceptance and job satisfaction" (Holt, Lang, & Sutton, 2017, p. 121). In a study of Uber drivers who operate under "algorithmic management" the authors note subversive employee behaviours and resentment (Möhlmann & Henfridsson, 2019). More general concerns over the instrumentalization of people to provide data that feeds into analytics systems are raised by some authors (e.g. Blakeley & Blakeley, 2022). On the other hand, whilst there is growth in the use of new monitoring techniques by some US companies, this is not being accompanied by worker concerns. Indeed "worker acquiescence-if not outright approval- looks to be increasing even as the reach of technology is growing." (Wartzman, 2019)

Machine learning algorithms can be opaque for a number or reasons (Burrell, 2016). There may be intentional secrecy around proprietary algorithms, even if the underlying code was available however there is opacity due to the specialized skills needed to read and understand the code. More fundamentally however there is the issue that 'When a computer learns and consequently builds its own representation of a classification decision, it does so without regard for human comprehension. Machine optimizations based on training data do not naturally accord with human semantic explanations" (Burrell, 2016, p. 10).

As can readily be seen there are a wide range of potential issues associated with the introduction of HR Analytics. Deloitte's 2020 Global Human Capital Trends Report examined the views of their respondents' as to their level of organizational readiness to address ethical challenges. They report that "in matters where humans and technology converge— automation, use of AI, and use of algorithms—many organizations appear woefully unprepared" (Deloitte, 2020, p. 103). See Figure 1 below for details. They conclude that

In the face of increasing ethical challenges, we believe that organizations must make intentional and bold choices. Those choices should be framed by a change in perspective: a shift from asking only 'could we' to also asking 'how should we' when approaching new ethical questions (Deloitte, 2020, p. 103)

Organizations felt least ready to address ethical challenges involving the intersection of people with technology

Percentage of respondents indicating their organizations were "not ready" to manage each issue

Maintenance of privacy and control of workers' data
10%

Fairness of pay
15%

Treatment of alternative workers
16%

Design of jobs that account for climate and sustainability
19%

Management of the impact of automation on the workforce
20%

Use of AI and data to monitor individuals and the workplace
31%

Use of algorithms to influence decision-making
37%
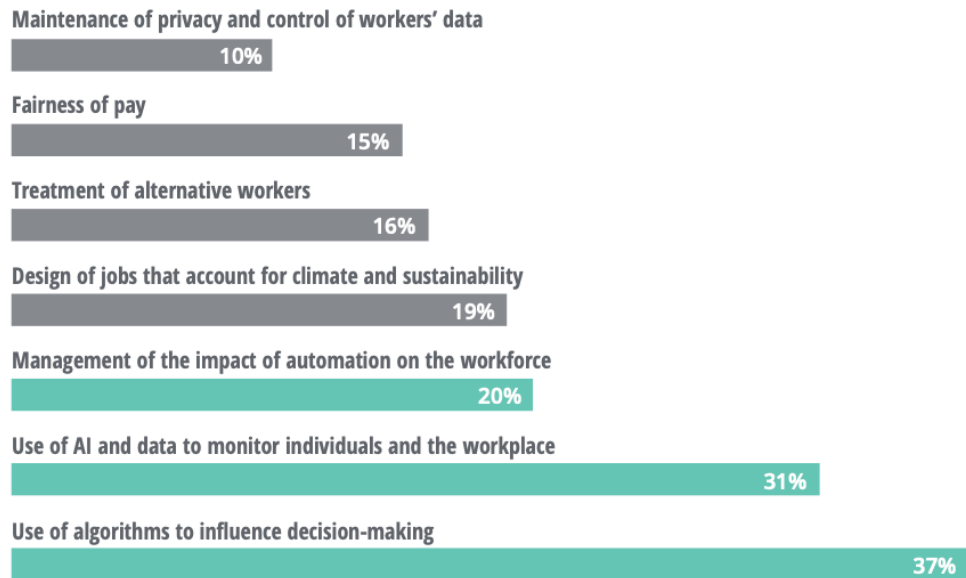
Note: Respondents were asked to rate their readiness in only their top three ethical concerns.
Source: Deloitte Global Human Capital Trends survey, 2020.

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Figure 1 Organizational Readiness to tackle ethical concerns (Deloitte, 2020, p. 104)

I'll close this section with a short quote that neatly summarises the consequences of an organization getting it wrong. "Organizations are approaching a tipping point around the use of people data, and those that tilt too far could suffer severe employee, customer, and public backlash" (Agarwal et al., 2018, p. 90)

3.5 Summary

Through an exploration of the literature, this chapter has charted the emergence of HR Analytics, and considered how it is viewed and implemented. The clear focus is on data-driven decision making and the discourse is currently dominated by "Optimistic and technocentric perspectives" (Tursunbayeva, Pagliari, Di Lauro, & Antonelli, 2021) with a clear objectivist perspective.

I raise the question though as to whether analytics applies in the same way in HR as in other contexts. In this research I also challenge some of the underlying assumptions that serve to delegitimise much of the subjective understanding that managers in an organization will have, particularly in regard to their reporting staff. This human element is currently not well considered and is the space where this research makes its primary contribution.

To draw this chapter to a close I'll consider a specific example (Blanding, 2016) which discusses the findings of a research project looking at hiring across 15 companies for an unspecified low skill job. Applicants completed a test as part of the recruitment process but there was some discretion for managers to make exceptions and hire people that would not have made the cut based on their test score. They concluded that workers hired by managers who made the fewest exceptions stayed on average 20% longer (120 days versus 100 days) with the organization than those hired by managers who made the most exceptions. The final section of the report, titled "Why are humans so fallible?" includes the conclusion that "…whatever firms are doing right now, they could do better by eliminating discretion." No consideration is given to questions to why the longer tenure employees are only staying for 120 days and no discussion is offered as to the use of "tenure as a proxy for job performance, reasoning that workers who did better in a position were apt to stay longer". This is just provided as fact with no justification yet the whole result depends on this assertion. If the longer staying employees are lower performing, then it could be that the managers are anything but fallible and their exception hires are adding more value to the organization.

My study participants included a manager who consciously used their discretion to go against the recommendations of the analytics when making a hiring decision. In doing so they took an informed decision that drew on their own insights and understanding of the business in addition to the input from the analytics so this example felt particularly pertinent.

Having looked at the context for HR Analytics implementation, the next two chapters focus on the research that has been performed in this study. An overview of the Research Philosophy adopted is followed by a detailed explanation of how the study was designed and executed.

CHAPTER 4 – RESEARCH PHILOSOPHY

Taking a pragmatic approach

This chapter considers the philosophical approach taken in this research and contrasts it with the dominant discourse that is found in the literature on HR Analytics.

Research philosophy is "a system of beliefs and assumptions about the development of knowledge" (Saunders, Lewis, Thornhill, & Bristow, 2019, p. 130). In the context of this research, three of the key elements that distinguish different philosophical positions are Ontology, Epistemology, and Axiology. Ontology concerns the nature of what exists and the presence or absence of an external reality. The ontological position taken answers the question of "whether or not we think reality exists entirely *separate from* human practices and understandings" (Braun & Clarke, 2013, p. 27). Epistemology concerns the nature and creation of knowledge and hence what it is possible for us to know. Included in this are fundamental considerations as to what forms of knowledge are taken to be legitimate and trustworthy. Differing epistemological positions will dictate what it is possible to know and how that knowledge can be generated. Axiology concerns values and ethics and includes the approach taken regarding the impact of the researcher's personal values and beliefs. Are these to be welcomed and incorporated or removed from the research? A wide variety of philosophical positions, sitting between the extremes of objectivism and subjectivism, can be taken depending on how each of these three elements are treated. The current HR Analytics literature is dominated by an objectivist stance, by contrast this research takes a more subjectivist stance.

From an ontological perspective, objectivism embraces a realist point of view where a reality is held to exist independent of anyone's beliefs or knowledge of it. Epistemologically "Objectivism incorporates the assumptions of the natural sciences" (Saunders et al., 2019, p. 135) which leads to quantifiable observable facts being used to uncover the truth about area under study. From an Axiological perspective this leads to researchers seeking to "remain detached from their own values and beliefs throughout a rigorous scientific research process" (Saunders et al., 2019, p. 136). In contrast subjectivism embraces the ontological position of relativism, where reality depends on human interpretation and embracing the view that the social world is not governed by a series of laws but rather that social phenomena are created by social actors. Epistemologically it "incorporates assumptions of the arts and humanities…asserting that social reality is made from the perceptions and consequent actions of social actors(people)"(Saunders et al., 2019, p. 137). This leads to a focus on matters such as opinions people hold and their written or spoken accounts. Axiologically the view is taken

that the researcher's values cannot be excluded, indeed the may drive their philosophical position, and need to be considered within the research.

Sitting on the objectivist side of the continuum the research philosophy of positivism "assumes a straightforward relationship between the world and our perception of it"(Braun & Clarke, 2013, p. 29). Knowledge is hence gained through use of established scientific methods which seek to provide objective views of the reality they are measuring. This is the dominant philosophy in the HR Analytics literature. Publications from organizations with solutions to sell or from practitioners may be influenced by a strong motivation to claim a clear route to success with analytics.   Also, the core of the approach being adopted is the analysis of data about many individuals to establish patterns and associations that can lead to valid predictions and associated actions.   The mere act of asking a question such as which employees are a retention risk and expecting a definitive answer sets us down a positivist path.

This is an emerging topic and much of the writing is from companies and practitioners selling and implementing HR Analytics solutions which brings an inherent potential for bias. There is a lack of significant discussion or argument in the literature, reflecting perhaps a lack of research on HR Analytics. Furthermore, "the definitions and process details associated with doing analytics the right way have not been well-articulated." (Mondare et al., 2011, p. 21). One author suggests that there are "Raging Debates" in HR Analytics (Bassi, 2011) but even this results in just a discussion over the "who, what, where, when, why and how" of HR Analytics and doesn't identify any major philosophical, theoretical or methodological differences.

This research will not be engaging in the paradigm "wars" (eg R. B. Johnson & Onwuegbuzie, 2004) and does not suggest that the quantitative approach associated with positivism is wrong.   Rather the approach taken here is to consider what insights could result from applying a more subjectivist approach.   Adopting a "both and", rather than an "either or" approach. The study explores the views of managers in an organization that is implementing HR Analytics. As such the research interest does not lie in matters of whether a particular analytic system was or was not implemented but rather in the manager's response.   The research philosophy employed must hence allow for the different experiences of the managers in relation to the analytics. Levels of understanding of the HR Analytics being used may vary and it could even be that some managers are unaware of the use at all even though they have been implemented.

The underlying research philosophy used in this study is pragmatism. Dating from 1878 (Goodman, 1995) pragmatism's original conception is to "Consider what effects, which might

conceivably have practical bearings, we conceive the object of our conception to have. Then, our conception of these effects is the whole of our conception of the object" (Peirce, 1995, p. 44). More simply, the pragmatic method is to "interpret each notion by tracing its respective practical consequences. What difference would it practically make to any one if this notion rather than that notion were true? If no practical difference whatever can be traced, then the alternatives mean practically the same thing, and all dispute is idle" (James, 1995, p. 54). For this specific research undertaking, where we have a lack of existing theory, pragmatism's focus on transferability and status as a paradigm that "can reuse previous or create new disciplinary theories based in particular context but still generalizable to others" (Shannon-Baker, 2015, p. 331) is also particularly relevant. Ultimately, it is also an approach that is congruent with my own personal philosophy.

As Shannon-Baker (2015) notes, providing information on a researcher's beliefs gives a better understanding of how the research may have been influenced. Turning this on its head and considering how my prior writings may help articulate my underlying beliefs I return to the definition of morale that I wrote as part of my MBA thesis.

> My morale is **personal** to me, it reflects my mental attitude to all that is happening in my life and my **perception** of what the future holds based on past experiences. It is **influenced** by those around me, especially those that I respect the most. Morale is **high** when I feel I fit in, am accepted for who I am and am progressing towards my personal goals in life. Morale is **low** when I feel boxed in, constrained, out of control or without hope and am unable to see a future.(Coleman, 1996)

Whilst consistent with the other writing that I encountered in my research I was struck by that final sentence and my emphasis on not being constrained or boxed in. With the additional clarity and thought that the DBA studies have provided I think this is in part speaking to my personal beliefs and approach to the world. One particular example of this would be the light that went on in my head when I was introduced to Social Constructionism (Berger & Luckmann, 1967). Not a position I had consciously taken before but the idea of knowledge and reality being socially constructed made sense and was added to the store of lenses I can use to view the world and has undoubtedly influenced this research undertaking.

In my early days as a manager, I was greatly influenced by a book which argued for a contrarian approach to management (Rinke, 2004). If convention is to focus your time on the top and bottom performers in an organization... ask yourself what would happen if instead you focused on the larger group in the middle, who collectively are actually doing most of the work for example. I also remember reading how in the 1980's Ricardo Semler (Semler, 1993) had gone against conventional perceived wisdom in how to run his company and made an active choice against centralization of some services. He didn't argue that savings couldn't be made

through centralization, rather he took the view that there would be hidden costs in terms of reduced motivation and employee engagement that would outweigh the visible savings.

I take pride in an ability to see things from fresh perspectives and would also identify myself as a contrarian thinker. Show me some objective data and I'll likely ask questions from an interpretivist perspective. Show me an interpretivist perspective and I'll ask about what objective data there might be. I self-identify as having a strong "explorer orientation" rather than a more "instrumental" attitude to my learning (Colby, Ehrlich, Sullivan, & Dolle, 2011) which means I am always interested in new ideas and concepts. Here perhaps lies the key to my lack of willingness to be pinned down by a philosophical label, the sense that there are many positions that all have their own value and contribution. Why would I want to align with one and deny myself the insights and perspectives offered by the others? Rolfe helpfully introduces the "ironist position" as a way of proceeding enabling one to "reject the 'one truth' argument of positivism without falling into the extreme relativism of the 'no truth' arguments advocated by some postmodernists" (2000, p. 3). This approach of seeing the value in different approaches and taking a position that one is not necessarily better or worse than another, they just shed different lights on the subject, is one that feels very close to my personal philosophy. Pragmatism, and its focus on evaluating different theories and beliefs based on the successfulness of their application in practice, also resonates strongly. From a personal philosophy perspective, I would also remain open to theories which at the time appear not to have practical applications – perhaps through examples such as number theory where pure mathematics pursued for its own sake and beauty with no conceivable practical application turned years later into the foundation of cryptography.

Turning to this specific DBA research undertaking, the gap that I have elected to stand in is one where exploration is needed as there is a lack of prior research. Looking at HR Analytics from a qualitative perspective, when the majority of published research is quantitative and positivistic in nature, is clearly playing to my contrarian self. The DBA is about contribution to practice as well as academic validity, and one of my strong drivers coming into this topic was to produce research findings that could contribute to improved implementation of HR Analytics projects in future. This adds further credence to an approach based on "an attitude of looking away from first things, principles, 'categories', supposed necessities; and of looking towards last things, fruits, consequences, facts." (James, 1995, p. 57). Pragmatism offers the ideal blend of an established and justifiable approach for case studies, openness to considering practical consequences, and a structure that allows for flexibility of approach, driven by the findings that I craft from my study.

Ultimately, it is also an approach that is congruent with my own personal philosophy. I like to think, and I may even be right, that had my research topic called for a different approach (eg a critical approach were I to have decided to study issues of power in determining which areas of HR were guided by analytic insights) then I would have embraced that. An approach rooted in pragmatism however feels both appropriate and desirable in this context.

As I have developed this research, and as a researcher, I have grown increasingly conscious of my own role and the expression of my "authorial character" (Golden-Biddle & Locke, 2007) in the text. Though convention would suggest writing in the 3rd person, in part perhaps as a way of creating a pseudo objective feel to the writing, as my understanding and approach has developed this has felt increasingly less honest. Reflecting my axiological stance, I have hence opted to follow in the footsteps of Issac Newton (Billig, 2013) and write in the 1st person, as a reflection of the presence and influence I have as a researcher on the output. I am choosing to come from the philosophical position that the findings are not a derivation of some underlying truth that was lurking waiting to be discovered. Rather, they are an interpretation that I offer of what the participants described in the interviews I performed. Even here I need to recognise the choices made as interview designer and conductor which will clearly have influenced the content I have for subsequent analysis. In undertaking this research, I have intentionally adopted a different philosophical position to the dominant positivistic stance. Writing in the 1st person, I believe, offers a more authentic feel to the text, and better represents the underlying philosophy of this work.

CHAPTER 5 – RESEARCH DESIGN AND EXECUTION

This chapter provides details on the research which has been performed. The setting for the research is described and details are given on processes followed from initial participant selection through to the analysis of the interview data. Information is also provided on the pilot phase which was used to validate the approach prior to undertaking the full study.

In areas, like HR Analytics, where there is a lack of existing insight and research, an exploratory research approach will be particularly appropriate (Wilson, 2014). Unlike in quantitative research where more of a consensus exists, qualitative research can take a variety of forms (P. Johnson, Buehring, Cassell, & Symon, 2007). The authors go on to note one category of qualitative research as being "… a specific bag of tools with a distinctive role and use in management research: accessing organizational back stages" which encompasses the idea that this approach can enable "the researcher to access aspects of organizational realities that otherwise would be missed" (P. Johnson et al., 2007, p. 31). The use of qualitative approaches has grown and is now well established form of research so that "…qualitative researchers in management and organizational studies no longer need to be apologetic or defensive about their research"(Myers, 2015, p. 338).

Flyvbjerg tells us that "Social science has not succeeded in producing general, context-independent theory and, thus, has in the final instance nothing else to offer than concrete, context-dependent knowledge. And the case study is especially well suited to produce this knowledge" (2006, p. 223).
A case study is defined as "an empirical inquiry that investigates a contemporary phenomenon (the 'case') in depth within its real-world context, especially when the boundaries between phenomenon and context may not be clearly evident" (Yin, 2014, p. 16). This research studies the phenomenon of HR Analytics situated in the real world context of the IBM UK first line manager and takes the form of a revelatory single-case study (Bryman & Bell, 2015; Yin, 2014).

The case study approach is dominant in the existing HR Analytics studies published in quality peer-reviewed journals (Marler & Boudreau, 2017). Early case studies tended to relate to less contentious use of HR Analytics (Lipkin, 2015) in areas such as recruitment/selection and employee retention (Burdon & Harpur, 2014; Hirsch et al., 2015; Rafter, 2015). It is interesting to note though that in these expositions the metrics cited for success tend to be internal HR measures rather than business impact. We are told for example that Google "has seen its people operations group's productivity rise 6 percent annually over the past five years"(Rafter, 2015), which says nothing about the business impact. It could be that in cases like this the

impact is not known. It could also be that in the early stages of adoption the effective application of HR Analytics is seen as delivering competitive advantage and hence a reluctance to disclose impact measures exists. The same applies to details of praxis leading to a situation where readers of the literature can be "enthused by its ideas but feel not better informed about how to put them into practice than they were before they read it" (Angrave et al., 2016). Many papers have been produced based around illustrative case studies (e.g. Coco, Jamison, & Black, 2011; Douthitt & Mondore, 2014; Harris, Craig, & Light, 2011; Rasmussen & Ulrich, 2015; Simón & Ferreiro, 2018). More recent literature continues to feature case studies with the scope of research widening away from the narrow focus on recruitment and retention to more general questions of HR Analytics adoption and implementation (e.g. Belizón & Kieran, 2021; Dahlbom, Siikanen, Sajasalo, & Jarvenpää, 2019; Ellmer & Reichel, 2021; Walsh & Voilini, 2017).   The design being adopted for this study hence fits well with established approaches for research in this field.

This research took place inside an organization that cares about the practical implementation of HR Analytics and as such Action Research was considered as a potential research design. Action Research is generally defined as being where "the action researcher and a client collaborate in the diagnosis of a problem and in the development of a solution based on the diagnosis" (Bryman & Bell, 2015, pp. 418–419) and can take many forms (Coghlan & Brannick, 2014). It is also an approach followed by many students in full-time employment who are undertaking part-time masters or doctoral research degrees (Zuber-Skerritt & Perry, 2002). I decided however that it was not well suited to this specific research undertaking due to a lack of a clearly identified issue that would have formed the focus of the Action Research. Whilst there is a strong interest in understanding more about the reaction to HR Analytics implementation in IBM, there was no specific open issue to focus on and hence this approach was rejected.

This is a piece of insider research and, whilst that is not inherently problematic, it does come with limitations as well as strengths. Being part of the organization offers advantages for the researcher who will understand internal jargon used and can "draw on their own experience in asking questions and interviewing, be able to follow up on replies, and so obtain richer data" (Brannick & Coghlan, 2007, p. 69). The insider may also be able to access input on more sensitive issues than an outside researcher could and the deeper innate understanding of the setting for the study can also be an advantage (Alvesson, 2003). Conversely, this same closeness to the data can lead insider researchers to "assume too much and so not probe as

much as if they were outsiders or ignorant of the situation"(Coghlan & Brannick, 2014, p. 134). The authors go on to note that this may lead to a failure to consider alternative reframings of your position and argue that reflexivity will be important and help to "retain an awareness of the importance of other people's definitions and understandings of theirs"(Coghlan & Brannick, 2014, p. 134).

As an insider researcher it may be that the people I interviewed will have felt less of a need to put up a front or to paint the organization in what they would perceive as a good light. Issues of confidentiality and sharing details of internal processes are also less likely to be an issue than if I was an external researcher. Telling me, another IBMer, something about how the company works that I probably already know seems a different proposition to telling an outsider. On the other hand, I also recognise that, whilst my role does not include any level of responsibility or involvement in the implementation of HR Analytics in IBM, being part of the Corporate Learning function means that I am part of the broader HR organization. That could lead to participant concerns that I would share details of who they are with my colleagues in HR were they to say anything too controversial.

Whilst I clearly cannot know how the participants would have responded to me had I been an outside researcher, I do know that they appeared comfortable sharing details of various situations that could be regarded as sensitive. One participant, when answering a question on potential disadvantages to the adoption of HR Analytics prefixed their response with "I'll give you one seeing as it's anonymous...". This implied a good level of trust in me as the interviewer and that they felt open sharing what they saw as both good and bad examples. My sense during the research has certainly been that my insider status has been an advantage to the research process.

5.1 Context for the Research

This research has been undertaken in IBM which is seen as being "among the elite in using predictive analytics within its talent-management strategy" (Starner, 2017). The organization has implemented a range of HR Analytics projects across its business and is cited by many authors as a leader in the space (e.g. Bodie et al., 2016). Details of initiatives including work in recruitment, compensation, skills growth, and retention have been shared in various publications (e.g. Manning, 2017; T. Moore & Bokelberg, 2019; O'Donnell, 2019; Sheopuri, 2021). At the 2017 Deloitte IMPACT conference IBM's Chief HR Officer, Diane Gherson,

"explained in detail how IBM leveraged Watson and other intelligent tools to redesign their performance management process, manager coaching, employee voice and feedback, retention analytics, career coaching, learning, and more …" (Bersin, 2017, p. 36). See Figure 2 below for more details.
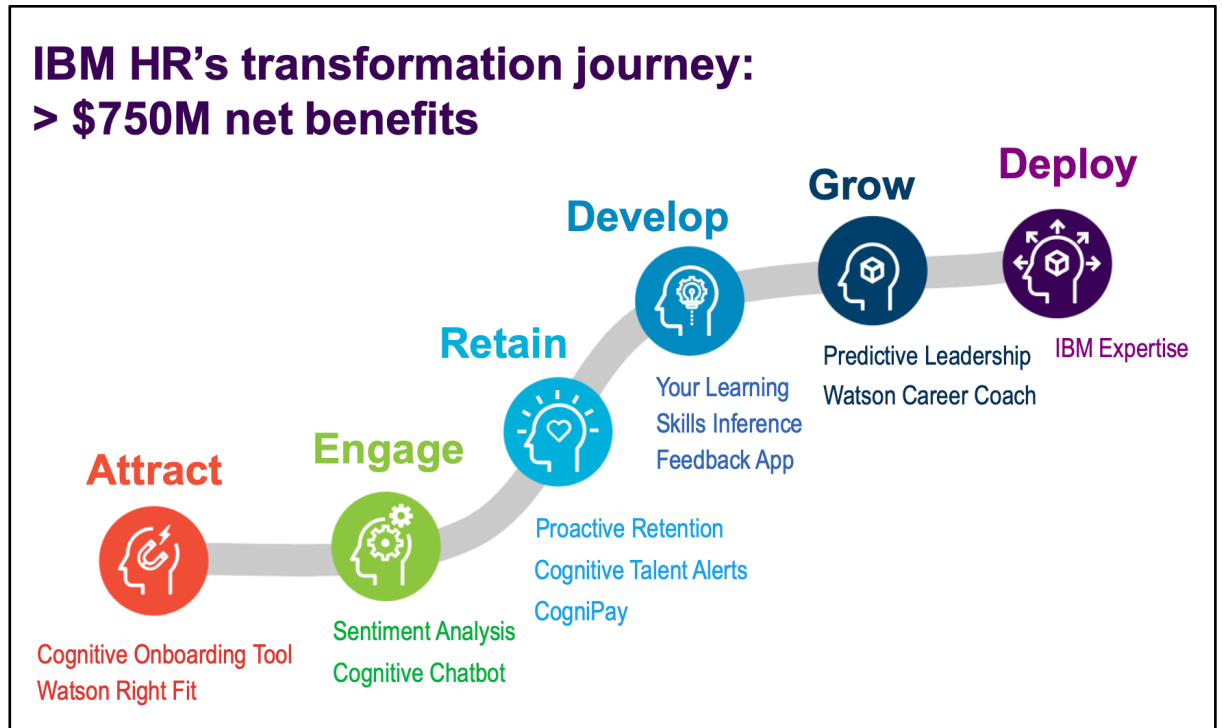
Figure 2 IBM's HR Transformation Journey (Bersin, 2017, p. 36)

From personal conversations I have had with managers in the organization it was clear that there was considerable interest from members of that community as to what the effect of introducing HR Analytics will be. Prior to commencing the research, I approached the IBM UK HR Organization to understand whether the topic was one that would be of interest and would receive support in terms of access to the manager population.   It was confirmed that this was what could be referred to as a "red-hot" issue (Björkman & Sundgren, 2005) and that access to managers for interviews would be supported. Whilst the topic is one of great importance to the organization, and there is interest in understanding the results of this research, it is important to note that all elements of the research design and execution have been performed independently. My status as an IBM employee means this was a piece of insider research and IBM could hence be seen as a convenience sample, due to researcher access. Whist that is true, as already noted, IBM is seen as a leader in this space and hence forms a valid context for the research irrespective of the convenience for the researcher.

At the time of the study, IBM was a large multinational organization with over 345,000 employees working in more than 175 countries, delivering 2020 revenues of $73.6bn (IBM, 2020b).   The organization seeks to deliver value to its clients "by providing integrated solutions and products that leverage: data, information technology, deep expertise in industries and business processes, with trust and security and a broad ecosystem of partners and alliances". This is delivered through a "hybrid cloud platform and AI technology and services capabilities" which support their clients' "digital transformations and help them engage with their customers and employees in new ways" (IBM, 2020b, p. 23). From this summary it is immediately clear that understanding of data and analytics is likely to be high in the employee population.

IBM has a significant organization in the UK with around 11 thousand employees (IBM United Kingdom Limited, 2020) working across all of the major business areas of the corporation. The UK organization hence provides sufficient scope to look across all of IBM's major business units and limiting the study to individuals in one country will eliminate additional complexities that could arise from different national employment contracts and customs.

The scope of the study was limited to IBM UK first-line managers who had management responsibility for UK based employees. The term "first-line manager" applies to managers who do not have management responsibility for other managers. The term "upline manager" will be used to refer to managers whose direct reports include managers. First-line managers were chosen as the target group because they will:

- have personal experience of how HR Analytics are, or are not, being used to either inform or direct managerial decision making with regard to IBM UK employees.
- have personal experience of times when they were aware that the use of HR Analytics by their own manager has, or has not, had an impact on them
- be talking with their direct reports about how managerial decisions that affect individuals are taken

It will hence be possible to gather their personal understanding and response to the use of HR Analytics and, in addition, get a view of the reaction and feedback that they see from their reporting staff.

In this organization, many employee processes, such as salary increase programs, will typically run on an annual cycle. The study was hence be limited to managers with at least 12 months of experience in the role.

Due to the globally integrated nature of IBM, many of the UK managers will have reporting staff in other countries and for some their primary responsibility will be the management of employees outside the country. There will also be other situations that result in a manager having a small number of reporting employees. A reduced number of direct reports will consequently lower the manager's potential for engagement with HR Analytics and hence a pragmatic additional filter was applied to ensure that participants in this study had at least 5 reporting staff based in the UK.

For a qualitative study the sampling technique employed should be selected to yield information rich data (Teddlie & Yu, 2007). IBM has global leadership education programs in place and many of the key HR processes, including around employee assessment, are consistent across the company. Nonetheless, the work performed in the different divisions of IBM is diverse including client facing services, internal product development, and support services. The nature of the work performed by the employees in one part will consequently be potentially very different to that performed in another area. Correspondingly, there will also be different contexts and experiences for the managers. This could include aspects such as span of control and whether the reporting employees are co-located with the manager or remote. It is reasonable to suspect that differences such as these could lead to a material difference in the manager's experience of, and attitude towards HR Analytics. It was hence important to ensure that participation from the major business units was included in the study. To achieve this the 5 largest business groups (in terms of employees and managers in the UK organization) were identified. A stratified purposive sampling approach was taken with equal weighting to each of these areas plus "other" for all the managers in other business units than the 5 largest.

Whilst drawing the sample from managers in a specific geographical area would potentially have made it easier to perform the interviews this would have potentially reduced the breadth of insights and was hence rejected in favour of sampling from the whole UK organization.

5.2 Participant Selection and Invitation

A list of all the UK employees flagged as holding a management position was obtained from the HR organization. The target group for this research was first-line managers so the list was filtered to remove any managers who had other UK based managers reporting to them. The

resultant list of UK employees who hold a first-line management role in the UK management hierarchy was then randomized.

The goal here was to open opportunity to receive diversity of perspectives. Importantly this research is not setting out to claim that the sample is in any way representative, no relative weightings applied to the groups based on size. The purpose of stratification was breadth not representation.

Consideration was being given to the question of how best to arrange interviews with participants who would likely be spread across the UK. Participants based close to me would be easy to access for in person interviews. Others would likely be based a good deal further away necessitating significant travel to perform in person interviews. This methodological question was however resolved by the COVID-19 pandemic and the resulting directive for people to work from home. Consequently, all interviews were performed over the Webex videoconferencing platform. This platform was in common use in the organization and was hence very familiar technology for all the participants.

Though many HR processes are standard across the company there is significant variability across the business units in the nature of the work undertaken. Employees could be out on the road working with a range of IBM's clients, they could be based on client sites, or they could be based in IBM offices. They could be fulfilling very individual roles or working a closely knit teams. The five largest business units in the UK were identified and, based on their reporting hierarchy in the UK, managers were tagged as belonging to one of these or a sixth category grouping of "other".

On the expectation of around a 50% response rate to the invitation to take part in the study, I decided to approach 30 individuals. Working down the randomized list the first 5 individuals from each of the 6 organizational groupings who had been in a first-line manager role for at least 12 months, and had at least 5 reporting staff in the UK, were invited to take part in the study. Seventeen people, well distributed across the 6 organizational groupings, responded to the invitation to take part in the study and were interviewed.

As already noted, IBM's internal usage of HR Analytics makes it a good organization for this study. It also sells consultancy and software solutions in this space and in analytics more broadly. When approaching individuals to take part in a research project in this space there is hence a concern that individuals may be led to decline the invitation, feeling that an established "expert" in the field would be better placed to respond. This had also been indicated in the pilot testing of the interview guide. To avoid the risk of skewing participation

towards "experts", the invitation to take part was truthful in its description of the research project but did not include details of the subject area. A copy of the invitation email used can be found in Appendix A

Given my status as a long-term employee of the company, it was to be expected that some of the people randomly selected to take part would be known to me, and this was indeed the case. None of the participants were close colleagues but in three cases, prior work relationships meant they could potentially be regarded as "acquaintance interviews" (Garton & Copland, 2010). The depth of the prior relationship was not however such as to call into question "which relationship is salient to the discourse"(Garton & Copland, 2010, p. 541) in any of the interviews. Nonetheless, particular care was taken in these interviews to guard against any assumptions based on prior knowledge of the participant or their context, and no reference was explicitly made by me to prior connections. The same questions were asked, and information solicited even if there was some awareness of what the response was likely to be.

5.3 Interview Design

Yin (1994, p. 80) notes that the strengths of interviews is that they can be targeted onto the case study topic and are insightful through the "perceived causal inferences" they reveal. He does go on to warn of three areas of potential weakness that should be considered

- Bias introduced through poorly constructed interview questions – this was addressed through careful crafting of the questions and validation through a pilot before execution of the main study
- Response bias and issues of flawed recall – the use of a stratified sampling approach to include participants from across the organization will help to address this. Furthermore, this specific piece of research sought to understand managers' perceptions of and attitudes towards HR Analytics, so this was less of a concern. Whether their view is based on full or flawed recall, it is the view that they hold.
- Telling the interviewer what it is believed they want to hear – care was taken in how the interview was introduced and in formulation of questions to avoid providing a steer on what response was expected.

The interview questions were designed to be clear but also to ensure that space existed for the participants to share their experiences and views without prejudging what they would be.

Appendix E provides a short narrative on the rationale behind the questions included in the interview guide.

It was anticipated that there could be a wide range of interpretations of the term "HR Analytics". Additionally, the possibility of participants limiting associations of the term to just mean analytics used by the HR function (Guenole et al., 2017) was identified. Two steps were taken in the interview design to address these potential issues. Firstly, when asking participants to provide their understanding of the term HR Analytics other terms of People Analytics, Workforce Analytics, and Talent Analytics were mentioned as synonyms. Secondly, having explored the unprompted conception of the term the researcher's standardised broad definition of HR Analytics as - "The application of analytical techniques to data about people, in order to provide guidance or make decisions." was shared with the participants through the web conference.

Prompting was used in two specific instances, the definition and application of HR Analytics, to draw out additional thoughts and also to help create a common base for the discussions across all the interviews. In each case the participant was asked for their thoughts and once those had been explored the prompt was used to trigger any additional insights. In each case a slide was shown through the web conference. Other than in these 2 specific cases no additional prompting of information from the researcher was provided.

5.4 Ethical Considerations

Drawing on the Ethics Guide 2015 (Chartered Association of Business Schools, 2015) and my own reflections on the likely nature of the research, I identified the following areas as being of particular relevance and have used the five headings from the Guide to structure this section. It should also be noted that this research was approved under the University of Winchester's Research and Knowledge Exchange Ethics Policy.

Integrity, honesty, and transparency in scholarship
Understanding and disclosing personal biases is important, especially in regard of qualitative analysis performed. This thesis does not seek to suggest that personal biases can, or have, been removed from the research. Details of the design of the study are however provided so a full account of how the research has been performed can be understood. As an IBM employee, especially given my role as part of the HR organization, it was particularly important

to ensure that the participants were clear that the research is being performed as part of my DBA studies and not as part of my IBM role.

Respect for persons and prevention of harm

The nature of this specific piece of research means there is limited scope for the participants to be exposed to any harm. The interviews were all performed through the Webex video conferencing platform and no issues arose with participants seeking to take part whilst driving or in other potentially hazardous situations.

Consent

The research is based on the content of interviews and as such does not involve any issues associated with observation, either covert or overt.   This simplifies the process of gaining informed consent which was secured through a combination of the initial invitation to take part and discussion at the start of the interview itself.   Following the interview an email was sent to the participants reiterating the consent and reminding them of their right to withdraw from the research at any stage. None of the participants have exercised this right. As an insider researcher some of the randomly selected participants were known to me but none were close colleagues.   The same process for securing consent was followed in all cases, irrespective of any prior connection.

Protecting privacy, ensuring confidentiality, and maintaining anonymity

Care needs to be taken to protect the anonymity of participants in any research.   This would be especially true if findings from the research were to reveal issues that the organization was not previously aware of, or which might be deemed performance issues. Simply removing names from data will not always be enough to preserve anonymity, especially with rich data as contained in the interviews.   Specific details about the work context, nature of the team, specific work undertaken etc could all provide details that would allow someone to be identified. This is especially true when multiple quotes from the same participant may be included in the text, allowing a broader picture of their contribution to the research to be built up.   Great care has been taken to exclude any such information from direct quotes used in the text and the appendix.

Declaring professional and personal affiliations and sources of funding and support

I am a self-funded student on the DBA program. As an IBM employee though, I have received some allocation of time from the company over the last 6 years to purse the studies.   I was

supported by the company in the process of identifying the current management population which enabled the random selection of participants to be performed.

5.5 Pilot Phase

Prior to performing the main study a pilot was run to provide an opportunity to help "not only with the wording of questions but also with procedural matters" (Oppenheim, 1992, p. 47). In addition, from my perspective as a novice researcher, it also delivered valuable practical learning on the research process itself. The pilot was performed with the following goals

- Validate questions in the interview guide – will they provide structure but allow freedom to explore a variety of responses
- Determine if any questions should be changed
- Identify any gaps where additional questions or probes should be added
- Consider whether the analysis of the responses received indicates a high chance of success for the main study
- Learn about technical approach to gathering of data. Especially with regard to the recording and transcribing of the interview data
- Develop data analysis skills working with the transcribed data and tools such as NVivo.
- Reflect on researcher performance in interviews, identifying any inhibitors to their effectiveness as well as more general areas for improvement

When performing the research an approach needs to be taken that will deliver information rich data (Teddlie & Yu, 2007). In the full study that was planned to be achieved through a stratified purposive sampling approach. When selecting for the pilot case however, "convenience, access and geographic proximity can be the main criteria"(Yin, 2014, p. 96) and that was the approach taken here. A purposive sample of four managers matching the experience criteria for the full study were identified. All the interviewees were well known to me personally and based in one common office location. Whilst in the full study a random selection of people was to be selected, a key aspect of the pilot study was to secure feedback on the structure and effectiveness of the approach taken, and indeed on the performance of the interviewer. For these reasons people who would be comfortable discussing ideas and providing feedback were selected. No attempt was made to select based on prior knowledge or experience of HR Analytics.

The pilot study confirmed that the interview guide generally worked well in practice, though a number of areas for improvement were noted, and implemented for the main study. These

included some changes to the sequencing of the questions, the inclusion of a second chart to be shared with the participants, and the addition of an extra question as an explicit prompt for the interviewer to return to any earlier comments that were flagged for follow up.

Interviews are inherently interactional and driven by both participant and interviewer. Whilst the design of interview sought to adopt neutral tone with broad open questions, the interviewer makes many decisions in the moment, and it needs to be recognised that this brings an element of cocreation to the content no matter how careful an approach is taken. The act of choosing which follow up questions to ask, for example, is not a neutral activity. Likewise, when to rescue a seemingly floundering participant is a nuanced decision for the interviewer. The pilot phase also allowed for self-reflection through reviewing my own contribution to the interviews.

Having made the updates to the interview guide a final review was performed with an additional volunteer who, like the pilot study participants, was a manager who met the criteria for the study but was well known to me.

5.6 Main Study Interviews

Between 6th May and 1st July 2020 I conducted interviews with 17 first-line managers. This falls in the normal range of 10 – 20 interviews that is suggested for a "medium" project such as a UK professional doctorate (Braun & Clarke, 2013, p. 48, 2019). The interviews were all scheduled for 1 hour and conducted through the online video conferencing platform Webex. Durations ranged from 39 minutes to 66 with an average 56 minutes. In 2 cases the interview was split across 2 calls due to urgent issues arising leading to the initial interview being cut short. In both cases though the participants readily agreed to a second call, and this was held withing the following few days. Regarding the time measurement figures above, for these cases the combined duration of the 2 calls has been used. All the interviews were performed by me and were semi-structured following an interview guide, which can be seen in Appendix C – Interview Guide for Research Interviews.

At the start of each interview explicit verbal consent was secured from the participant to enable the meeting to be recorded and all participants readily agreed to this.

Some notes were taken during the interview but being able to rely on the recording as the record of what was said meant that these could be used to capture any specific themes or comments made that were candidates for further exploration. Sometimes they would

naturally come up and be explored in more depth as the interview progressed but if not, they could be raised after the main questions had been asked.   This was an approach that had been developed in the pilot interviews and again proved very effective at capturing additional responses and insights from the participants.

After the interview an email was sent thanking them for their involvement and reiterating their right to withdraw from the study at any time should they so wish. A copy can be found in "Appendix B – email Sent Following Interview". None of the participants has exercised this right.

5.7 Analysis

Analysis is "the process of making sense of narrative data" (Tesch, 1990, p. 4) and for this study the act of coding the interview data will allow for a heuristic process that enables the data to be reflected on and concepts to be generated (Coffey & Atkinson, 1996). This will lead to development of insights into the manager reactions to the use of HR Analytics and support the identification of hunches and hypotheses as to the potential consequences arising from their use.

Thematic Analysis (Braun & Clarke, 2013) offers a flexible approach permitting themes to be developed from the data which is an important consideration in this study given the lack of theoretical frameworks for HR Analytics adoption. From a practical perspective its status as "an excellent method for those new to qualitative research, and particularly suited to student projects" (Braun & Clarke, 2013, p. 178) also argues for its selection here given the researcher's lack of prior experience in qualitative research. In the context of research, such as this, which seeks to make a contribution to practice, a further practical strength of this approach is the accessibility of the results of a Thematic Analysis to "an educated wider audience" (Braun & Clarke, 2013, p. 180).

The interview recordings were used to create verbatim transcripts for analysis. I performed the transcription manually, using the Transcribe site (https://transcribe.wreally.com) to assist the process. Whilst technology enabled auto transcription is available and professional transcription services can be used, a conscious choice was made to perform this as a manual step. The rationale being that the act of performing the transcription would help to start the process of researcher immersion in the data and this was found to be the case in practice.

In addition to the transcribing process, careful reading and summarizing of the interviews helped to develop understanding of what was being said.   A complete coding process (Braun & Clarke, 2013) was followed, developing a series of 481 semantic codes.   The interviews were mixed up and each analysed in turn to identify new codes and instances of codes that had already been noted in prior interview analysis.   Hard copies of the interviews were marked up with the codes and the developing list of codes was tracked in an Excel workbook. A marked-up sample page of interview text is included in Appendix F.   For practical purposes of managing the list of codes they were organized into 10 separate sheets. These provided a rough grouping that simplified the process of identifying prior codes.   Nine broad categories ("Input to HRA", "Output from HRA", "Purpose of HRA and advantages", "Application of HRA – where is it used", "Context HRA operates in", "Questions of Trust", "Inhibitors to use of HRA", "Manager insights beyond HRA" and "HRA Futures") were used based on the prior familiarization with the interview data.   A generic catch-all of "Other" was also included for anything falling outside the previous 9.   After a few of the interviews had been coded in this way it became apparent that the "Other" category was catching a number of codes relating more generally to the role of the manager and so an 11th sheet "What is manager role" was added. An approach was followed that allowed for created codes to subsequently be modified if that made sense, such as when a narrowly defined code turned out to be one example of a broader concept. For example, a code of "I used to create my own models for ranking" was broadened to "I used to create my own models" to include the same point being made by another participant more broadly than just in ranking employees.

Various software, such as Nvivo, exists which can be used to assist with the coding of qualitative data. A conscious decision was taken not to use this for the study. As this was my first experience of performing a piece of qualitative research and the associated Thematic Analysis, I was keen to use a manual process that would ensure I was fully immersed in the data and the coding.

Having completed the coding the next stage was to develop a set of themes and subthemes that would "provide a coherent and compelling interpretation of the data, grounded in the data"(Braun, Clarke, Hayfield, & Terry, 2018, p. 6).   A number of different models were tried before settling on the structure which the next chapter details.

CHAPTER 6 – MANAGERIAL PERSPECTIVES, FINDINGS FROM INTERVIEWS

This chapter details findings from the 17 semi-structured interviews performed. Domain summaries (Braun et al., 2018) are provided that report on responses to two of the questions asked early in the interviews. These questions addressed the first two of my research questions and sought to understand the participants unprompted conception of HR Analytics and, once a common definition of that term had been shared, their awareness of current HR Analytics usage inside IBM. Having summarized these two topics, the results of the Thematic Analysis into the managers' response to HR Analytics adoption are presented and illustrated with quotes from the participants. This addresses the third research question of the participant's views.

For the purposes of the writeup, and for ease of attribution whilst protecting their anonymity, the participants have all been allocated a single initial, unrelated to their actual name, which will be used to refer to them in the following analysis.

Where direct quotes have been included from the interviews the following conventions have been used.

- A set of 3 dots "…" in the quote signify a pause in the participants speech
- A set of 3 dots inside chevrons "<…>" signifies that part of what the participant said has been excluded from the quote. This may have been done to improve clarity or provide focus, such as cases where the response covers a topic then digresses onto a second topic, before returning to the original theme.
- Text inside chevrons will provide details of what was said but in a different form. This will include cases where identifiable information, such as an individual's name or department details, were spoken. To preserve anonymity these references will be replaced with descriptive text instead.

6.1 Participant Conception of HR Analytics

Having made clear that, for the purposes of the interview, the terms "People Analytics" and "Talent Analytics" were to be treated as synonymous with "HR Analytics", interviewees were asked what they understood by the term "HR Analytics". This question specifically targets

research question one, "What conception of HR Analytics do first-line managers have?", and provides insight into their unprompted conception of the term.

Awareness and understanding of the term varies widely. At one end of the spectrum L had simply not come across the term before. O posits that it could be around areas such as statistics on diversity but goes on to note that they "don't have a great understanding of it at all". V however readily provided their perspective as being about "the ability to interrogate and analyse data points around people, employees, aspects of employment within the company and from that analysis to be able to present insights or even predict certain trends". Other interviewees fell between these two extremes.   G was the only one to explicitly call out that their view "may be skewed a little by my own experience" but it was clear in most cases that the description of HR Analytics was heavily influenced by personal experience.

Apart from H, who notes that HR Analytics could be a local activity undertaken by managers analysing the information they have on their reports, the implication in the other interviewees' conception of HR Analytics is as something that is being provided to them in some form. When a source was mentioned, it was generally assumed that it would be coming from the HR function in the organization

P offered an unusually broad perspective and had a clear focus on what the use of HR Analytics would enable. They talked about it being …

> in and around motivating people, connecting people, people working very effectively as a team, or as effective as possible as a team and looking at the analytics of how and in and around how productive, how connected, how motivated they are and the reasons why that may be, and the reasons why that may not be (P).

The theme of employee motivation was also introduced by S who describes HR Analytics as giving "a view of the different types of people, different skills, different motivations to some extent that they actually all have". S went on to suggest that it's about understanding what drives individuals, mentioning Maslow's hierarchy of needs and individual's family contexts. So, for S it is about insights into people, what drives them, and to what extent those needs are being met.

The introduction of concepts such as an individual's family context forming part of the analysis opens up an interesting question about what data is used to underpin the analytics and where it is coming from.   Y's view that "it's analytics that's applied to a wide population to tell you, the manager, whether you've got any outliers within your population" similarly relies on the use of broad datasets including information from both inside and outside the company.   This contrasts with H whose view was that HR Analytics was more about the packaging of existing

information that managers have access to – so it's about simplification and "helps a manager make an informed decision without having to go and dig it all out themselves". The key point here being that the HR Analytics are working with data that the manager already has access to, the value comes because the analytics mean you don't have to "dig it out" yourself. This theme around different sources of data that can be used to power the analytics and how this may change in future will be picked up in more detail later in this chapter.

The use of HR Analytics to support skills identification and employee skill development stands out as a key theme in many of the responses. As B in particular noted, HR Analytics enables decisions to be made affecting short, medium and long term such as around employee skillsets. This includes views on what skills will be needed and hence what areas to train people in. Whilst there were a small number of mentions of HR Analytics supporting specific activities, such as salary planning or redundancy programs, the main focus appears to be around HR Analytics as an ongoing activity with people "analysed constantly" (T) around their skills and a focus on "growing the capabilities of the person within the role they are doing day in and day out" (M).

For D, it's about understanding skills gaps that you have, and the people you might need in the organization. This leads to their summary that it is about "using data an information to inform resource allocation, talent management". W similarly aligns HR Analytics with skills and helping to find "the best fit, the best skills and abilities for each employee, to get the best out of the team".   For them this includes making optimal decisions on assigning people to work and also helping to prepare for future job roles or career progression.   F agrees and sees HR Analytics as relating to all the things managers need to do around talent management – identifying potential, career paths, and what people need to do to progress.

Whilst most of the focus was on skills development and the deployment of existing employees, some of the interviewees included recruitment in their unprompted conception of HR Analytics. G in particular netted HR Analytics down to being the analysis of "any data that can be collected, at any stage, around people". This "at any stage" concept arose from their view on the applicability of HR Analytics in the processes of attracting, hiring, and on boarding new employees. Noting the challenge of operating in an industry subject to rapidly evolving skills needs, J saw HR Analytics playing a role in navigating this challenge. They talked about these systems providing the analysis needed to inform recruitment decisions and ensure you "have the right people, doing the right jobs, at the right time". In this they were expecting the HR Analytics to deliver insights that included a view across the breadth of the organization's own talent pool and in the broader marketplace. In common with other interviewees G and J also

saw the potential for supporting skills development for existing employees, but their shared focus on the role of HR Analytics in recruitment set them apart.

An important question arises around who the analytics are for.   In the discussion thus far, the focus has been on HR Analytics supporting the manager in the execution of their role such as assigning employees to jobs and tasks, determining skills needs, making recruitment decisions etc.   Two of the interviewees however introduced an explicit reference to the employees themselves in their answers.   E discussed the use of analytics to understand the dynamics of churn rates and why people leave and join the organization. More deeply they saw the analytics providing insights to help understanding of the individual employee and what they get from the company, how they interact with the organization, how valued they feel, what they would need to do to be more valued. Their focus here being on how employees "get data out of the company for their own well being". T also explicitly picked up on this theme of the analytics providing insight for the employees.   Rather than a focus on the manager developing organizational capacity, they spoke about skills analysis informing the individual as to how their skillsets compared with market demand, were they aligned with an area of increasing focus, or one in decline.   This question of whether or not the HR Analytics being deployed have visible and demonstrable benefits to the individual employees will be examined in more detail at the start of chapter 7.

In summary, the dominant conception is that "HR Analytics" are provided to the manager by some other body, which is most likely to be the HR orgainisation.   Whilst there is some mention of employees directly receiving the output of the analytics, it is much more common for them to be conceived as being there to give insights to the manager to help with decision making. They are described as providing ongoing support rather than just at a single point in time and affecting both short term and longer-term decision making. The main area of application of HR Analytics mentioned is around skills planning and development but some people also note applications in other managerial tasks such as salary planning, recruitment, and retention.

6.2 Participant Awareness of Current Usage of HR Analytics in IBM

The previous section shows the wide range of conceptions of the term HR Analytics that were held by the participants.   The interview design anticipated this, and the potential it would hold for divergent responses to the remainder of the interview questions. To address this potential issue, once the participant had shared their view, my broad definition of HR Analytics was shared with the participants and displayed on the screen as follows:

"The application of analytical techniques to data about people, in order to provide guidance or make decisions."

Time was allowed for participants to read and digest the definition, and any requested clarifications were provided.   With this broad definition in mind, participants were then asked what usage of HR Analytics they were currently aware of inside IBM.   This provides the input for research question two, "What implementations of HR Analytics are first-line managers aware of in their own company?".

In keeping with the range of responses seen to the previous question of what they understood by the term "HR Analytics", there was a similarly broad perspective here. G's view that "I don't think we do a lot as a matter of course", that usage was only in pockets, and typically in response to an individual request was an outlier. The other participants readily provided examples of where they saw HR Analytics being applied.   Seeing it as being used "in quite a wide variety of areas actually" (V) was common with E going as far as to describe it as "pervasive" and "in everything that we do at the moment …". S, rather pithily, noted "if there is a target, there is some analysis going on against it somewhere".

In terms of specific examples, salary planning and skills insights strongly dominated the responses. With regard to salary planning this included consideration of internal data and also the provision of external benchmarking data on salary ranges in the outside market with a common focus being on how this data came together for the manager to use.

> … on salary increases we are provided with a whole load, we are provided with quite nicely presented bits of data about each of our people and how that should be considered, you know are these people, you know, have these peoples got the right skills compared to last year and there's a whole load of other things that we were told about them ... (J)

The applications regarding skills included examples both of an individual focus and a more organizational perspective, such as use in succession planning.   Here also a common theme was the bringing together of the data.

> ... there's also some automatic ... err definition or skill rating of people I've seen in there and then ... it looks quite cool in that I could look at the whole team and see all their ratings ... errr... and then quite quickly pick out if certain people have skills in a certain area that … erm ... I can direct them different ... you know do different things with them ... that's the main area that I've seen it. (W)

There were some additional areas indicated by some of the participants, very much tied to their personal experiences. In a couple of cases managers had been involved in redundancy programs and cited the use of analytics in that context. One of these managers was also

aware of corporate level use of HR Analytics in staff retention activities, though this did not apply to their own area.

In a similar fashion to the approach taken with the manager conception of HR Analytics, having received their unprompted recall a prompt was provided. The 2017 Deloitte Human Capital Management study (Walsh & Voilini, 2017) includes an analysis of the most common areas where HR Analytics are applied. Having stressed that this was not a survey about IBM specifically, but a broader report, the finding that HR Analytics are most commonly applied in recruitment, performance measurement, compensation, workforce planning, and retention was shared. This was done verbally and on screen using the slide in Appendix D. The intent here was to provide a prompt for possible additional examples without saying that these were necessarily all present in IBM. Some participants had nothing further to add and some provided a bit more colour to what they had already covered. The trigger did however prompt a number of additional examples to be shared. Sometimes this led to a rephrasing of what had already been covered, but it did also prompt some additional examples of the use of HR Analytics to be shared. A few people who had talked about skills in answer to the first question were prompted to add examples of use in compensation planning, further cementing these as the two main applications.

Across all the responses to both questions there was a broad acceptance of the use of HR Analytics. T for example, when talking about skills, noted, "in my day to day job there is a awful lot of analytics goes on with the people in my unit so they are analysed constantly …"(T). There was, however, no indication of any concern with this constant analysis, it was simply presented as an observation of what happens. It is true that at this stage the participants were just being asked about their awareness of what was being used, and not their views on it. It was notable however that whilst there were positive sentiments expressed in some of the replies, there was an absence of negative comments. This was irrespective of the range of applications of HR Analytics that the manager was aware of.

Significantly, there were several cases where managers expressed an expectation that HR Analytics was being used beyond what they were personally aware of.

> The one I don't see evidence of, but I imagine there is a lot of stuff going on in the background once it's happened is in retention. I would assume the analysis there goes on post someone resigning and investigating why potentially (S)

> I hear a lot about HR Analytics and I don't see, well I've got to believe that people use, oh HR Analytics I'm sure they use it a lot ... I'm sure they're using HR Analytics and probably looking at things that I always think about (B)

> I don't know if <application of HR Analytics to recruitment> is done specifically inside IBM but my suspicion would be it probably is… (O)

> … I personally have not seen it used in recruitment but I would be very surprised if IBM doesn't use it … (D)

> … in terms of a pure proactive analytical driven retention, if it's happening, and it may well be happening, it's further up the chain than me … (M)

There was however nothing to indicate any concern with this situation, nor any issue with the presumed greater application of analytics in ways they were not certain of.   This seems to indicate a very significant level of trust in IBM and its application of HR Analytics.

In summary, this section of the interview has provided important insight into manager's awareness of how HR Analytics are being used in IBM and hence addressed the second research question. Manager knowledge of how HR Analytics implementation appears to be very tightly aligned with their personal experience.   Taken as a whole group, there is awareness of applications in a range of contexts. Taken as individuals however, the focus is centred on applications they have personally experienced in the areas of skills and compensation. As a result, there is often quite a wide gulf between the uses they can list, and the breadth of applications being talked about by the company externally. This was a surprise to me, as I had expected to find greater awareness given the external communication, and poses an interesting question as to whether this is a problem or not.   This will be considered further in Chapter 7's discussion of Communication.

The most significant finding though is the widely held expectation that more is being done than they are personally aware. The degree of comfort with this situation, and the lack of any articulated concerns, points to a very high degree of trust between the participants and IBM in this area.   This will also be included in the broader consideration of matters of trust later in this chapter.

6.3 Themes from the Data

The domain summaries in the previous two sections have considered the first two research questions relating to the participants' conception of HR Analytics and their awareness of use in IBM.   We turn now to the third research question and the larger topic of "What is the view of first-line managers on the role of HR Analytics in decision making as it relates to the people they manage?".

This section explores the first 5 main themes, and 12 associated subthemes, which I have drawn from the interview data. This chapter has a focus on articulating and explaining the themes, a deeper discussion of some of the issues raised follows in Chapter 7. Note that Theme F will be considered separately in Chapter 8 in relation to the fourth research question.

The table below provides a high-level summary of the themes and subthemes.

Theme	Subtheme	Summary
A – Guide Don't Decide		HR Analytics can help but final decision should be taken by the manager
	A.1 – Make me a better Manager	Improving the decisions I take, and the execution of my role
	A.2 – Legitimise my decisions	Validation and justification of decisions taken
	A.3 – I know things	Managers have insights beyond what is in the system
	A.4 – I have a view	Managers have opinions on what the right thing to do is
B – It's not just about this decision		Seeing decisions as part of a broader context rather than as isolated events
C – Driven by Data		Taking more scientific, fact-based decisions
	C.1 – Scope for misunderstanding	Issues of misunderstanding data
	C.2 – Data Differs	Different data has different characteristics and this matters when taking decisions
	C.3 – Can we use it?	Questions of restrictions – legally derived and by choice
D – Trust matters		Issues of trust matter greatly
	D.1 – Trust in company	Level of trust in IBM as implementer of the analytics
	D.2 – Trust in the analytic itself	Trust in the specific HR Analytic being used here
	D.3 – Trust in analytics in society	We are part of broader society and that affects trust in analytics
E – It's the beginning not the end		We are at the start of the use of HR Analytics, and it will grow from here
	E.1 We should be better than this	A call to make better use of existing technology
	E.2 We can be better in future	Expectations of improvements to come
F - Consequences		Potential consequences of adoption
	F.1 Manager behaviour	How might a manager's behaviour change
	F.2 Employee behaviour	How might employees in general respond
	F.3 Good manager/bad algorithm	Mismatching of outcome attribution

Table 1 - Summary of Themes and Subthemes

Theme A - Guide don't decide

There is a dominant feeling amongst the participants that greater use of "facts" to take "evidence-based" decisions is desirable. It's also described as being more "scientific" in that it is "evidence based and … can be … can be sort of tested against an objective reality" (V).   To the extent that HR Analytics can provide a data driven contribution to decision making, it is therefore welcomed.   There is however a very strong caveat, whilst analytics may have a helpful role to play, the final decision making should remain with the manager.   This need for the manager to take the decision is linked strongly with a need to include more subjective considerations. For example:

> you always need a human oversight and the ability to take things into account that haven't been taken into account through HR analytics (B).
>
> I personally think they are ... it's guidance, I don't think it's set in stone ... I don't take it as set in stone anyway (F).
>
> I think the other side of that which is why analytics are an aid but not the, you know, decision maker is the fact that it kind of removes the personal element that, the knowledge, the interaction, so it is very factual and there other... are more subjective personal considerations I think that need to be played and applied to a data output really (K).

A paradox is hence apparent.   The use of HR Analytics is to be welcomed because it is factual and data-driven, but we can't allow it to be the final decision maker because we need subjective information to be considered.   This will be explored in more detail in section 4 of the next chapter.

Inside this theme I have placed 4 subthemes. The first two address ways in which HR Analytics are seen as assisting the manager.   The others relate to the insights and views that managers have which underpin, and are cited by them as justifying, their position that the final decision should rest with them.

A1 - Make me a better manager

This subtheme brings together the many ways that the participants saw HR Analytics as helping them to be better at their job.   Central to this is how it can help them to make what they felt were better decisions than would otherwise have been possible.

Participants understand that their decision making can be biased, and they see HR Analytics as a way to reduce this, as it is more "evidence based". Furthermore, this evidence can also be used to compare and contrast different employees based on data. They believe that the use of HR Analytics leads to improvements in managerial decision making as those decisions are now being "informed by data".

HR Analytics are described as presenting insights and helping to steer them in the right direction. In part, this is by providing insights that the manager hadn't thought of as it may "bring up things that the human managers may not actually be aware of necessarily…"(W). It can help to crystalise their thinking and providing evidence beyond the manager mindset gives additional input to their decision making. The amount of data available to managers can tend to "fog his view a little bit"(W) and HR Analytics can help to bring clarity. It is important though that these are all seen as ways of improving the decision that **they** take.

Managers have many plates to spin (E) and one of the advantages of HR Analytics is that it presents data that is needed for the current task - "this is the project we're kicking off … here's the data that you need to base your decisions on- off you go"(M). It can also proactively present this information to the manager and that can act as a trigger to inform them that a decision is needed. It's "a great way to sort of remind you, to sometimes, that something needs to be done"(G). When facing a task, it can provide a start point that they can work from and apply their insights to.

> it gives you a better starting point for you then get to the end point where you're using a wee bit more of your subjective, the nuances that you have to listen to in your head as well (J)

HR Analytics is also seen as making things easier for the manager by doing what they referred to as "grunt" or "manual" work. For example, "I found it particularly useful it removes a lot of manual work" (K). Even when it is seen as not doing anything they couldn't have done themselves it can still help the manager to "make an informed decision without having to go and dig it all out themselves"(H).

In summary, so long as the final decision is theirs, the participants in the study identified many ways that they saw HR Analytics helping to make them better managers. As T puts it "I do feel now that I am given the information I need in order to manage my unit for the job I'm being asked to perform."

A2 - Legitimise my decisions

The previous subtheme was about how HR Analytics can help managers be better at their jobs including when they take decisions. This subtheme examines the related, but distinct, area of how it can also help to provide legitimacy, both in the eyes of the manager taking the decision and those impacted by it.

Managers report feeling happier that the decision is right if they have used HR Analytics input as it "provides some objective argument to underpin certain key decisions" (V). Feeling that it is not relying on just their gut instinct can mean they feel able to take the decision.

> I think it, it ..it helped to give me understanding and insight into things, feel more comfortable about trying to make a decision based on an informed basis rather than just a gut instinct… <…> being able to, to, have a greater level of confidence and quantify it was absolutely essential and made me more comfortable in saying right I think we can take an active decision now (G)

For high stakes decisions, such as ranking in a redundancy program analytics would help. The responsibility for the decision would still rest with the manager, but they could point to evidence that legitimises the decision.

> I'm not taking the responsibility to somewhere else because it's still my decision but at least I'd have some evidences that were other than my own mindset that said look evidences from analytics display this... and you've scored that and I can come with that… (O)

This concept of using the HR Analytics as a basis for justifying the decision to affected employees is an interesting one that comes up repeatedly in the conversations. There seems to be an implicit expectation from the managers that employees will be convinced by an argument anchored in HR Analytics output more so than by the manager's view.

> a lot of times managers will make decisions based on gut feel right, you know, maybe because the data is not there and you know maybe with more and more access to good data, trusted data <…> it will help us to hopefully back up our gut feelings as managers and, you know, and also be able to use it to, you know, to explain to people …(B)

> it does mean I can sort of justify a given decision <…> it doesn't stop me making an individual decision <…> the availability of data gives you more confidence in making a lot of those decisions and feeling that there is a logic to it … and that you can defend that logic rather than just putting a wet finger in the air …(D)

Having the data doesn't make a difficult conversation with an employee about their pay easy, but having it to point to is seen as helping. Again, we have an implicit assumption here that the employee concerned will have respect for the data that has come from the analytics.

the conversations are no less awkward but I think this time they are now measured conversations with evidence to support what you are saying rather than just as it was previously (T)

As well as helping with employee conversations it was also noted that having data from HR Analytics systems was valuable when seeking to justify a case for special treatment. That conversation typically being one they would have with their own manager on behalf of an employee.

On a different tack it was also noted that the presence of HR Analytics can legitimise action that the manager would not have considered. In this specific example the manager is discussing a proactive retention initiative. Analysis had been done centrally to identify at risk employees based on the area of the business they were working in and skills they had. It was this analysis which conferred legitimacy on the action.

> I suppose ... it's a funny thing but.. but the .. the .. when someone in HR is coming to you and saying these ... you know <specific amount of money> are appropriate for this sort of a thing erm I wouldn't have guessed at that amount of money to be perfectly honest.... in terms of retention… the amount of money we were given to keep people was more than I erm... I would have imagined but now ... I'm dealing with an amount of money which has been given to me because they have done some analysis against what it would take to stop people moving to ...erm... you know, other <related products at other companies> .... so that was the power of it I suppose ... it wasn't... I didn't make up the ...erm.. you know, <specific amount of money> ... they ... someone in HR did and that's what made it legitimate ... (Y)

Whilst is it not something that HR Analytics is currently doing for them, one manager expressed a desire for analytics to show them how what they do as a manger differs from others. Knowing they were doing things differently from others would lead them to explore why. This might then affect their behaviour "but more importantly it might also help me to make sure that the behaviour I'm exhibiting is correct." (T) So here we have another example of how analytic output can be seen as bringing legitimacy to what managers are doing.

The use of HR Analytics to legitimise actions clearly implies the mangers have a good level of trust in the analytics and this will be explored further in theme D. Also, by seeking to use the data in conversations with employees there is a clear expectation that they will also see HR Analytics as helping to legitimise what has been decided.

A3 – I know things

This subtheme centres on the aspect that due to their interaction with reporting staff, or people their direct reports work with, managers have insights beyond what is captured in the analytics. They note that because it's not in any system, it can't be in the analytics. This helps to justify their view that decisions have to be made by the managers not the system.

It is suggested that "shades of grey" (E) are lost when the broader perspective is taken by the HR Analytics system.   The manager is seen as having a more granular view.   This includes having a more detailed view of the local market conditions that the team is operating in.

> So the data, the tools themselves, I think we probably all know, at the end of the day they are tools right ... they will give you advice and guidance, they will kind of steer you but they don't ... they can't necessarily deal with every single market dynamic ... just by their very nature ... so you could ea.... you could easily miss something so if you have an over reliance on it (D).

Here the manager is seen as being key to understanding local dynamics of the job market that would affect people with the skills IBM needs. Competitor activity in the market is another dimension which could also affect staff retention, as well as other areas such as performance of the sales team.

Local insights can also be more internally focussed such as understanding details of the roles being performed by members of the department.   A corporate skills model may have broadly defined roles, the manager is seen as the person with deeper insight into what the specific individuals in their department are doing and the skills they need to develop.

If a central HR Analytics tool is created then it is suggested this will need to be based on common data and won't be able to take account of the local nuances that the manager is seen as understanding.

> What they'll do is come up with sort of one set of data, I think that by giving that information that applies to everybody and therefore what we can do is kind of just roll it out … erm ... so I think there's a ... there's a ... I think they come out with tools where in essence they have a hammer therefore every single organization must effectively be a nail ... right (D).

As well as local market insights and role information, the managers are also seen as the source of insights into the individuals that they manage. This would include how one person affects the others around them.   One manager raises the question of how an employee who hits all the objective measures but is having a negative impact on the team could be handled appropriately by an HR Analytics system. They suggest a situation like this requires the local manager insight into the team dynamics in addition to data on performance that the HR Analytics is presumed to be based on.

> People … who will hit every skill goal that is necessary and hit every financial target we throw at them but the devastation that they might leave in their wake yeah and the ..erm. and the effect that it's having on them personally needs to have the human involvement <…> There's a chaos in their wake or they're not bringing... they're not bringing anyone with them... they're not.. they're not enriching the environment or themselves any further ... (E)

So, a general contrast is drawn between the data on people that an HR Analytics system might use and the deeper perspective that the manager has. Sometimes described in quite vivid terms….

> I don't see it as being fact, I don't see it as being numbers in a table for example I see it as being erm ... erm ... like a spider diagram of fascinating erm ... connections but that's constantly evolving, moving changing it's 3D ... (P).

Theme B below will consider the relationship between the employee and manager, but this is seen as the source of the manager insight beyond what HR Analytics would be able to draw on. This privileged understanding of the individual being drawn from …

> human interactions so it's going to have to be from face to face, knowledge, some of the working with that person ... erm .. may know a little bit more about that person than ever an AI system could build up ... erm ... you know, he may know the personality, he may know some of the issues outside of work, things going on like that ... which may be a lot harder for an AI to consider ... (W)

This was a significant theme across the interviews with a strong emphasis from the participants that these insights were unique to the manager and provide important insight that is missing from any system held data. The data on employees may be helpful but "it's not the same as talking to them each week"(M).

A4 – I have a view

The previous subtheme covered examples of situations where managers knew things about their reporting staff that were unknown to the IBM HR systems and hence cannot have played any part in HR Analytics recommendations. Views were also expressed on the relevance of this data and that is what this subtheme captures. This is essentially a value-laden expression of what information should be taken into account when reaching a decision. The ability to apply this judgement in practice is central to the whole "Guide don't Decide" theme, an automated decision would remove the manager's ability to take a different view from a centrally run system.

Some illustrative examples…

A view that salary planning part way through a year shouldn't be based just on the end of previous year performance assessment….

> you wouldn't want to just base your decisions purely on the end of the year, that person's performance may have drastically improved, could have declined, their role could have changed significantly, they could have been promoted, so it's ... it's taking into account those sorts of factors ... erm so that you can actual say yes I think ... I need to reflect the current position as well as the end of year position should we say ... (H)

Why it would be right to include someone in salary program when the system said no…

> because they've really worked over and above their current responsibilities and they've done a great job and they've been very flexible, and they've got the right attitude, and you know things like that (F)

More generally in decision making

> you always need a human oversight and the ability to take things into account that haven't been taken into account through HR analytics. (B)

> I think there are personal elements and knowledge and situations that should be considered at a personal level beyond the dataset (K)

Behind all of these examples is a view on what the right approach to take is and a concern that automated decision making would not allow it to be followed. The belief seems to be that it is right, and indeed their responsibility, to include these additional insights when reaching a decision. This does open up a potential tension between them and a corporate level decision process, and this will be explored in more detail in section 7.1 of the next chapter.

Theme B – It's not just about this decision

Whilst many of the HR Analytics discussed are seen as being about helping to take a point in time decision, such as the awarding of a pay rise or retention bonus, managers noted other considerations stemming from their perspective of a more enduring relationship with the employee. This ongoing relationship is seen as key, and the longer time horizon provides impetus for a range of activities beyond the transactional focus of executing a single HR process.

Y discussed the challenges of how if someone is identified as deserving special treatment in one system that may not carry through to other systems in the future. Their specific example being that if someone is identified in the recruitment analysis as a candidate to be offered a larger salary, then this special status may not still be there when the next salary increase program runs. The analytics at that time may identify them as highly paid compared to their peers, and hence not a priority for an increase. Whilst in isolation each of the systems may be performing as intended, there is a fear that the manager, with their ongoing relationship with the employee, will have to cope with any mismatch between them.

> ... it's all still a little bit disjointed … I won't ... treated as special erm back in Oct/Nov/Dec last year and then when it comes round to the <salary program> they

won't be special any more and it's like yeah sorry they are <highly paid> so ... err ... erm ... what did you expect ... and then there will be no help ... there is nobody I can ... erm ... turn to ... and even my <upline manager> won't be able to ...err...do anything about it ... so ... that's my fear ... erm ... that the ... it can help and it can also not help you from a ... erm ... yeah ... you're trying to apply human logic because had I been given my way I would have ... erm ... <...> ... but yeah, that's my fear is that ... the analytics is erm ... applied to certain situations and not ... as a ... you know, erm ... the only person who gets to apply it across the lifetime of their career is their career manager ... erm ... and err ... we're not in the loop ... we're not in a decision making position we have to follow rules ... (Y)

An example was given by S of a situation they'd faced when making a hiring decision.   The analytic recommendation was that they should not hire the person, but they felt the person had valuable skills that made them a good fit for the role. Because the manager role wasn't bounded by this single decision they decided to go ahead and make the hire, knowing that there would then be a probationary period. If it turned out that it was a mistake to hire the individual, then there were processes that they could follow during that initial period which would effectively allow them to reverse the hiring decision. A conscious decision was hence taken to go with what they felt the right answer, and against the recommendations of the analytics, because they could look beyond the immediate decision.

> "… there is a lot of generic processing going on which isn't actually correct and sometimes isn't actually required because you are looking for something specific. <…> I'm ignoring what the analytics are telling me, going with my gut feel but then using the fact that there are other processes that actually protect me to some extent to do that." (S)

In another example, there was an attitude of "we can fix that" as a reason for not being as concerned about specific issues that might be flagged up for an employee by an HR Analytics system. Maybe they are not recommended for a payrise due to some issue that has been identified, the manager can take the view that by working with the employee the problem can be fixed in the coming months, so we can discount it from the current decision process.

> I can account for that, I can build this person up quickly, so going to not give that quite such as weighting as the AI system does. (W)

Taking a longer term, relational, view also means that the current decision can be put in context and that may trigger actions beyond what is specifically required to implement the decision.

It could even be that the manager sees potential issues in the future and identifies another way to achieve the same goal but with reduced downsides. Consider, for example, if someone is identified for a one-off payrise due to having skills that are in high demand. If that payrise was to put them out of line with their peers in the rest of the group they are part of then this could cause issues in the future. Identifying an opportunity to promote them however could

address the requirement to increase their salary but, as it would now be positioned in a higher range, there would be fewer issues in future. This was one example of how the manager's broader perspective beyond the confines of the current decision being taken could lead them to take different, and in a way more creative, approaches to achieving the desired goal but with fewer downsides.

The previous theme, "Guide don't decide", included the important consideration of manager insight beyond the system-held data.   The long-term relationship perspective described in the current theme clearly provides the source of much of this insight. For some participants, building this relationship and gaining a deep understanding of the employee was central to their role.

> I think one of the most important roles a manager can play is to understand who the person is ...erm.. what's important to them, what motivates them, what point they are at in their life... how they are thinking about different priorities, how they think about their work ... I'm not... there is something intangible there that it is difficult to net down into data… (V)

Here we can see one example of a manager drawing a contrast between individual data points and an ongoing manager/direct report relationship. Importantly they talk not only about the additional insights that they can gain from their direct contact they also see performance management as an ongoing activity and one that relies on their understanding of the "human side" of that person.

> yes it's nice to see people's end of year results, it's nice to see quarterly performance data based on their targets ...erm... but it's not the same as talking to them each week and understanding the human side of how they feel they're performing versus my view of their performing and how we are going to move forward if there are any blips... and understanding people's boundaries and limitations... if they're starting to drop off in some respects you might need to push them a bit harder but you can't push them too hard because that may push them out... you've got to understand the nature of the person... whereas if you are new in, trying to find that balance is much harder and could analytics help you with that ... I don't know... maybe not today... (M).

Data on employees that is held in systems does however have its advantages and can help to support the manager / direct report relationship. One advantage being that it can be passed between managers.

> …and the beauty of course of the fact that it's in the tool is it's captured and it can be built upon and it can be passed from manager to manager so if they change manager you don't just have to regurgitate to them what you know about the person but it actually gets carried along in the tool with that person. (J)

This will be particularly important when you have a manager who is relatively new to a role. M, reflecting on the fact that they had been in the same role for the last 10 years, with a

largely unchanged set of direct reports, contrasted their situation with someone coming in new to the role.

> …if I was a new manager who'd only been in 6 months into my team that's been established and you know, it's been the same people for as long as I've been here… it would be harder for them to have that historic view so it would have to be a system based view I guess... erm... or a peer view from other managers, people who've worked with them, on the capabilities of that individual. (M)

F commented specifically on the value they found in previous performance reviews when it came to assessing someone for the first time

> … when taking over a new team and doing <the annual assessment process> I would go back and read, you know, one, two, three years' worth of <assessments> just to see what type of things they've been doing and look at previous ratings and look and see if there is a trend, depending on what role they were doing. But that would just be me doing some investigation on because I was a new manager to those people and I didn't know them so it was a way of getting more familiar with them. (F)

This analysis of system-held data would however only take the new manager so far. Reflecting an expectation that managers will have additional context to add to what can be learned from the data, in a situation where a new manager was dealing with something such as a performance issue, then "… hopefully I'd be able to speak to the previous manager" (M). The importance of this deeper understanding of the people reporting to them leads some managers take a proactive approach to learning more about their direct reports, such as the structured approach outlined by P.

> when I first meet an employee or have a new employee I love to get to know them so my... I have ... I actually have erm... an agenda that I set ... erm ... that's really you know, light touch but I you know... wherever I can get the information for them to share you know, what motivates them, what do they enjoy, what do they like about their job, what don't they like about their job. (P)

There is a clear emphasis here on accumulating information to support a longer-term view rather than in support of a single decision. This longer-term perspective is also clear in approaches taken to communicating results of a single process. In this example the manager is communicating that the employee has received a payrise but in doing so they are already looking ahead to next year and that is affecting how they communicate the current decision.

> Well.... I suppose most people are going to be quite happy if you tell them they've got a payrise anyway so... but it is .... it is twofold because you do want again to be pointing out what they have done well because you've got to keep in the back of your mind you may be having this discussion next year and it may be completely different ...so you need.. you need to have that information both ways ... but as I said to emphasise the positive for those that are getting the payrise. (H)

When sharing news that the result of data analysis is that they are not performing well compared to peers….

> It demotivates them unless you are then going to put some form of action plan in place to try and improve them (L)

Data is seen as helping to support conversations but sited within that longer term relationship.

> I think quite often if you have that open and honest relationship with an individual and the data is available then it helps those discussions because it makes them a little bit more factual rather than just basically emotional (T)

When talking about this data though there is an important role for the manager that includes "personal translation of data into communication, employee relationship"(K). K went on to provide an example showing the value they see managers bringing over and above just getting the information.

> Yes ... yeah because people when you see things and read things sometimes or you just see something in black and white can....people can react very negatively to that ...erm...and yeah that can fester and you know, I've seen it happen before with you know, and I think we've all had those experiences so if you actually have that discussion at the time of providing, perhaps not always good news, for example you can answer all of their. questions, you can rationale, and I have had a case where somebody was completely initially upset by that... by the end of the conversation the decision was OK yes I completely understand where you're coming from....so that kind of conversation started at .."what?" ... getting to the point of "yeah OK I understand why that is"... and then we need to talk in the future about what we are going to do. (K)

This translation role seems especially important when they are not providing good news and is also presented as having a significant part in helping the employee process and make sense of the information. Here also the manager is demonstrating a concern beyond the communication of this one outcome and working with the employee to move them past any initial reaction and to a focus on the future.

The examples seen in this subtheme have covered a wide range of context but shared the common core of how the longer-term relationship between the manager and their direct reports can shape what they do and the decisions they take. The role of the manager is seen as central to making sure those people are motivated, engaged and feeling good about their work. As P puts it, it's "People first and then everything else comes into fruition with good leadership".

Theme C – Driven by data

Across the interviews there is a lot of discussion of "fact based" or "scientific" decision making that is enabled by data. Emotions towards this are strongly positive and it is seen as an inherently good thing. A strong linkage is made between this data-driven approach and a reduction of bias that might otherwise be present in managerial decision making. Where concerns are expressed, they generally relate to matters of implementation rather than any critical commentary on the overall approach.

A contrast is drawn between a manager's "gut feel" and the data available from HR Analytics systems though the participants see the potential for the two to be combined. When taking a decision, managers can bring recommendations and information from the analytics and combine that with their own thoughts on the individual, resulting in a more balanced view. F summarised the concept in an appealing turn of phrase - "it's not just the gut feel, it's the fact plus gut feel" (F).

In subtheme A1 above it was noted that the availability of HR Analytics output could help to alert a manager to the need to consider a decision. In a related but more directive example one of the participants talked about how a weekly report is actually driving actions. In this case, the data is being presented and highlighting specific areas that need to be actioned by the manager. This was presented in a positive light by them and is saving time compared to the prior situation where they needed to do considerably more work themselves to determine actions required.

> I get the weekly report delivered straight into my inbox and from my point of view it already highlights those areas that need to be actioned so I then just go in, basically look at the areas that I need to address and then go off and address them. Whereas a few years ago, as I say, it would have taken a lot of my time to have gone off, interrogated various different systems, pulled all that information together into a report and then made that decision myself as to whether I need to action anything etc, yeah? So it definitely saves me time. (T)

Clearly this stronger guidance on what actions the manager should be taking means that greater reliance is being placed on the HR Analytics to be providing appropriate guidance. An important consideration here will be whether the designer of the system anticipated it would be used in this way and the importance of effective communication is covered in section 7.6.

As actions are being driven by the data it is clearly important that the data is right, and there is potential for issues if it isn't. Incorrect data, or data which is disputed for some reason, will

have consequences both in terms of the output from the HR Analytics system and in employee reaction.

> as long as it's correct .. you know … you've got the correct data ... it's steering you in the right direction. If it's ... if the data is then flawed then it's potentially going to steer you in the opposite direction ... erm ... for ... if you're using analytics and you are then going to talk, say to, <direct report> ... erm I have had it where they then feel demotivated if they don't agree with the data (L)

A note of caution is sounded that the systems need to be using the data in the right way and the possibility that managers will disagree with the conclusions.

> have to make sure that the techniques of the way it is doing it are ...they are not giving us a false impression, they are not using the data in the wrong way, that may throw up a few things that the manager won't agree with and then it's.. it's.. there's big data in there which ..erm.. as you say, isn't necessarily correct, and it may be rating someone in a way that somebody else would rate them differently .. you have to be very very careful of that .. that's some of the disadvantages (W)

W goes on to provide a good summary of the main attitudes being captured in this theme - "The more data, in theory, the way I think any way, the better..." (W).

C1 Scope for misunderstanding

As has been seen in the introduction to this theme above, the participants in this study were overwhelmingly positive about the value and role of data in supporting their decision making. There were however a few occasions where potential issues with data and its interpretation were raised, and this subtheme pulls those thoughts together.

Whilst numbers are great it is possible to misinterpret them if you jump to conclusions.

> there's a whole realm of statistics. I know we have to be careful with statistics ...erm and not to jump to conclusions because sometimes numbers... numbers are great but numbers can also be misinterpreted (P)

Allied to this, and the question of interpretation of the data, it is noted that different managers presented with the same data may come to different views…

> you know if we both assessing the same person what ... where ... would we come up with the same answer and maybe if you are looking at, you know, data ... that's more fact... that is like hard and fast but it's just then how you interpret it ...(F)

These observations indicate a need for skills in interpreting numbers and statistics that are provided to managers and that is picked up as one of the recommendations for practice later in this thesis.

Understanding what data goes into specific HR Analytics can be "a little bit tricky sometimes"(V). This isn't helped by inconsistent terminology when you may have two entries, such as in a skills database, that "are actually the same thing but they are completely different words"(J).

An onus is seen on the HR organization to explain the data and, importantly, that means that they must first understand it themselves. This expectation most likely falls on HR to do this as they are seen as the provider of the HR Analytic systems, rather than for any other organizational reason.

> HR need to be exceedingly clear with that data about what that data means...to set that scene so that we are all on the same page and we are all understanding what that data means. But also in with that power HR need to fully understand what that data means and I appreciate that's not always an easy task. (P)

C2 Data differs

This short subtheme captures the important insight that the first-line managers do not see all data equally.

The validity of the data can be mixed and if you are not careful out of date information can start to drive misleading analytic outputs.

> ... the validity of the data which goes into the analytics can be quite mixed... I think there are some data elements which are very precise ..erm. and very current, and then there are some data elements where perhaps they are... they're not so current ... and can therefore sort of drive ...an insight which is off track and just doesn't make sense ... (V)

The currency aspect of the data may in part be down to how it is updated. It was noted that some data, most usually around skills, needs to be updated by the employee, or possibly their manager.   There can hence be concerns if the data:

> "haven't been updated because it's then you know, dependent on them to do that and regularly and timely ... it could be based analytics on a lower level of data and accuracy." (K).

One participant noted that some data provided by employees, particularly survey data, "can depend on people's mood and when you've caught them"(S).

Different data may have different levels of trust ascribed to it, depending on where it comes from. As already noted, some skills data could be out of date, but data from the core internal HR systems would be more trustworthy because they "have to be kept updated so that would

be a source of truth... so that's an absolute you know, dates, salary increase, those kind of things are an absolute source of truth because they are in the system so they have to be"(K).

Importantly it was also noted that there are different tolerances for different pieces of data based on the consequences for the individual of it being wrong.

> "if the underlying data is wrong it's... has destructive influences you know, it's all right having... it's not alright but it's less… it's more acceptable if you've got ...raw data on how many sales you've made this week is slightly out ...it's not OK if ..err... if you say person X has the wrong skills therefore don't pay person X this year ...that's completely damaging"(E).

I'll close with E's crisp summary of the theme "garbage in garbage out".

C3 Can we use it ?

The participants in this study were very aware of matters of privacy and access to data inherent in the use of HR Analytics. The research took place in the UK so it comes as no surprise that the most mentioned legislative frameworks are the ones in force there, such as the European General Data Protection Regulation (GDPR).   The concerns raised by the participants are also likely to reflect attitudes towards privacy in the UK. One participant with wider experience across Europe noted that expectations towards privacy are "partly cultural and also sort of legal aspects"(V) and so attitudes could be expected to differ in other contexts. It is also very personal and whilst some employees may be "totally blasé" others may want to draw strict lines between their personal and work lives (W).

A greater focus on privacy and legislative changes, such as GDPR, are noted as having brought in more restrictions on data usage.   This can have a positive benefit to the manager as now they only get the data that relates to what they need to see. In the past they may have received larger data dumps and had to sort the relevant data themselves (T). There is a downside though…

> … but it can also be a disadvantage because it pertains purely to my group and I have no experience of what's happening with other groups or other people etc and quite often now we are being asked to do our own thing in isolation (T)

The provision of focussed views on their specific group however, led some participants to suggest a greater need for sharing of analytics with a view over the whole data set. The intent being to help provide insights into how their data sits in a broader context.

Managerial awareness of GDPR also creates uncertainty over what data is being included in HR Analytics.   If they can see some data being used but another element appears to be missing, is

that because it wasn't used or was it used and they are simply not being shown the data. Clarity is needed to avoid raising frustrations….

> maybe it was a GDPR thing that stopped it being shown and it was actually used .. but again I've now got to go and do a piece of work to work that out ... was that data ever used, how did it.. if it wasn't used how's it changed the answer ..if it was used then you're not telling me it was used .. why? you know, ..raises more questions than you need to when actually you just want final package and I make a decision on that package ...(M)

Various tensions are recognised between what can be done through the gathering and analysis of data and what is the right thing to do. Participants note that a balance needs to be reached and there may be a need to forego insights in order to respect privacy.

> Some people will provide <sensitive personal information>, others won't <…> and it depends on how comfortable people are with what are essentially anonymous entities knowing one heck of their personal data... and then the other thing that will interfere with it obviously is government rules and regulations(S).

> … and I do understand this huge contradiction almost between <making data available to managers in a form they can analyse> on the one hand and the kind of privacy, control of access to that personal data on the other ... and I don't know that... I don't know how that juxtaposition is going to get resolved...(D).

Nobody had a clear view on exactly how these tensions would be resolved. Looking to the future though, there is a sense that there will be continued growth in restrictions over data usage as more people start saying no to the use of their data in various contexts. "I have a feeling that there might be a big issue that a lot of this stuff actually gets stopped ... because of GDPR"(D).

Theme D – Trust matters

The previous Theme considered the use of data and its use to drive decisions and from Theme A we know how the participants see value in this. Subtheme C2 introduced the idea that not all data is equally significant and we can have different tolerances depending on what decisions it is being used to support. All of this however assumes positive intent, there is also recognition that an unscrupulous organization could intentionally mislead.

> Now I'm not thinking that about IBM but erm but that's the problem with HR analytics or any analytics is that data is currency and currency means money and money can mean greed and money can mean decisions that are based on financial reasons and not the right reasons for the planet or you know so depending on the the skew that's

applied to it .. if it's done.. if the people .. there are people out there who know how to skew information so that you don't notice it yourself and you don't know you are being led along a path (J)

So there is recognition that this could be done and people could be intentionally misled but they don't think this is happening in IBM. Why not? That comes down ultimately to matters of trust which is what this theme covers. It was a significant theme in the discussions and is broken down here into three subthemes covering the different dimensions articulated by the participants.

D1 Trust in company

Across the interviews very high levels of trust in IBM and in its use of analytics were consistently apparent. Whilst concerns about HR Analytics were raised by some participants this was never about trust.

The high level of trust being exhibited is undoubtedly good news for IBM. The trust however comes with some strong expectations not only for current behaviour but for the future.

at this moment in time I don't have any issues with how IBM is using HR analytics ... and as long as it stays within the boundaries which I do believe IBM would do then you know I trust IBM to do the right things as I would trust many organizations but not all.. (J)

It is also clear that the levels of trust currently in place could be affected if IBM was to cross one of these unspecified boundaries.

Some people explicitly call out trust in the HR organization such as, "I do trust HR in the space completely" (P). Section 6.1, addressing the first research question, noted the participants strong association of HR as the owner and provider of the HR Analytics being used. Given this linkage, if HR were not trusted in this space, it would seem unlikely that the overall organization would be.

In section 6.2, addressing the second research question, it was noted that participants believed there were likely to be other uses of HR Analytics that they were unaware of, and were at ease with this. This subtheme captures the fundamental trust in IBM to do the right thing, which is most likely to be at the heart of why they were so relaxed about assumed, but unknown, applications of HR Analytics.

D2 Trust in the analytic itself

This subtheme explores the participants' trust in the results of the analytics. It is interesting to note that many of the comments made in the interviews were about the data which the analytics runs against and less so the analytical processes themselves.

The high level of trust in IBM, captured in the previous subtheme, also results in referred trust being accorded to external providers "I would have it as a trusted source because IBM HR have, you know, ...agreed that's the source they are using and it is a reputable trusted source of data…"(K). This included external benchmark data, because IBM selects the provider, and there is trust in IBM to do the right thing, trust is vested into the external system without a need to understand the specific details. There can be situations though where the manager trusts the external data but there is work to do to get their direct reports to trust it. "I trust the data and I guess the only difficulty I have is getting my people to trust the data as well"(J).

Trust in HR Analytics can be conditional on it either agreeing with what we think or explaining why it has come to a different position.

> Yeah... I suppose ..erm.. if it.... if it's able to come out and point things that we didn't know then...and ... then make us think I again - I think then it would be really useful and we would have trust in it. If it came out and didn't necessarily point at anything we didn't know but it came out with a different assessment then we would loose trust in it, I think <…> it is going to have to explain, initially first to build trust up on it, it's going to have to demonstrate I guess why it has come to that decision and show us the examples. (W)

> It wouldn't necessarily cause me to distrust analytics generally but it would lead me to feel that I should question them if my gut reaction is not compatible and maybe even I should actually question them generally just to make sure" (S)

Trust comes from knowing where the data comes from and trusting those systems. J's comment that "it does seem to point into the systems that I trust" makes the point that telling people where the data is coming from may be important as well as what data you are using.

However, this isn't universal – some people don't have this need to understand

> "I personally don't have any knowledge of where some of that data is coming from. So, you know, I don't need to understand or know about all the existence of the HR systems that are storing that data and that's something that's quite useful" (T)

Likewise, B just comments that they need to know it is trusted.

Trust in analytics can be undermined if faulty or irrelevant recommendations are provided due to underlying data not being accurate.

> ...for a manager to receive that they might just think... well that's completely irrelevant, that...which in turn can undermine I guess a bit of ..willingness and err.. trust to use analytics .. which is a shame.. (V)

One participant, H, declared themselves a "big advocate" of the use of HR Analytics. They discussed how it could be used to help apply filters to screen job applicants to select who to interview. In the following discussion however, they noted that in the case of a low volume of applicants "I would expect most people would say … oh yeah I'll flick through them … I would do that myself" (H). We were able to explore this apparent contradiction between the view that analytics would add value to the process and the default approach of not using it if the volume of applicants was low. Their conclusion was that

> it should apply to both, either... either the data is.. you trust the data or you don't ...shouldn't just be a matter of numbers.....if you don't trust the data and say I'm only using it 'cos of the ...'cos I've got so many then you're actually saying well I might be filtering ... filtering out in completely the wrong way then... <…> … It should lead to ... yes it should ... it should ... less conscious bias than me flicking through and going ... oooh look that person's interests are science fiction films ... oh excellent I quite ... <laughs> ... and then I've added them in and actually they ... I've wasted their time and mine just because I saw something that was interesting ... (H)

The initial response certainly suggested that the prime value of the HR Analytics system in this context was seen as time saving rather than improving the filtering of candidates. Reflection led to a recognition that they would want the HR Analytics in all circumstances (assuming here of course that it is set up and available). There is a valuable insight here that even when HR Analytics are trusted by the manager there will be strong temptation to default to previous behaviour.

D3 Trust in analytics in society

The questions of trust in IBM, and the analytics themselves arguably fall largely within the control of the organization. Actions taken by IBM can serve to support and enhance that trust, or to reduce it. Some of the participants made the interesting point that, when it comes to HR Analytics, there is another important dimension. They suggest that what happens more broadly in society around analytics in general, will also have an impact on the level of trust people are prepared to place in IBM's use of HR Analytics, irrespective of their view of the company itself. In the analysis this felt like an important distinction as, unlike the other elements of trust, this relates to trust in the company's HR Analytics being affected by events happening outside the organizational boundary

Coming primarily from the perspective of broader privacy concerns around the use of personal data, D notes that issues can build up and hit us "like a volcano or an earthquake" with their lack of predictability and significant sudden impact.

it's often these changes are actually driven by one or two things suddenly exploding out into the marketplace ... erm ... somehow and I just don't know ... I just ... I just have a feeling that it is a ... it's something that is building up, it's a pressure point that's building up that ... that may suddenly hit us. (D)

People's perceptions of trust in analytics can be affected by what they hear in the news. It seems likely to expect that concerning examples of poor practice are much more likely to feature here than reassuring stories of good practice.

.. and again it's about how people perceive things, how ... how people have been treated in the past... what things' been used for... err ... you know if you look at news and you look at something like Cambridge Analytica and what did they do and was that right or was that wrong ...erm... you know you probably want to present the facts and allow people to make a decision of their own... that's where people will decide ... I think ... that's right or that's wrong ... (G)

J, particularly at pains to note that this was not about IBM, uses reports of Russian influence in the US elections to make a more general point about manipulation of data. G made a similar point but around data relating to the Covid-19 pandemic.   These examples reflect what was in the news around the time of the interviews. The way though that a very similar point has been made with reference to two different stories certainly indicates the potential for a wide range of news items to affect people's perception of HR Analytics' trustworthiness.

people are not going to trust data that they feel is being manipulated and we know so much of that from all the, you know the stuff in the papers about the Russians influencing US elections and all that type of stuff so data ... the upside the data is erm it's there, if it's transparent, erm... and if it's fair, transparent, and available that's good the downside is are really clever people behind the you know giving you this information so that you don't know that you are actually being fed a , fed a lie so to speak. (J)

...probably the old adage that there is lies, damned lies and statistics isn't it.. that you kind of... you use it to you own ends.. you look at ... it probably doesn't help that you have a situation where...erm.. you know, there's a ... a national pandemic going on.. erm.. there's daily briefings where they are producing figures and statistics to try and make a case ...erm and inevitably, you know, there's only a sort of limited amount they can do in a certain amount of time and then they are using it to ..to spin things in a particular way and people will see that necessarily again as negative or used by the powers that be to .. create a scenario you know, that isn't necessarily true but it, you know, they want people to believe it ... so I think that .. that inherent suspiciousness comes from general society and how analytics is used not just within our own organization but but kind of everywhere... (G)

The importance of internal communications as a way of seeking to reduce the potential for external stories to impact levels of trust will be covered in section 7.6.

Theme E – It's the beginning not the end

Whist there were wide ranging views on what could happen in the future for HR Analytics there was no sense from the participants that we are at the end of the road. Emphasis is much more on how things will develop from here.   I have grouped the findings here into two distinct subthemes.   The first relates to better use of existing technology, the second to views on how the approach of HR Analytics may evolve in the future.

E1 We should be better than this

This subtheme encompasses a cry for better use of existing technology and systems to improve what we do now. In many ways this could be considered positive as there is a clear sense that more could be done to achieve more, there is no sense that reducing usage of analytics is the route to follow.

Some of the participants suggested a significant gap between what IBM does for its clients and what it does internally, for example:

> … we are geared up to … to provide our tools for our clients and we don't make best use of it ourselves at all <…> I think we are good at talking about it with our clients and helping them, I don't we turn it around enough at all ourselves, for our organization (G)

> I just feel that we .. we as a company do a great job of marketing phrases like analytics and AI and this that and the other and we tend to always be 2 steps behind when it comes to using it internally so anything that helps drive companies to move this kind of technology to the forefront and be leading with it internally as well as with our customers would be fantastic <…> we would hope that when we use it in anger ourselves it's going to be as good as we tell our customers it is (M)

It is important here however to recall the discussion of the second research question in section 6.2 above, which looked participant's awareness of the use of HR Analytics in IBM. G was noted there as an outlier for their perception that "I don't think we do a lot as a matter of course" in relation to use of HR Analytics internally.   Whilst a gap may well exist, the lack of awareness of what IBM is doing internally, will be playing a significant role in the opinions being expressed.

A number of participants suggested that opportunities exist to improve feedback loops. In relation to retention, for example, S notes that when they "fill out the form as to why someone has left and what have you and that goes into HR but I haven't seen anything come back the other way out of that yet". They feel that doing so would reveal better techniques and options for retaining people "other than, you know, throwing money at them" (S).   They

also note an important potential consequence here that if the manager is unaware of any feedback loop, they could assume that learning isn't taking place to improve the analytics which will then undermine trust.

Other comments in this subtheme related to improvements in systems and data. B for example raised a concern over updates to data "you say well that's not right because that data's wrong and a lot of the time it's a fight to get things changed, ... sometimes they don't change it" (B). Whilst they would like it to be easier for them to make the updates this generally seemed to relate to situations where there was scope for a difference of opinion. This hence has strong links to the reasons already discussed behind why it was seen as important that managers needed to take the final decision.   With regard to systems, the main call is for closer linkages to enable data to flow and for increased consistency in terminology and definitions. Once again, in support of more analytics usage.

E2 We can be better in future

"Have I wanted more analytics … absolutely"(P).

P's comment neatly encapsulates the views of the study participants.   There was a high degree of enthusiasm for continued development of HR Analytics capability. Some were more minor enhancements to how things work today and some were more radical thoughts for how the future could be.

Sticking with P, who raises the concept of "Pathways" which could help to guide managers on options to take.   Acting almost as a simulator, when the manager is facing a specific situation, they can consider possible actions and explore their potential outcomes.   Though they didn't use this language it does fit well with the view of prescriptive analytics which "goes beyond predictions and outlines decisions options and workforce optimization" (Fitz-enz & Mattox, 2014)

> …and maybe it offered pathways, choices ..erm. knowing this data would you, you know, would you do a, b or c. Would you take pathway a or would you run with pathway b or would you run with c....what would be... or would you... would you go in a completely different direction...what....if you were to take action based on this feedback, what would it look like ... err and then it could pick... maybe if could start predicting,,... right...and maybe it could look at the positives that are pulled out from the pathways erm..and then it , if there were, pathways that were less productive overall and beneficial to people overall ..erm and the company...erm potentially it would highlight the best path and work backwards and then potentially it could... it could lead.. what could we do to educate and empower people along this pathway

because that's the most straightforward pathway and the most beneficial pathway... (P).

Some people suggested the inclusion of more external data "where we are allowed to buy data ..erm... err... from respectable sources and .. and that sort of thing I think we ought to be buying the data and doing some analytics on it ....."(Y). This insight would help overcome a bias they were aware of in that they tended to see employees' online activity when they were active on the same platforms. Employee activity on platforms they weren't themselves looking at went unnoticed. They might for example see people who were posting on LinkedIn but not on Reddit.

Analytics to help managers understand the external market, including skills demand, competitor activity that might affect their reporting staff (such as a competitor aggressively hiring staff), are also seen as desirable.

Various other suggestions were made around extending the range of data captured on people's approach, performance, working styles, skills, partly with a view to better support role allocations and development.   In many cases these were seen as potentially helpful but issues of practicality were noted.

This concludes the description of the themes and subthemes in response to the third research question.   The next chapter discusses the findings further and then Chapter 8 will examine the fourth and final research question.

CHAPTER 7 – MANAGERIAL PERSPECTIVES, DISCUSSION OF FINDINGS

This chapter considers and discusses the findings relating to the third research question of "What is the view of first-line managers on the role of HR Analytics in decision making as it relates to the people they manage?".

It was notable that across all the interviews there was very little questioning as to the validity of the approach of using HR Analytics to support management decision making. Where issues are raised, they more generally concern matters of implementation than underlying principles. There appears to be a widespread belief in the appropriateness of using analytics in this way.

In section 6.1 it was noted that the question of who the analytics are for was present in the participants varied conceptions of what HR Analytics meant to them. The managers talked about how it could be used in areas such as skills identification and career planning. In the more detailed discussions however, their focus was firmly on analytics supporting management decision making. Even when talking about personal experiences of analytics it was not really mentioned in the context of how it helped them as individual employees. This was a surprise to me. It could conceivably be linked to which skills and which career paths they had in mind as being supported through HR Analytics insights, and the extent to which managers found these relevant to their own personal contexts. This contrast between their conception of HR Analytics, and how they experienced it as individual employees rather than through their management role, wasn't something that anyone commented on. Further investigation would be needed to explore this apparent gap.

Given its emergent nature, and the breadth of definitions for HR Analytics that exist in the literature, it was not surprising to find a range of different conceptions of the term in the participants' responses. There was however a surprising lack of awareness of the areas where IBM is applying HR Analytics in its business. It is however notable that many of the managers believed there was analytics being done beyond what they were aware of personally. A sense that IBM is engaged in using HR Analytics, potentially extensively, exists but a more detailed awareness of the specifics is missing. This raises a question for the organization as to whether this is seen as an issue or not.

The remainder of this chapter is arranged around five topic areas that draw out some implications and important considerations raised by the themes in the previous chapter.

7.1 Potential Tensions

Implementing HR Analytics as part of managerial decision making will inevitably bring with it decisions on what the organization perceives as the right thing to do.   Embedded in this will be active choices on which decisions to apply analytics to, and what the function of those analytics will be.   Where managers have a value driven view on what the right thing to do is, this encoding of the corporate policy has a clear potential to create tension. Arguably that tension would always have been present but the addition of HR Analytics systems providing explicit guidance, or indeed taking decisions, will push it into the open. It is suggested that "…it has long been the case that large organizations (including private sector firms and public institutions) have had internal procedures that were not fully understood by those who were subject to them"(Burrell, 2016, p. 2). Here also, there is the potential for the implementation of HR Analytics systems to manifest procedures where previously, there may have been some strategic ambiguity which allowed managers greater flexibility in their decision making than perhaps had been intended by the organization.

There is a related, but different, situation when recommendations from the HR Analytics actually run counter to organizational managerial culture. Josh Bersin describes a case where, in an unnamed large company, analytics showed that "they were underpaying their high performers and overpaying their mid-level performers" (Bersin, 2015). He then talks about how embedded culture around "fairness" and "equality of pay" made the implementation of the analytic driven recommendations much harder than the HR team had imagined. Teaching the managers that they were now going to intentionally treat people more "unfairly" in future, by giving large increases for high performance, took several years.   This is a good example of HR Analytics system implementation creating tension between managers' views on what to do and how the organization wants them to behave now. It would also appear to be a case of analytics driven cultural change.

There is also a broader question here around perceptions of fairness regarding decision making by people and systems. We've seen that manager perception is that HR Analytics can help them to take fairer decisions – "I think it's helped … erm … be a … be a fairer manager"(Y). Even if a decision is seen as fairer by the person taking it, there is also the question of whether the people on the receiving end of the decision will perceive it as fair or not. Lee's research in this area (2018) indicates that for human tasks (in their case candidate selection and employee performance assessment) algorithmic decisions were perceived as less fair and trustworthy than when the same decision was taken by a person.   This contrasted with

mechanical tasks (such as scheduling people on a rosta) where human and algorithmic decision making was seen as equally fair and trustworthy.

Subthemes A3 and A4 explored how managers hold information beyond the data in the corporate systems, and how they have views on the ways that extra information should be used. Applying HR Analytics based decision making to the organization would enable a standardised approach to be taken based on a corporate policy. By definition, this would be rooted in data held in the corporate systems and hence the manager insights wouldn't be taken into account. Alternatively, do you want to continue to allow managers discretion to apply their judgement and take mitigating circumstances into account?

This cuts to the core of one of the main arguments given as to why managers need to be involved - there will always be "very valid anomalies that you need to take into account" (H). But what if this is exactly what the organization seeks to avoid? From this study it is clear that moves towards introducing HR Analytics based decision taking would be a source of significant tension between the managers and the organization.

It is also interesting to reflect on the implications of the current approach described by the managers where they take a range of factors into account. In taking these factors into account, are you effectively requiring employees to share details of their life beyond work with managers in order to be treated equitably? If there are mitigating circumstances in an employee's life that would have been taken into account by the manager, but they are unaware of them, then clearly, they cannot form part of the decision process. In applying their discretion, managers can only work with the information they have. There is an interesting paradox here in that one of the worries for the future is around increased data gathering on employees, but yet at the same time having this knowledge is key to manager's ability to take the decisions. Though concerns are expressed about gathering more personal data on employees, it is embedded in current practice already, albeit in a different form and potentially to a different degree. Looking to the future, it is plausible that a focus on data in analytics, perhaps driven by some of the themes identified in C3 above, could start to trigger questions on this information held by managers.

This is related to a more general point about employee willingness to share their data, and a corresponding question around whether you should take decisions based on the common core that you have on everyone. If you do this, you forgo the insights on the people who are prepared to share. If you base the decision on what you have, then are you effectively putting pressure on everyone to share the data for fear of the consequences if they don't.

> Yeah... I mean if it hasn't got certain amount...certain data in there that it has for
> another, if it's an AI system it's .. you know, obviously it's going to learn but it's not
> going to have.. be able to do that anyway near as well for the people who say... this
> type of data I don't want to be used, or made available to anyone... It may be some of
> that data as well that's sensitive data, that's the most useful … <...> over time it may
> prove that those who are throwing in all their data, they benefited from it because
> they understand their strengths and weaknesses when they didn't so clearly before,
> and the managers are able to give better rating and understand their strengths and
> weaknesses more accurately... the other people who, you know, they are going to fall
> behind perhaps because ... (W)

One participant, familiar with working across countries, also noted that this brings an additional dimension.   If you are considering decisions across a multinational team the base of available data may well vary between countries creating a similar tension on whether you use the insights available or stick with a common core.

The potential for tensions due to partial resolution of issues was also noted in the context of one-off salary increases for employees to address systemic problems that had been identified through analytics. Managers may agree that the identified people are deserving of the increase, yet still have a dilemma when there are other people in their department that they feel are even more deserving, or when a proposed increase would worsen some other inequality in the department. H discussed a specific case that they had seen in their department where a broader initiative came up against a particular local context.   Whilst they fully supported the actions of the initiative, which were "done for exactly the right reasons" to address an imbalance, not everyone within their department was included in the scope. This left them "... slightly uncomfortable now with that decision because we are talking about addressing imbalances but we're saying but it's OK that this individual, or individuals, are disaffected by it...(H).

This gives a dilemma around the manager agreeing to a change that will correct an imbalance for some of their direct reports but not others.   If you can't fix something for everyone, is it right to fix it for some people now? There is also a broader ethical question here as to when a manager should overrule a decision from an analytic system if that will disadvantages an employee. Maybe a cash retention bonus is being recommended but the manager feels confident the employee is not a flight risk. What is their role? Is it to look out for the employee and serve their best interests, or take a different perspective? One participant referenced a case where they had faced a similar question and recalls the advice they got from their manager that the right thing to do was not to argue against it but agree to the increase for the employee.

> .... I would always take it... it's one of those .. I remember sitting down with <my
> manager> and going well what should we do and <they> said well ... it's money there

take it and we'll just .. we must take it.. kind of thing ...this is not one to be ..erm.. erm.. tilted against... ..(Y)

Which anomalies are valid to take into account? When is it right to fix an issue for one person even if others in the team remain unfixed?   These are value driven decisions, and this study suggests that formalisation of policy through HR Analytics systems has the strong potential to increase tensions between manager's values of what should be done and the direction from the HR Analytics.   Clarity on the role of the manager in the process will be vital.

7.2 Differing Perspectives

When presented with guidance that contrasts with their own view, decision makers may egocentrically discount the advice, and it is suggested this could be due to a deeper level of understanding of their own view than the adviser's justification for theirs (eg Bonaccio & Dalal, 2006; Yaniv & Kleinberger, 2000). It has also been suggested that this applies when receiving advice from an analyst where the decision maker lacks understanding of the analytics process (Kowalczyk, Buxmann, & Besier, 2013).

This appears to be quite a significant feature in this study. Many examples were given on how managers were aware of information the system didn't have. Conversely there was no real mention of the possibility that there might be things the system knew which the managers were unaware of. This would seem to give the potential to overrate their own conclusions compared to the analytics where they may have less appreciation of the validity of the data it is using versus what they have.

In the following example the onus is placed on the HR Analytic system to explain why it differs from the existing manager view. An implicit assumption seems to be present here that what we have currently is the right answer, and the first test of the analytics is whether it can replicate this "correct" answer or be prepared to explain why not.

> Yeah... I suppose ..erm.. if it.... if it's able to come out and point things that we didn't know then...and ... then make us think I again - I think then it would be really useful and we would have trust in it. If it came out and didn't necessarily point at anything we didn't know but it came out with a different assessment then we would loose trust in it, I think <...> it is going to have to explain, initially first to build trust up on it, it's going to have to demonstrate I guess why it has come to that decision and show us the examples. (W)

One participant did indicate that the current managerial decision making process in recruitment can be flawed, noting that people can under, or indeed over, perform compared to expectations at time of hiring. This was, however, very much the exception.

> you know one third of them we still get them wrong and they're ... they end up surprising us and they are much slower than we expect .. and they don't progress and you end up putting a lot of effort into training them and bringing them up to speed ... whereas, you know, we weren't anticipating to do that so much. I suppose, a one third of them they can surprise us.. we think they are going to be good and they are even better than we expect... they ..err.. they progress a lot more quickly.. (W).

As part of a discussion of the advantages of HR Analytics, O made an interesting comment on how the advantages from use of analytics outweighed the possible downside which they expressed as follows …

> you might miss a super star and I'm sure that person will go on to greater things in another company or wherever but that's a .... it's a risk worth taking I think for the sheer time consumption of the number of interviews etc that you need to perform to get to the right people (O)

There is a clear built-in assumption here that manager hiring decisions won't miss Star Hires but the analytics might. Analytics are hence being compared with a Utopian position which seems unlikely to map to reality.

Anchoring (Tversky & Kahneman, 1974) is a well-known concept that relates to how the point someone starts from affects the conclusion they reach, as insufficient weight is generally given to subsequent information. Whilst this would not be relevant in a situation where HR Analytics systems were making decisions it will apply when recommendations are provided.

Some of the participants spoke about how analytics gave them a good start point that they could then develop their thinking from.   Others were clear that they would start with their view and go from there "my personal view is do the gut feel first, 'cos that just gives you a view and then you use the data to refine that...and to do balance and checks as well..."(H).

Neither position is obviously right or wrong, but they are different and raises interesting questions for the implementation and use of analytics in practice.   Managers starting with their gut feel will be anchored there, how realistic is it for them to say the analytics then provide additional input. For those who look at the analytic recommendations first will they be more strongly influenced by that than they realise?

I've included the following longer quote to close this section as it illustrates the intersection of the manager's ongoing relationship from Theme B and neatly encapsulates some of the elements of anchoring as well.

let's say if I had 2 different people in my team who I'd worked side by side with for 5 years.. one of them had sustained high performance … <… > ... and then for whatever particular reason, suddenly they had a drop in performance then ...in my head I would think that there would be 2 reasons for that. One is maybe some outside influence at a personal level that's caused the drop off in performance because it's not natural for them to be a lower performer ... or it could be something to do with the market they are working in or the product set that they were working in where we have had an aggressive competitor come on the scene and take lion's share of the market space ... <…> I wouldn't off the bat contribute it to their personal … erm ... failings if you like.   Whereas if there was somebody who was continually just about holding their head above water and then they dipped and weren't coming close to their targets <…> then we would need to have a whole HR performance conversation ... and my natural feeling would be that it would be more to do with their capabilities in the job and whether they were doing the right job or whether they are on a general trend downwards if I didn't interfere... intervene sorry, and start looking at how can I grow and develop them out of this or really are they as good as they are ever going to be and we should look to find a better job for them.. more suitable role for them ..

Dattner (2013) notes that if an organization has a sales issue then it may be more appealing to start using analytics to look at the sellers rather than considering the products they are selling, or not. He cites this as an example of the "fundamental attribution error" where causes of behaviour are over-attributed to the person involved and under-attributed to the situation they are in. He notes that analytics could be used to "justify existing organizational systems and to unfairly scapegoat individuals who are not performing well in no small measure because of the weaknesses and constraints of those systems." It is interesting to note how in the case above this attribution error was avoided for the previously high performer but could be present for the individual with a track record of lower performance.

With reference to the literature this section has shown that there are potential issues to be addressed around the understanding of what happens when the HR Analytic output does not accord with the manager's gut feel. This feeds in to the Skills Development recommendation for practice discussed in Section 9.2

7.3 Views on the Nature of Truth?

Looking in the HR system we can find data about employees. There may, for example, be a record of their rating in last year's annual appraisal cycle. The system has a stored value, waiting to be discovered, that can be looked up – an objective fact. There is however a leap to be made when we move from the fact that the system records that someone received a top performer rating last year to the assertion that they are a "top performer".

Analytical approaches will be anchored in the data, but I argue there is a question here, not only around how the concept of top performance has been determined, but also on how that is measured and assessed. Whilst the rating stored in the system may be an objective fact that can be looked up, the use of that data point as representing some desirable characteristic (such as high performance) is potentially problematic. Schoorman for example found that supervisor performance appraisals of an employee are biased if they have been involved in a promotion or hiring decision. Where they agreed with the decision they showed positive bias in the subsequent performance appraisals and conversely when they had disagreed with the decision they demonstrated negative bias (1988). In the comment below V demonstrates an insight into this potential issue but this was unusual. More common is the association of HR system data as fact.

> Yeah ... well if I think about so it I give an example if I think about ... erm ... salary position in a range ... I mean it would be possible to ... that is based on a sample of salaries and to determine within a particular sort of group and to determine a benchmark ... so there is some objectivity to that or something which is demonstrable. But then actually if I think about something like a <performance management system> rating, well it is a thing, but you could say that actually it's much more judgement based it's not so ... it's not so comparable ... it's not comparable to other ... the other data points that ... to other ... if you were ... sorry ... if you were taking a <performance management system> rating for employee A and the same <performance management system> rating for employee B they don't mean the same thing exactly. (V)

There is also of course a question here about how people filling in the system may have behaved when providing the data, could a concern for how the data will be used lead to a subjective decision on what to do. I know that as an individual I have made choices around the provision of feedback. Whilst there is no hesitation to provide feedback that is clearly positive in any system, things can be different when it is developmental feedback. At that point considerations of how the data may subsequently be used come into greater focus. These individual decisions can clearly affect the data in any system and introduce bias.

Participants in the study talk about making evidence or data driven decisions. They express positive emotions about this, equating it with fairness and a lack of bias. When talking about why people need to be involved in decision making though they bring in many more qualitative aspects. They talk about human characteristics, context that won't be captured in the data, people being under pressure due to family circumstances and so forth. It felt to me as though there is an epistemological dilemma here. The more objectivist view that the data should be the way to go versus the more subjectivist position valuing the human insights and context of the employee. It would be interesting to explore where this comes from. One participant summarised it well

> I think the advantages of this are that they deal with the data and they deal with the facts of that. I think the other side of that which is why analytics are an aid but not the, you know, decision maker is the fact that it kind of removes the personal element that, the knowledge, the interaction, so it is very factual and there other... are more subjective personal considerations I think that need to be played and applied to a data output really (K).

There is also the possibility of data validity considerations coming from the top of the organization. The quote from CEO of Johnson Controls, that opened Chapter 2 for example sets a clear tone for what counts as valid knowledge in the organization. "We want new ideas but make sure that they're supported with data, not with information from the last person you talked to, or with all the experienced you've had in your past. Base it off what's really happening in the markets and what's really happening with our people." (Hirsch et al., 2015, p. 7). A strong direction towards evidence-based management could be threatening as it reduces manager's freedom in how they run their area. This is however nothing new "A similar resistance characterized supervisory responses to scientific management nearly 100 years ago, when Frederick Taylor's structured methods for improving efficiency were discarded because they were believed to interfere with management's prerogatives in supervising employees." (Rousseau, 2006, p. 261).

The question of philosophical positioning could also have some wider implications than are probably currently being considered. A positivist position would more likely be thinking in terms of right answer vs wrong answer. A more interpretivist perspective could lead to considerations of why answers differ and what that tells us.   This could affect what insight is sought from the analytics.   Do we want to predict who is likely to leave or do we want to understand why people are likely to leave?

G talked about how people tend to want to trust scientists and the concept of how analytics provided a "pseudo-science" answer was raised by others. For example, "most of the time it's made things easier because, you know, you've actually got almost, I'm going to call it a pseudo-science type answer"(S).

There is a danger here that this can result in assumptions and outputs not being tested as they are conferred with an enhanced status of validity. "… many poisonous assumptions are camouflaged by math and go largely untested and unquestioned" (O'Neil, 2016a, p. 7)

A broader alarm is sounded on how analytics could provide a veil of pseudo science to mask intentional discrimination ….

> Overall, people analytics could make masking intentional discrimination easier, and the apparent rigor of data analysis may make the use of data appear job related and a business necessity. The appeal of people analytics—that it will find novel relationships

between attributes or skills and future performance in a way that could promote greater equality—is what heightens the risk that employers will use analytics without the care required. The apparent objectivity and presumed accuracy of the solution itself masks its weaknesses. If not monitored closely, diffusion of sources of data may encourage biased input, and automatic result generation may yield biased output. (Bodie et al., 2016, pp. 67–68)

An interesting comment was made by one participant who suggested that the use of HR Analytics would help managers to make decisions that don't "perpetuate a kind of group think" (V). It's an interesting choice of words. The analytic system, which provides a common view across the organization, is not seen as group think but rather the reverse and as something that helps to address this in management decision making.

This section has considered how individual manager's views on the nature of truth may affect their interaction with and understanding of HR Analytics systems. It has also noted how the adoption of differing philosophical positions can lead to different perspectives on the analytics.

7.4 Trust

Trust is a attribute which takes many instances to confirm but few to disconfirm (Rothbart, 1986), or as B puts it "it's one of those things, it takes years to build trust but it takes minutes to destroy it".

Theme D, above in Section 6.3, introduced three different dimensions of trust that I drew from the interviews. Trust in IBM, the analytic, and wide societal levels of trust in analytics. company, the analytic itself, the data, and analytics more generally. Trust in IBM was high, as was trust in the analytics. There were, however, a number of comments which relate to theory on trust in algorithms which are explored here.

Research shows that even when algorithms are better forecasters than humans, people may be resistant to using them.

> In a wide range of forecasting domains, experts and lay people remain resistant to using algorithms, often opting to use forecasts made by an inferior human rather than forecasts made by a superior algorithm. (Dietvorst, Simmons, & Massey, 2015, p. 114)

The authors refer to this as "algorithm aversion" and note in particular that this happens when people see the algorithm "err". "seeing a model make relatively small mistakes consistently decreased confidence in the model, whereas seeing a human make relatively large

mistakes did not consistently decrease confidence in the human." (Dietvorst et al., 2015, p. 121). The implication is that if people see algorithms make mistakes, then this will result in lower likelihood to follow the algorithmic recommendation over an inferior human.

There were some examples of this in the interviews where participants recounted situations where they had seen the analytics, in their eyes at least, fail.

> .. and after 6 months of asking I'm not sure any of us got a good answer, and we gave up and we've done something else ... and I guess the danger there is you then become dismissive of the tool because you've seen it produce something very inaccurate <…> well this things going to keep giving me data every 6 months and ask me to make a decision on it but you know, I know it's inaccurate and I've seen once, maybe twice, now that this thing's inaccurate so when it comes to me a 3rd time, I've now got to go away to convince myself that it is now accurate and I can trust it. (M)

> I simply can't trust this because the simplest of errors has been made at here .. where is the more complex stuff.. and .. ironic the more complex stuff we're actually better at .. it's the very simple stuff that actually .. (E)

There is an important message here for any HR Analytic implementation, particularly in its early stages of development and deployment. If managers get to see it fail then they will have reduced confidence in the future and may well do "something else" rather than use it.

Creation of any analytic system is inherently value laden as choices have to be made about what data to include, what questions to ask, and so forth. The HR Analytic systems that are created will base their decisions solely on the data and models that are in place: in this regard they are unbiased. Great care, however, needs to be taken with the data that they are fed as biases in the data, whether intentioned or not, will lead to biased outcomes.   This is illustrated neatly by the results of a beauty contest judged by analytics where unwittingly biased initial data caused the results to be skewed to light skinned contestants (Levin, 2016).   When this happens, far from eliminating human biases from decision making, systems can actually perpetuate them to the detriment of legally protected groups (Barocas & Selbst, 2016). The authors go on to call, not for the abandonment of these approaches, but for caution. Ensuring that steps are taken to try and avoid these issues will be key to ensuring trust in the systems.

Cross industry groups have been set up to consider the ethics of AI and Big Data such as Deepmind's research unit (Hern, 2017) and the Partnership on Artificial Intelligence to Benefit People and Society (Hern, 2016). IBM itself publishes on "Trustworthy AI" (e.g. Sheopuri, 2021).   In the light of the findings from this study on the importance of managerial trust in the HR Analytics systems active, and public, engagement in these sorts of activities is likely to be helpful.

The CIPD note that openness and integrity are essential in order to maintain trust and there is a need to "be transparent in where and how we use data and information about people, even beyond the requirements of the GDPR regulations"(Houghton & Green, 2018, p. 2). They go on to note that this transparency is increasingly expected of organizations.

An example is given of a company seeking to build a culture of trust and as part of that chooses to refer to its employees as "research partners" rather than "data subjects". They are also electing to focus their analytics on improving their employees' experience. They see the route to getting higher levels of trust through openness on what data they are collecting and using and what the outcomes will be for the employees (Deloitte, 2017, p. 5). This links neatly to the broader topic of communication.

7.5 Communication

Section 9.4 covers the topic of Communication as one of the Recommendations for Practice and so content covered there is not included here. This section discusses some additional considerations linked to the study.

One of the roles the manager was seen as fulfilling was as an interpreter of data, helping to raise levels of understanding in their department generally and answering specific questions from employees. The role of the manager hence appears to be key to the general understanding of HR Analytics usage in the company. Also, it is worth noting that a move to increased automation of decision making could hence serve to reduce transparency and hence trust. This would be because the managers are currently acting as translators and explainers of the decisions they are making, either independently or with support from HR Analytics systems.

> ... I mean strangely enough there could be … there could be less transparency in a way because if, let's say, simply put, a computer decides what salary increase I get, when I get promoted, … erm ... when I get made redundant ... I don't know <laughing> ... erm ... you know, can there be the kind of explanation of that that a manager might bring to that conversation with all of the history of knowing that individual and how the decision has been reached. (V)

Reviewing the interviews, I was surprised at the lack of comments on employees approaching their manager with questions relating to HR Analytics implementation. I had expected to hear much more in the way of examples of employees seeking to understand the analytics being used by the company, and how that might affect them. Discussions around salary planning are

happening but broader discussions seemed less common. Likewise, discussion up the management line seems largely absent except for focussed discussion on making cases for exceptions to be approved when a manager is going against a recommended course of action, or seeking to do something outside the recommended bounds. It was particularly interesting to note the lack of conversation the first-line managers were having with their own managers about HR Analytics as it applies to them. I had expected to see more of this as someone in the manager role will have insight into how they are using the analytics to inform decisions about their people, and it seemed likely that this insight would lead them to be concerned about how the data on them was being used to make decisions about their own salary, progression etc… There was, however, little evidence of this in practice though I do need to acknowledge that this could be due to the participants choosing not to share the information with me. It didn't feel that way at the time, but it is a possible explanation.

There was some suggestion from the interviews that the manager's own familiarity with HR Analytics may play a part. It was notable that the person who gave the crispest articulation of what HR Analytics meant to them was also someone who reported a higher degree of employee discussion around analytics with their reporting staff. This included their direct reports asking questions about specific pieces of data and discussing any concerns they had about the use of HR Analytics.

Would it matter if people didn't understand some of the complexity of what is being done with HR Analytics? People have a natural tendency to anthropomorphize computing technology and ascribe beliefs about its capability which can lead to false assumptions about how decisions were reached (R. D. Johnson, Marakas, & Palmer, 2008). Furthermore the capabilities of the system may be misunderstood due to the "enormously exaggerated attribution an even well-educated audience is capable of making, even strives to make, to a technology it does not understand" (Weizenbaum, 1984, p. 7). This certainly suggests that it may be a problem which needs to be addressed.

There was an interesting point made with regard to the importance of feedback loops when managers choose to override an analytic recommendation. If things appear to turn out well after this decision, and there is no known feedback process to improve the HR Analytic system, then the manager is potentially less likely to follow the recommendation next time. Communication to the manager about the analytics and how they are evolving is hence also key. Having discussed a situation where they had chosen to take a decision against the guidance of the available recommendation, S went on to point out the need for exactly this

sort of communication to the managers about how the analytics are evolving and learning. In the absence of any indication to the contrary that the system has learned, the next time they encounter a similar situation, they will default to assuming the analytic remains, in their eyes, flawed.

> That's the interesting thing because, and if as I said there is a feedback loop there is nothing obviously coming out of it for me to even know that it's there. Which means that although there may be the right … machine learning I guess for the analytics thing there is not personal learning because my reaction to it would still be well it's not there so I'm assuming it's not there, as opposed to it's learnt something now we've moved on. (S)

Good communications are also needed to help overcome suspicions over the use of analytics and as part of a cultural change towards the increased use of HR Analytics systems.

> if people feel there's going to be an impact I think people are very suspicious sometimes of analytics and what it means ... you know it's only going to be used to ... erm you know suggest that, you know.. someone .. an individual is superfluous to requirements. So, ..erm.. I think that the buy in from everyone across the organization is probably the biggest challenge, you know.. so it would need that careful han.... careful marketing communications around that about what, what we do but erm.. that...so..for sure there would be other things that needed to change... and that's a culture thing. (G)

It is important that there is clear communication of the purpose and scope of any HR Analytics in use, particularly when they are driving management activity. The introduction to Theme C included the example of managers using a weekly dashboard to drive their actions and how this was saving time as they no longer needed to do the work themselves to determine what needed to be done.   There is however a potential for issues if there is a mismatch between the intent of the dashboard as designed and how it is being interpreted in use by the manager. It is not hard to imagine a scenario where a dashboard designer is starting to develop the system and starts with something that is easily implemented. Over time they grow the scope of the system to the point where it covers, let's say, 90% of the actions managers need to take. A few, important but hard to implement, actions are not included – but that's OK because it's just a dashboard.   From the manager perspective what they see is a system that is telling them what they need to do. It covers such a high proportion of the actions they need to take that the cases when one of the rare actions isn't highlighted go unnoticed. There are interesting questions here around where accountability would lie in such a situation. It is suggested that if you change the decision making process…."the onus now shifts to the developer of the algorithm to take responsibility for not only the ethical implications of the algorithm in use but also how roles will be delegated in making a decision"(Martin, 2019, p. 844). The author does note that this is counter to current arguments in the field, but it is clearly a question that will need to be addressed in future. Better to avoid the issue perhaps and ensure that clear

communication on the purpose of HR Analytics systems and their scope is in place to allow for informed decisions to be taken.

This is the end of Chapter 7 which has continued the consideration of the third research question, examining the views of first-line managers on HR Analytics adoption. Five distinct areas have been discussed drawing together input from across the interviews and calling out some of the challenges and open questions that have been identified through the research. The next chapter moves on to consider the fourth, and final, question in this study.

CHAPTER 8 – POTENTIAL CONSEQUENCES, FINDINGS AND DISCUSSION

The previous two chapters have detailed and discussed the findings in relation to the first three research questions under consideration.   Building on the insights gained into participants' conception of HR Analytics, their awareness of its use in IBM, and their reactions to it, this chapter considers the fourth and final research question.

"What consequences arising from the implementation of HR Analytics are indicated in the study?"

The application of analytics will tend to be associated with a mindset from the natural sciences with hypotheses being tested against the data available. When applied to the HR context however care is needed as "The technical language, and theoretical propositions, of the natural sciences are insulated from the world with which they are connected because the world does not answer back." (Giddens & Dallmayr, 1982, p. 13). In the physical sciences theory doesn't affect behaviour of physical systems – theorising that the sun orbits the earth doesn't make it so. In the social sciences however this is not the case and attention needs to be paid to the double hermeneutic which warns that our theories and beliefs about the current situation may cause it to become so(Gergen, 1973). Josh Bersin recounts an illustrative example from his experience of talking to a company that had enabled a "retention predictor" in their HR system. The company reported that following this step

> …their managers looked at these ratings and do all sorts of strange things when they
> see flight risk. Some managers actually stop talking to these people and reduce the
> support they get at work because I guess they think "they're thinking about leaving
> anyway." Obviously, this is not good management, but if we don't use this data well,
> people can use it incorrectly (Bersin, 2019).

There is a notable difference between the scenario Bersin describes and the IBM approach where the technology around identification of people likely to leave was "about prescription in addition to prediction" (Kiron & Spindel, 2019, p. 5).   Managers were not just informed that people were a flight risk, they were also provided with suggested actions to take. An important point is immediately apparent here about the effect the design of the HR Analytics implementation can have on the potential for unanticipated consequences. Developing insights into who is a flight risk is only one part of developing an HR Analytics implementation to focus on this.

Whilst it is early days in the use of HR Analytics (W) there are a number of potential effects from the adoption indicated in the discussions, either directly or tangentially.

The following three sections consider potential consequences for manager behaviour, employee behaviour, and finally the scope for HR Analytics to be blamed for unpopular decisions.

F1 Manager Behaviour

It was abundantly clear from the interviews that there is a high level of recognition in the manager population of the potential for unconscious bias in their decision making. As an employee, I know that there has been a strong focus in the organization on training in unconscious bias for some years so this is not entirely unexpected. It is also clear that one of the benefits which HR Analytics is seen to bring is in delivering fact-based decisions that are unbiased. Whilst V notes that "…our attempts to train AI could in fact be training bias into AI…" and H adds a caveat "… in theory, because it's data it's unbiased…" the more common association is with HR Analytics providing guidance that is immune to unconscious bias. Believing that they are prone to a risk of unconscious bias is currently leading to examples of managers making a conscious choice to review decisions to look for bias. H for example talked about a practice in their part of the business where having come up with a potential set of decisions, in this case on salary increases, some checks would be done.

> … looking and filtering out you know who's got the highest pay rises, who hasn't got any, erm ... after doing all the various matching by bands, by skills, by length of service, etc is also then to say actually have I got all males at the top ... you know ... and no females and all of those and then erm taking a moment to say, you know, are ... there's no other biases ... (H)

Given that these sorts of reviews are being done because managers understand the potential for unconscious bias, there would seem to be significant potential for these approaches to stop if the decision process was believed to be unbiased. Not only could this affect the consideration of HR Analytics driven decisions, it could easily spill over into a more general reduction of awareness of bias in general.

When talking about the advantages of HR Analytics it was common for managers to cite how it save them time and does "grunt" work for them. When discussing one particular HR Analytic system J commented that it "… does all the thinking for you or the individual …". Clearly all of these people are seeing advantages in the HR Analytic systems taking tasks away from them, and potentially freeing up time for them to engage in other activities. One participant talked about how they had previously created their own models based on a series of topic areas that they had decided were an important part of performance in the role… –

> my theory was that if I could work out, give a points scoring for each of the topics I could actually rank my <direct reports> and say he is the best <specific role> I've got, <…> and then you do the bits that said right in addition to my mathematical analytics I'd have to do the personnel one that said the guy who's always willing to do overtime if you ask him at the last minute, is he innovative, does he come up with ideas how to fix things better than his friends <specific examples from role context>, and all those type of things … (O)

Another participant talked about performance measurements and reflected on the change that HR Analytics brings…

> ... man it's a piece of work I would do manually in the past and I would pull from 7 or 8 different tools and come up with a conclusion of being able to rank the performance of the team, look at their exact numbers they've achieved, look at where the gaps were and why they didn't get to that ... I don't see today analytics adding any more value on top of that other than the work's being done for me. (M)

They don't see HR Analytics as necessarily doing anything they couldn't, a sentiment also shared by some other participants, but it is changing their interaction with the data. Another manager reflected on how over time they'd built their own model for rating people in the department.

> over the last 20 or 30 years I've built up a ... err ... I think there's at least 10 ratings in there about a <role in their department>, you know, <examples of specific skills> (W)

In their skill acquisition model (Dreyfus, Dreyfus, & Athanasiou, 1986, p. 21) the authors describe how, with training and experience, individuals develop through a series of 5 levels from a novice who follows prescriptive rules in order to achieve an outcome, to an expert.   If systems are implemented that provide prescriptive directions to managers on what actions to take, then this theory suggests the impact may be to hold them at the novice level by preventing them from starting to build experience through taking decisions of their own. Recommendations for the implementation of HR Analytics systems will generally recommend a focus on starting small. For example a recommendation that within the first few months of setting up the group you should be "Delivering 'quick win' projects to gain credibility" (Guenole et al., 2017, p. 89) before you move on to longer term strategic projects. There are some potential parallels here with the automation of industrial processes where it was noted that "By taking away the easy parts of his (sic) task, automation can make the difficult parts of the human operator's task more difficult" (Bainbridge, 1983, p. 777). The reason being, that removing part of a human operator's task may reduce their ability to learn through routine decision making and hence increase the difficulty of other aspects of their role.

The managers who have previously built their own models, or who have had to spend time reviewing data dumps will potentially have built up an intuitive understanding of the data. Implementation of HR Analytics systems that remove these tasks from them may also serve to start to distance them from the data. The consequences of increased distance from the underlying data will potentially be hard to spot, at least initially. A manager affected in this way would most likely be less likely to spot when data was wrong, or the HR Analytic provided answer was not anchored in valid data. As the system is not expecting the data to be wrong, the lack of anyone challenging it is unlikely to be seen as an issue, but if it were to become apparent that manager intervention to challenge and correct the data was important this greater distancing could prove to be an issue.

As has been covered already in Section 7.5 above it will be important for managers to understand the analytics that they are using. Three specific consequences are apparent if they don't.

The first example is K's comment that they tend to skip over data they don't understand or see the merit of.

> as I say if you look at a data set which is giving some insights but actually you're not sure of the merit of those or how important it is to the decision you are making ... erm ... potentially more likely to skim over it to be honest ... if I'm being honest ... it depends on the quality you know, of the information it is that's missing (K).

The second example relates to attempts to work out what the analytic is doing. When presented with output from an HR Analytic system managers want to know how the answers were derived and this is especially true it if relates to a significant decision they need to take, such as around salary increases. In the interviews there were a couple of instances where managers had received input that they did not understand, and they had consequently spent time seeking to reverse engineer the analytics. They would look at individual cases to try and figure out what made the difference between the recommendations being made by the system. Clearly carries an assumption that the data underpinning the analytics is the same as the data they have access to and that any modelling performed is something they could derive. As well as the frustration felt by the managers and the time spent there is also a potential for them to believe they have figured it out when actually they haven't. This would carry with it the potential consequence of decisions being taken based in part on a model that may be invalid.

The final example relates to getting a tool to give you the "right" answer. In this case the manager had a tool which would provide recommendations. It was not clear how it was arriving at the recommendations, and they did not align with what the managers were expecting. As a result they found themselves "fudging" some of the input to the tool to try and get answers that they understood. In this case it seems that part of the issue was also related to data missing in the model.

> … so immediately your having to fudge the data in order to actually get them to go down … get it to go down a correct route … and then once it … once you were in the correct … correct route then it was a lottery as to whether that individual had actually entered the right data in the right tool throughout the company … (E)

In all of these 3 examples we can see the potential for significant consequences if the deployment of the HR Analytics system is not well communicated and understood.

I'll close with perhaps the ultimate potential consequence in manager behaviour in reaction to implementation of HR Analytics which was captured in this quote: "it's my choice to work for IBM ultimately if I didn't like what IBM was doing…" (J).

This section has detailed some of the potential consequences for managers arising from HR Analytics implementations that are indicated in the study. The next section considers employees more generally.

F2 Employee behaviour

This section considers potential consequences that could affect employees.

One of the respondents noted that they have seen that the reaction to data requests will vary between longer serving employees and more recent, generally more junior, employees. The more recent hires approach the manager for guidance as to "some extent they actually want to work out how to answer the questions correctly" and are "looking for feedback to understand what I think"(S).

There is also a comment about employees turning to their manager as the person who can help advise them on what they need to do to satisfy corporate requirements ….

"that is always driven by what do you need me to do to get us all … get me and you off the naughty step <manager name> … yeah … which is … you know … what tools do I need to fill in what … what data points do I need to hit know" (E).

When asked to do lots of things and not all can be achieved what do you prioritise? There is also a strong sense here of how the manager was trusted to remember the advice they have given and not subsequently penalize the employee for failing to complete something.

Implicit in both of these scenarios is clearly an expectation that the manager will know what's happening and will be able to provide valid advice. The ability to do that will depend on their understanding of any analytics being deployed which use any of the data being discussed. Providing bad advice could have consequences for the employee if, for example, it were to be the case that the data was being used and the manager was unaware of this.

There is a strong sense that data driven analytic output comes with a cloak of respectability that can lead to a lack of challenge by the employee. As one participant put it, presenting the employee with data from the analytics "stops the discussion". An interesting question to ask is why does it do that? It would need further investigation, but there is an indication here that people could feel silenced by technology they don't understand. They might not feel able to challenge the result in the way that they might if it was coming from a person. This would be addressed by my skills development recommendation for practice in section 9.2.

There is a potential for employees to create an unintentional skew in the data. This is most notable around skills data, where it is suggested that people may not rate themselves correctly. In this case, the manager is having a discussion with the employee about the way they have rated themselves. Without this level of diligence, the implication is that the undermarking would remain in the system, with the potential to have an adverse effect on the employee should that data from part of an HR Analytics system.

> … sometimes I've been through in the past and said Oh like you've rated yourself as sort of like entry level but ... but why was that.   And then when they talk about it ... I said well ... and I might remind them about the different other things that they have done ... and they might go ... so do you think that's here or do you think that ... and I think a lot of people will naturally rate themselves lower than probably their experience and their capability is ... so it's just trying to encourage that so they ... they get to the right level ... it's not dictating it ... it's not dictating it, it's using, using the data that ... their data input and to reflect on what's come out of it and see if it's reasonable or they, you know, ... really they've sort of undersold themselves within their evaluation of their own activities. (F)

Skills inference is seen as one way of addressing this, and to avoid the need for employees, or their managers, to complete skills databases and maintain them. This may, however, give the reverse problem. Diane Gherson was giving an interview (D. Green, 2020a) on work that IBM has done in HR during her tenure as Chief HR Officer. She commented on what happens when you present people with inferred skills levels.

Interestingly, 80% validated them at a hundred percent accurate. Now, does that mean 20% of them were wrong? We don't know yet. We have still got some work to do on that. My hunch is are that maybe 50% were wrong of that but the others maybe were over evaluating their skills. So we are in the process of taking a look at that

Skills inference was also mentioned by one of the participants and they expressed uncertainty on how they are derived, and how this will work with employees rating themselves .....

it depends how the ratings are done ... erm ... I mean I can see there's ratings automatically put in there based on, I'm not sure what they are using, that ... to do that ... erm ... some kind of Watson AI I think looking at all the different communications about each person it's got enough to automatically put a rating in there. That probably quite useful and what I saw in there looks reasonable and then that's only probably done about 20% of the ratings ... there is a whole load of open ones in there which if it's done individually by somebody ... or by the individual themselves ... then they may rate themselves higher or lower than their ... than somebody else ... I'm ... yeah ... not quite sure how that's going to work. (W)

..and this lack of certainty means…

I am going to rely on that type of data but I probably going to take some of it as a pinch of salt, not necessarily,... erm ... rely too heavily on it. (W)

This all raises interesting questions about inference and likelihood to accept the ratings. If the system rates me as highly skilled in an area, do I believe it? Do I reset it to match my view? If it is completely wrong, is it easy to just allow it to go through without changing it? Let's say it's a skill I know is seen as important. It would be wrong to deliberately overrate my own skills in the area, but is it wrong to allow a system level inference to stand if I think it is higher than I would have rated myself? After all it wasn't my idea to rate me like that … maybe it's right… It feels as though this opens a different ethical question on what's right than systems where employees are simply asked to record their skills. In the IBM context the Business Conduct Guidelines are clear that "We rely on IBMers like you to record and report accurate, complete and honest information" (IBM, 2020a, p. 23). Even so, it still feels as though employee acceptance or rejection of inferred skill levels opens up some different questions that will need to be addressed.

O suggests that in life in general we increasingly "expect every action that you do is practically recorded somewhere for data analysis by someone but for what purposes I don't know... <…> personally I'm not overly concerned but other people I can see why "(O). This raises an interesting question of what potential consequences there might be as the data we provide is used by increasingly sophisticated HR Analytics systems.

I've used an extended quote here from one participant who did a good job of articulating concerns around sharing data now, knowing that it will persist and could be accessed and used by some as yet unknown analytic system in the future.

> well I suppose the position I've come to personally is whatever I write, on IBM systems for certain, is ...is available to IBM and I suppose that the position I've come to externally is whatever I write on an external platform may become accessible by IBM so I need to ... I need to think about that ... it may become accessible to all sorts of different parties who I might not have thought about ... erm ... I can't say that I feel particularly comfortable about that … erm ... but I think it's the reality... (V)

What is behind this lack of comfort ?

> well for me it's something about freedom of expression I think ... and I think that we might have ... erm ... thoughts and opinions ... I might have thoughts and opinions that I do want to express ... erm ... which are very personal to me and I'm not ... but those thoughts and opinions might be at a point in time or those feelings might be at a point in time and I would feel quite uncomfortable if that ... if that sort of thought and feeling and opinion was sort of stored and something was inferred from it for evermore.   But I also do think that it's ... it is an increasing reality of our world ... and therefore I suppose the decision is whether you ... the extent to which you express yourself in … erm ... in a forum which is publicly recorded for evermore ... ie on the internet (V)

This concern that information will persist and be available subsequently has changed their behaviour, note here the link back to subtheme D4 which discussed the important role that broader societal views of analytics have on trust in the use of HR Analytics in an organization.

> I'm probably speaking about how I behave outside ... er ... outside sort of my professional life ... largely, although it has had an influence as well on sort of how I ... how I express myself in my job ... erm ... I think ... you know some years ago I might not have thought so much about the privacy issue ... I might just have said what I think ... whereas now, sort of particularly I think where some things like the ... erm ... what's happened with some of the Twitter kind of comments and ... erm ... the ramifications of those ... I … I've come to think rather differently, I probably do moderate what I am prepared to ... what I feel I want to share in public <…> it's sort of easy to fire something off at a point in time and then of course it survives .. I mean when, you know, the internet began, I don't think ... or when all of us started using the web … erm ... you know ... I don't think that any of us really thought about... well I certainly didn't think about that at all ... whereas I do now ... (V)

Which leads to a question as to the extent to which this applies to internal systems, will this change behaviour internally as well?   They suggest that this will have an impact though this could be offset by an increasing acceptance of diversity of opinion that they welcome

> Somewhat, although actually I.. I think I've seen more of a positive movement within the company actually erm.. over the last couple of years I think when we really started to encourage people to sort of, use comments on blogs.. there was perhaps a bit more ....anxiety when someone posted something which was a bit of a different opinion, or a bit more of a negative sentiment ... erm...and actually I've seen over the last few

years a more ... much more acceptance of diversity of opinion... which is very good to see. (V)

In this section I've presented a number of potential consequences for employees arising from the introduction of HR Analytics systems.

The final section of this chapter addresses the allocation of blame and credit for analytics outcomes.

F3 Good manager / Bad analytics

This section considers the potential consequences of the differing reactions from employees to what is perceived as good news, such as notification of a pay rise, and what is seen as bad news, such as notification that you will not be getting a pay rise. Consider the case of an employee who is told, for example, that they are to receive a retention bonus because they have been identified for inclusion in a focussed program that is being run. Will they want to get into the details of exactly why? They may be interested to know but in some sense there could almost be seen to be a risk in asking too many questions in case an error was found in the data or analytics.   Contrast that with the case of an employee being told, for example, that a process has determined they are not going to receive a pay rise.   Here it seems likely that the inclination is more going to be to challenge and seek details on why and how. There might be scope to find an error or challenge an analytic system that would result in a changed outcome.   What does this mean for ownership of the decision and employee perception of analytics?   As has been covered in Theme A, managers talk about how analytics provide them with a basis for a decision or validation on why a decision was taken.

Here for example in the context of determining who gets a pay rise, H discussed how analytics are valuable because they lead to more informed decision making. They go on to talk about how the analytics also help them to prepare for discussions with the people who are not getting an increase. Notably, there is no mention of preparing to have the discussion with someone who did get one, perhaps reflecting experience that this is not a conversation they are likely to be drawn into. Whilst there were a couple of examples in the interviews of managers referring to thinking about communication of what would be received as good news, the much more common emphasis was on preparation for less good news.

> …allows you to make a more informed decision and it also allows me to crystallise my thought processes … and allow me then when I'm having a discussion with someone else to explain … erm ... why that individual this year wasn't eligible ... didn't get a pay rise ... allows you to put all that in should we say in context to make a more clear, and if you like in some ways transparent discussion with the people as opposed to just saying … well I didn't have enough money and you know ... never mind ... you know,

> such is life ... move on ... such is life ... exactly, isn't overly helpful and doesn't make the people feel too good ... (H)

If data from HR Analytics systems is predominately being used in conversations about why negative things happened, but not in ones where there were more positive outcomes, will that have an impact? Could it lead to a situation where it appears that HR Analytics are behind all of the adverse decisions but people, in the form of the manager, are behind the good outcomes? The contrast between "I've been able to secure you a pay rise in this year's salary program" ... and "you were assessed as not being eligible for an increase this year"

One participant certainly felt that employees would associate HR Analytics with negative outcomes more than positive one. Note that the interview took place during a national lockdown which is why the comment about not being able to go outside was made. This is also a further reflection on how the use of analytics in wider society gets mixed in with views on analytics used inside and organization.

> ... most of the impact seems to be from a ... perceived negative context ..."I'm going to lose my job", "I can't go outside any more" ... as opposed to a positive ... "I've been given a pay rise because they did some analytics and discovered I was <eligible>" ... you know they probably don't think about the analysis that went into it in those terms they are just very happy with the outcome. I think it's sort of perceptions and thinking through how analysis is used ... and more often than not I think the perception would be, it's to a negative end. (G)

In contentious situations could managers be tempted into the "soft option" (F) of using "computer says no" style of answers which F and E specifically called out as being a problematic approach to take.

If a good manager/bad analytics mindset were to emerge, for whatever reason, this could have potentially serious consequence on the acceptance of HR analytics in an organization.

In summary, in considering the fourth research question, a number of potential consequences to HR Analytics adoption are apparent. There are consequences specific to managers and ones that apply more generally, but all of which hold the potential to undermine the HR Analytics implementation. Some of them, such as changes to manager familiarity with data could take a long time to materialise and be difficult to tie back to the HR Analytics implementation as the cause.

The next chapter presents a set of Recommendations for Practice derived from the insights this study has provided.

CHAPTER 9 – RECOMMENDATIONS FOR PRACTICE

Whilst this research has taken place in one specific context there are, however, some recommendations for practice arising from the study that I believe have a wider relevance. In this chapter I provide recommendations in four areas: agreeing the overall approach to take, skills development, data, and finally communications.

9.1 Agree the Approach

As has been noted from the start, the implementation of HR Analytics is driven by a desire to improve the business in some way.   Implicit in that is an expectation that the decisions taken will be different than before – if they are not then there can be no change.   The previous chapters have explored various ways in which the adoption of HR Analytics affects managers involvement in making those decisions. This has included fundamental issues such as what will count as valid information when making decisions that affect employees, and how much weight is given to manager intuition. There is also a strong ethical dimension to many of the questions raised and what is seen as the "right" thing to do. If HR Analytics adoption is going to lead to changed decisions, then it seems highly likely that this will start to cross boundaries of what was previously seen by managers as the right way to do things.

A key question for organizations will be what approach they want to take to the introduction of HR Analytics. Do they want to establish HR Analytics purely as a source of input to managers? Do they want "humans over the loop" as W rather neatly put it when talking about a context with data flowing into a system and being processed. Here the systems are allowed to automatically process the data but with human oversight

> … and we know the humans now can't assimilate and figure that out and add value to it very easily at all ... so we don't hold any of the data up, it flows through, they are over the top and then they use a different type of skill really ... erm ... where they can nudge that data and add extra value that we know machines can't add. Gradually machines are learning and getting better and they're able to add more and more so, you know, the ... we have a ... to produce <the output from the data> that we do now, 10 years ago would probably take at least 5 times the staff and 20 years ago you'd need a massive ... 100's of people to do it all ... it's just the power of the machine and how AI is constantly getting better and better. (W)

Or do they indeed want to go further and automate some of the decision making previously performed by mangers?

The further down this continuum they choose to go the greater the potential for managers to become unsure as to their role.   This can be seen in some of the comments made in this study as manages contemplated what could happen to their roles as increasingly sophisticated HR Analytics were deployed.

> … point there just thinking about it is that having all this good data around it takes away the need for a manager because if you're going ... if you've got all this data and you got all, and you say look at all this stuff we're pulling together why do we need a manager to make a decision on, you know, compensation, promotions? (B)

> ... if you took it to extremis you could kind of say well actually I can have ... you could have a machine doing my job ... right ... and maybe that ... <laughs> ... that may come ... let's not ... let's not imagine that we are all ... that we are all irreplaceable ... (D)

> If I'm not part of that decision making then why am I here? (F)

Whatever the degree of change that is introduced, any move towards the use of HR Analytics will raise reasonable questions as to what that means for the affected managers. Left unaddressed it has a clear potential to create unease or uncertainty in the organization's management population.   This study suggests that organizations implementing HR Analytics should engage with their management population on how this affects their role and the organization's expectations of them.

The World Economic Forum recently published a Case Study on IBM and the responsible use of technology which includes a clear statement of direction – "The AI recommendations give data points for managers to consider, but the decision-making and accountability remain with people"(B. Green, Lim, & Ratté, 2021, p. 17). A statement such as this will help to set an overall context for the adoption of HR Analytics but will not be enough by itself. My study suggests that managers will still have questions around the practical implementation of those changes, and how HR Analytics will become a part of the decisions they take.

Organizations implementing HR Analytics are hence recommended to consider these issues up front and determine what position they want to take.   What management culture do they wish to develop around the use of analytics and how will this develop?   If the way decisions are being taken is changed, and previously held values on how things should be done are replaced, then a transformation is happening. The question here, I suggest, is whether the organization wants to be leading that change or watching it happen.

9.2 Skills Development

If an organization is going to implement HR Analytics, then this clearly brings with it a need for employees with the necessary technical skills who can develop the data, systems, models, tools, and so forth that will be used. Organizations are told that they need to think beyond just the data analysts. For example, guidance exists (Harris, Craig, & Egan, 2010) on how organizations should manage their "analytic talent" but this focuses on those who sponsor, develop, and apply the analytic models. Deloitte go further and state that "enhancing basic data literacy skills among the rank-and-file HR population" is equally important as building the skills of the core analytics team (Deloitte, 2017, p. 11). Whilst HR leaders will not need to be skilled "quants" they will need insight into data, as well as insight into what can and can't be achieved with analytics (Levenson, 2005). Put succinctly "if you don't know the difference between causality and correlation, you have no business playing with analytics" (Sommer, 2015, p. 20). Even here though the focus is still firmly on the HR organization. Whilst I'd agree it is important that these people need to develop their skills(Vargas et al., 2018), based on my study I'd go further, and suggest that there is also a compelling need for a much broader skills agenda across the wider organization. It will also be important to ensure that the HR organization retains a focus on the skills needed to balance the new analytics focus with their more traditional skills. Discussing the future of the people profession, the CIPD puts it this way.

> Even as we build competencies to embrace and expand the value of new analytics technologies, we must retain our deep understanding that core concepts such as physical and psychological wellbeing remain central to the profession. To enable positive wellbeing outcomes, practitioners must embed wellbeing holistically, develop strategies and initiatives that are inclusive and impactful and work to ensure that technological efficiency is balanced with a deep understanding of people principles.(CIPD, 2021b, p. 93)

Arguing from a social constructionist perspective, Gergen notes that "statistical language is an expert language, and those who speak it can use it in many subtle and ingenious ways. When the truth is announced to the public in this language, those without expertise are left voiceless" (Gergen, 1999, p. 92). Leaders will increasingly need to understand this statistical language as well as what analytics can achieve for them and, perhaps more importantly, what they can't (Levenson, 2005).

Managers will need to develop skills that enable them to understand what is being presented to them and to ask the right questions when a data centric approach is being taken to decision making. As American mathematician and statistician John Tukey put it, the most important

maxim to keep in mind is: "Far better an approximate answer to the *right* question, which is often vague, than an *exact* answer to the wrong question, which can always be made precise" (1962, p. 13). When the emphasis in many HR Analytic systems is on providing the right answer, it will be easy to lose sight of whether the right question is being asked.

In their advocacy for evidence based management Pfeffer and Sutton argue that leaders need to understand what actually works in the organization rather than relying on conventional wisdom (Pfeffer & Sutton, 2006, p. 13).   They further argue that in a data driven decision environment a climate will be needed that allows incorrect, but generally held, views to be challenged. This, they suggest, will require leaders who can accept that better suggestions for action may come from the statistical analysis than from their own judgement. Based both on the philosophical position I have taken, and on my study, I believe that it is not that simple. I recommend a focus on developing skills that also allows for the analytics to be challenged. This includes recognising that when the analytics recommendations or insights differ from generally held views, that doesn't automatically mean the analytics are giving a better answer. HR Analytics implementations and associated outputs are not guaranteed to be error free, nor to be in line with your values.

The models that are created in analytics implementations "…are constructed not just from data but from choices we make about which data to pay attention to – and which to leave out. These choices are not just about logistics, profits, and efficiency. They are fundamentally moral" (O'Neil, 2016a, p. 218). I suggest that it will be important for managers, who are using these systems to inform their decision making, to be aware of this and equipped to understand the choices being made. There have been calls for business education to include more focus on "liberal arts" content (e.g. Colby et al., 2011), the introduction of HR Analytics could add further credence to that call.

The discussion here has focussed on managers and the skills they need to develop. In the previous chapter it was noted that presenting data to employees could "stop the discussion". I suggest that this adds weight to a need to consider analytics skills development across employees more broadly.

In summary, I recommend that organizations implementing HR Analytics combine this with the implementation of appropriate skills development programs. These should seek to ensure that both the managers using the system, and the employees whose lives are affected by the decisions taken, are able to understand and challenge the analytics driven outcomes.

9.3 Data Considerations

It is clear, most specifically from Theme C, that data is seen as key to the implementation of HR Analytics. Participants in this study have emphasised the need for transparency on what data is being used and for individuals to be able to update information held on them.

The story is told of a drunk searching one night under a streetlight for a lost set of keys. When it becomes apparent that the keys were actually lost on the other side of the road, they are asked why, if that is the case, are they searching there and not where the keys were lost. They respond that it's because the light is better. In the HR Analytics context, the matter of which data is being used to support the analysis is important and was raised by participants in this study. It has been suggested that, like the drunk, HR Analytics implementations can suffer from the problem of searching in the data that can most easily be accessed. As part of a research study of 18 companies who were performing analytics to some degree, the collection of data in support of HR Analytics was analysed, and it was noted that many of them collected hardly any data other than what was already in their systems (Pape, 2016, p. 693). Examples of companies using available data instead of potentially more relevant data to drive analytic decision making has also been noted by other writers (e.g. Becker, Huselid, & Ulrich, 2001; Simón & Ferreiro, 2018). Choices will also clearly have been made as to which of the available data elements are included in the analysis and the analytics actually may be running against a very small subset even of the available data. In one case it was noted that a company implementing analytics designed to better forecast employee attrition and identify those members of staff at high risk of leaving was only using 96 of the 23,000 data elements available (King, 2016).

The participants in this study feel it is important to have clarity on which data elements are being used. It may be that the organization does not want to reveal all of the details, perhaps out of a concern for employees seeking to game the system, however it should still "… ideally operate in the realm of transparency and trust, even if it does not completely show its hand as to the purposes to which all the collected data are put" (Bodie et al., 2016, pp. 30–31).

An additional concern raised in the study relates to the granularity of some data and whether the corporate model can adequately capture nuances in different parts of the business, different countries, and so forth. If for example there was a generic job role that a wide range of different employees were mapped to then there could be a wide variance in their skills and

day to day work. This may not have mattered in the past but if that data is now used to drive outcomes, then the consequences on the individual could be very significant.

There are clearly significant challenges relating to the corporate data used in HR Analytics. Based on the findings in this study, employees are likely to have concerns about this and will want to know what data is being used and how. Organizations implementing HR Analytics are hence recommended to engage with their employees on this to address these concerns.   In addition, the broader question of how data held by managers outside the corporate systems will be factored into decision making or not needs to be addressed.

In all of this, GDPR and privacy concerns will clearly also need to be addressed, always remembering that just because something is feasible technically and legal doesn't mean it is right or that employees and other stakeholders will see it as a valid thing to do.

9.4 Communications

The final recommendation for practice is for careful consideration both what to communicate about HR Analytics programs being implemented, and how it will be communicated and to whom.

Engagement is defined as "being positively present during the performance of work by willingly contributing intellectual effort, experiencing positive emotions and meaningful connections to other" (CIPD, 2015) and is generally held to be contribute to business results (Harter, Schmidt, & Hayes, 2002). A decision is needed on how to communicate to employees about HR Analytics to ensure they remain engaged. It is suggested that rather than presenting data a story needs to be found which can be used to communicate the information in a way that connects at an emotional level (Welbourne, 2015). This deeper connection will then improve understanding and lead to greater likelihood of action in response (Guenole et al., 2017). Some authors argue that as much as half of the effort for an HR Anlaytics team will be around communicating (Barrette, 2015; Hirsch et al., 2015). What is not so clear is guidance on what to tell the employees. Disclosing all the details risks incenting people to game the system but saying nothing risks giving life to rumours and increasing disengagement as people potentially lose sight of how to progress their career in the organization. People are also likely to invest time and effort trying to figure out HR Analytics they see being applied in practice but where details have not been shared.

This study has shown that a lack of understanding of what is being done has consequences. The second research question looked at awareness of current HR Analytics usage and noted a gap between participant awareness and the actual breadth of usage.   In section 5.1 it was further noted that this lack of awareness could feed into dissatisfaction and sense that "we should be better than this".   The organization's communication around HR Analytics usage should consider how important it is for employees to be aware of what is being done, even if it does not directly affect them.   There is, however, a need for sensitivity here to context, sharing details of a new retention program to a team of managers currently involved in executing a redundancy program would probably not be well received for example. It will also be worth considering communication of what is not being done, particularly if this is a value driven decision. Theme D3 noted that trust in an organization's HR Analytics program will be influenced by what is happening in society. Being clear on what is, and what isn't being done in the organization should help to reduce the impact of external factors.

It is clear from the participants that people can value analytics for very different reasons which will be an important consideration. This can be because of their professional background – J for example notes that they are "a chartered accountant and we like order". It can also be because see HR Analytics supporting them in doing something they regard as important – for example "… it's allowed me the opportunity to reflect, and I think reflection is hugely important …" (P). Alternatively it may depend on what type of person you are….

> I think it just depends on the type of person and whether you really love that sort of data or whether you don't…. I am… I prefer the more personal touch to things than… that's just the way I feel comfortable but maybe I'm a dinosaur in that view… I don't know… (F)

> personally, not just in HR terms but just in terms of the way I work I am a very analytical person so… I like data… I like having data, I like having data in a form that I can manipulate and use. (D)

This variety presents a clear challenge for the communication, experienced managers will be coming from very different start points, it will not be possible to assume they have common view or knowledge base.

In summary, implementing HR Analytics in an organization is a significant change and based on the findings of this research four clear recommendations for practice are made:

- Proactively consider what the role of the manager will be as the HR Analytics are introduced. If this leads to cultural change then recognise this and manage that change.

- Think broadly about what skills implications arising from HR Analytics introduction. Look beyond the immediate needs for analysts and HR capabilities to think broadly about the wider organization's skill needs in the changed world.
- Think carefully about the data which will be used to underpin the analytics and consult with staff
- Plan effective communications with everyone affected by the analytics. Think carefully about both what to tell people and how to tell them

CHAPTER 10 – CONCLUSION AND RECOMMENDATIONS FOR FURTHER RESEARCH

Through examining the experience of managers working for a recognised leader in HR Analytics, this study has delivered on its main aim of contributing a different perspective to that which dominates the current literature. A set of themes, created from the participants' interview data, have been articulated and discussed. In addition, a series of potential consequences arising from HR Analytics adoption have been indicated, and a range of implications for practice proposed that hold the potential to improve future HR Analytics implementations.

HR Analytics is a fascinating area, and one which has the potential to grow in complexity as AI capabilities continue to advance. It is also apparent that there are many aspects of HR Analytics where additional research would make a valuable contribution to both academic knowledge and practice. I have articulated four specific areas below which my research suggests would be particularly relevant.

This research has focussed on first-line managers and explored their experience of HR Analytics. It was noted that one of the drivers for HR Analytics implementation is the expectation senior leaders have of the value it can deliver for the organization. When implementing HR Analytics, choices have to be made regarding which areas to focus on, as well as how they will be put into practice and used. This will, explicitly or implicitly, include value judgements and ethical choices. The resulting implementations will also carry expectations of the business impact to be delivered. The introduction of these systems will have an effect on the power dynamics in the organization (Pfeffer & Sutton, 2006). It is also known that in reality management is more political than its "official representation as a set of impartial techniques for directing and coordinating human and material resources" (Alvesson & Willmott, 2012, p. 41). There is hence scope for research, potentially through the adoption of a critical perspective, to examine issues of power and ideology subsumed inside these decisions on HR Analytics implementation. Following implementation there is also a question as to whether the implementation delivers the expected results, as well as the associated senior leadership response to their value expectations being delivered, or not.

The context for my research has been the UK organization of a US company and hence falls within one cultural context. Research by Schuler & Rogocsky (1998) examined how Hofstede's dimensions of national culture relate to HR practices. They concluded there was a positive

correlation between national culture and HR policy, for example individualism and pay-for-performance compensation. There is an interesting question worthy of further research as to whether national cultural differences would also affect attitudes and approaches to HR Analytics usage. Informed by the literature on national cultures, an investigation of which, if any, of the cultural dimensions affected managerial attitudes towards the adoption of HR Analytics could be undertaken.   Research in this area would also have the potential to inform practice, particularly when seeking to apply HR Analytics across a multinational organization spanning many different national cultures.

From the responses in this research, it was clear that the context was one where a high level of trust existed between the managers and the organization with regard to the use of HR Analytics. It would be interesting to consider, potentially through the lens of Attribution Theory, how reactions to HR Analytics implementation do or don't differ between high and low trust environments. Additionally, exploring the question of whether managerial and non-managerial employees in an organization share common levels of trust in HR Analytics systems holds the potential for a valuable contribution.

Managers in this study were clear that HR Analytics should provide guidance but not take the final decision. It would be informative to consider what the impact on managerial decision making is when guidance is made available in this way. In a context where HR Analytics output was perceived as unbiased and fact-based how easy would it be for a manager to go against the guidance provided? Could overconfidence in algorithmic systems lead to an underrating of their own perspectives and insights and if so, what impact would that have? As Schrage observes, "Most managers are grateful for contextually relevant analytic advice. But advice that must be followed is no longer advice – it's compulsion" (2019). Could it be that in practice, well respected HR Analytics output actually becomes guidance in name only, as managers, who in theory hold the final decision, nevertheless feel compelled to follow the guidance? What would be the cost of going against the analytics and then being seen to have taken a wrong decision? How would that compare with having followed the guidance and that subsequently being seen to be a wrong decision?

This marks the end of the main body of the thesis and so, returning to where I started, with the words of Hans Eysenck, my hope is that this research will indeed prove to be a source of valuable learning and make a worthy contribution to this important topic of HR Analytics.

The thesis now concludes with a section of personal reflections looking back over the last six years of my DBA journey.

CHAPTER 11 – PERSONAL REFLECTIONS

Since completing my MBA in 1996, I'd always had a sense of unfinished business with an academic level that I had not yet achieved and a desire to pursue further studies. Coming from an academic family, I think it could also be in part because I am following the "Family Script" where "the latest generations may be inducted into the previous generation's script" (Byng-Hall, 1985, p. 302). Over the years I had looked at a few DBA programs, but they'd not quite been right for me. In 2015 the opportunity arose to be part of the inaugural cohort at Winchester. Here was a program that was running on my doorstep and offered a chance to be in at the start. If not now, then when? I duly signed up.

Successfully completing a difficult and long program such as the DBA will bring with it a sense of achievement and the Dr title. That is known from the start. What is less obvious is the learning you will take away from the experience, and the ways you will be changed by it. These are the things that will have the longer lasting impact and hold the potential to uncover surprising aspects of yourself and change your world view. Early on in the DBA program I was particularly taken with a paper (B. Moore, 2007) that used the biblical narrative of Adam and Eve to reflect on the experience of being an insider researcher. The analogy is made between conducting the research and eating the apple from the forbidden tree – both leading to fresh insights and a need to leave the garden. This very neatly summarized a real concern that I had coming into this process as to what unanticipated changes it might bring in me and what the consequences of that might be. Now close (hopefully) to emerging at the end of the program the changes have, thus far, been positive and I'm pleased that I made the decision I did back in 2015.

This chapter closes the thesis with some personal reflections on my learning, the study I have undertaken, and the impact of the DBA program on my role at work.

11.1 Reflections on my Learning

Early in my time on the DBA program I had the opportunity to co-author a book chapter with one of the faculty at Winchester. The chapter introduced the "Relational Model of the Learning Self" so it is perhaps appropriate to use that now to reflect on my own learning over the last 6 years. The model "encompasses the cognitive (knowing), affective and social (being)

dimensions of learning, and asks students to step outside the narrow confines of their comfort zone (doing) and embrace their *lived* experiences in new learning contexts" (Sunley & Leigh, 2016, p. 31). Undoubtedly all these dimensions have been enhanced as I have embraced the opportunities and possibilities that the study opens.

Taking the **knowing** dimension first, clearly there are many things I know now that I didn't when I started the DBA. The taught content at the start, the books and journal articles I've read, the conversations with the people I've met, all have contributed to increasing my knowledge. The growth of insight into my own philosophical position has also been significant. Whilst I will never be a philosopher, I have developed a much deeper appreciation for different ways of looking at the world and an understanding of my own, and others', positions.

My degree background in mathematics suggests an ability to engage a tight linear thought process and strong quantitative focus. Undergraduate disciplines can also reinforce learning style preferences and it is suggested that "A mathematician may come to place great emphasis on abstract concepts" (Kolb, 2015, p. 114). The reading and studying on the DBA has broadened my perspective and I have intentionally used this final phase to develop skills as a qualitative researcher. I now have additional skills that I can draw on and it is suggested (Cassell, 2018) these are closely linked with the skills needed to demonstrate general managerial effectiveness. When attending conferences, as well as talks aligned to my research interests, I've also deliberately sought out sessions that come from a standpoint that I would not have naturally gravitated towards. Intentionally seeking out these alternative viewpoints has been very enriching.

The combination of both quantitative and qualitative approaches that results has given me a flexible approach. Switching between different thought processes to see what fresh perspective they bring is now part of how I engage with the world.

In terms of the "**being"** dimension, I recognize how important the social dimension of the learning has been to me.   I know that a sense of belonging matters to me, indeed that is probably one of the reasons I remain at IBM over 30 years after I joined.   The DBA program with its cohort model was hence attractive to me and is something I have valued.   Being part of the wider community of the university is also something I value and derive satisfaction from.   It is certainly true for me that "we position ourselves in relation to each other, and it is partly though understanding the position of others that our own position is defined" (Tennant & Pogson, 1995, p. 112) so it is no surprise that I found it valuable to share with others and understand their perspectives. Opportunities to engage with fellow students through events

such as a postgraduate research symposium and through the Doctoral Round Table have provided opportunities to hear about a wide range of fascinating research, and given me the chance to feel a real sense of connection as a fellow research student.

The Covid-19 pandemic had a significant impact on my engagement and motivation to work on the DBA. I had a perfectly good place to work from but what I was missing was the community connection, both work and academic, and it brought into sharp relief just how much I have drawn energy and motivation from these interactions and how much I missed them when they were gone.

Turning to the third dimension of **"doing"**, performing a qualitative research project has been hard with lots of new concepts and approaches to master. I've also felt a very high degree of responsibility as the researcher to do justice to the input I had received from the participants. A global pandemic during the DBA has meant that opportunities for conferences and research events have been somewhat reduced over the last couple of years. Earlier on in the DBA journey, however, I did have the opportunity to present at one of the regular University of Winchester RKE Research seminars and this was a hugely satisfying and enlightening experience. Likewise, the opportunity to present a research poster at the 4th Winchester Trust, Risk, Information & the Law Conference in May 2017 was good. This experience meant that at subsequent events, such as BAM conferences, I was certainly more drawn to viewing research posters and engaging in conversation with the researchers.

11.2 Choice of Area of Study

When selecting my research area there was a strong element that, as well as wanting to do something of value and interest, I was also seeking to complete a DBA. The topic hence needed to be one that offered good scope for a doctoral thesis and offered a "symmetry of potential outcomes" (Gill & Johnson, 2002, p. 24) in that it would be interesting, irrespective of which way the answers to any research questions considered fell. Having heard horror stories from others who, at the point of submitting, discovered someone else had just effectively written the same thesis, or a world event happened to invalidate their research, I was keen to do something that was also resistant to these challenges. As a part time student, it also needed to be something that would persist over the following 6 years or so. My IBM role meant that I had good access to people in the company so picking a research project based on that seemed like a sensible pragmatic approach. This would make me an insider researcher in

the "swampy lowlands" (Schön, 1987) and my research strategy would need to allow me to engage with the messy reality and complexity of a large organization. The specific topic of my research is something that I was interested in prior to starting the DBA, however I now have a language to discuss it and an ability to frame the research that was not there before. There is actually a broader point here as well. I have always been intrigued by the things I see going on around me, such as curious decisions being taken, or unexpected actions being implemented. My growing knowledge from the DBA studies is equipping me with much greater insights into what may be going on to cause these effects. Why things were of interest to me never really troubled me before as a question that needed to be addressed. Now, however, I am more likely to reflect on what it is that has sparked my interest. As I did this with regard to my research topic, I came to the view that my interest stems from a concern for natural justice and the moral dimension to a data-driven decision process about people.

There is no question that my background is strongly positivist: science subjects at A level followed by a Mathematics degree and a career in IT, mainly in software development. I have, however, also completed an MBA which started to kindle an interest in more of the people side of business. My dissertation looked at the topic of Morale, but from what I would now recognise as a rather positivistic perspective. Whilst still inside the context of an IT company I have also had over 10 years of experience as a manager engaging with the complexities of managing unique individuals, including the application of corporate HR policies. This also led me to believe I was well placed to research into how HR Analytics is applied in practice.

11.3 Performing the Study

I was surprised by the lack of understanding and awareness of HR Analytics deployment in IBM that many of the people I interviewed had. This was a useful reminder that I've been immersing myself in the topic for the last 6 years so have a more specialist perspective without realising it. I see it everywhere and am more attuned to discussions about its use in the organization. Caution was needed during the interview process to resist any urge to provide a personal perspective, even when asked by a participant, the whole purpose of the study after all being to get their perspective not mine.

Performing the interviews for the study was interesting with each interview having a life of its own even though the same interview guide was used throughout and I found my experience resonated with this quote.

> Qualitative interviews and ordinary conversations share much in common. As in normal conversations, questions and answers follow each other in a logical fashion as people take turns talking. Researchers listen to each answer and determine the next question based on what was said. Interviewers do not work out three or four questions in advance and ask them regardless of the answers given. The interview, like an ordinary conversation, is invented new each time it occurs. Because interviews are invented new each time, they can be wonderfully unpredictable. The conversational partner may take control of the interview and change the subject, guide the tempo, or indicate that the interviewer was asking the wrong questions. (Rubin & Rubin, 2005, p. 12)

Some people had clear perspectives on the topic, others less so but that could sometimes mask a depth of thought.   One interview had felt frustratingly vague and rambling both at the time, and during the process of transcription. On deeper consideration, however, through the analysis and coding process it proved to contain some interesting perspectives and ideas. Learning to suspend judgement during the interview and allow it to run its course was a key skill. When doing the first couple of main study interviews, I noted that I was feeling anxiety about whether the participants would say interesting things. I'd not noticed this during the pilot, but I think that was down to the fact that in a pilot phase there is no pressure to produce any findings. Things are rather different in the main study. Having noticed it I was able to put it aside and put my trust in the process I was following. It's safe to say that by the time I got to the process of coding the interviews I felt very differently.

It has been insightful to transcribe and analyse what I've said during the interviews: I can't think of another time when I have looked so closely at my own words. Analysing what I said in the pilot interviews, I noticed that there was a tendency as I introduced a topic, such as the definition of HR Analytics, to water down the impact. For example, during the first question, having given my standard definition, I added "Which is pretty much what you said." It's almost as if I am subconsciously trying to make them feel good about getting the definition "right" when that, of course, is not the purpose of the common definition. Reflecting further on this, I realised that I have a lot of experience at facilitating group discussions in a wide range of contexts. This is an approach that works well for me and one that I am comfortable with, and was leading me to change the way I presented the questions in the interviews to tie them back to things that were said before.   This was a valuable insight and something I was able to focus on more closely in the actual study.

It is said that the "hardest work for many interviewers is to keep quiet and to listen actively"' (Seidman, 2013, p. 81) and particularly in the early pilot interviews, I was a bit too eager to move things along and get to the next question.   If the interviewee paused, I tended to inject a clarification or rephrasing of the question. This was learning I was able to bring forward into the main study where I consciously took a more relaxed approach, allowing silence to persist

and giving the participant ample time to respond. I also realised the importance of giving people space to talk in their responses, even when it feels like it may be drifting a little away from what I want.   Sometimes, at the end of what seemed like a diversion, there is something of value and insight.

Writing is hard, both the challenge of marshalling the content from the interviews into a flowing narrative, but also the process of developing the thesis. It's easy to agree with the logic of the directive to "Part with your words; it is part of the process" (Ragins, 2012) but not so easy in practice. I found a pragmatic solution in the creation of a separate document to hold culled content. In that was it was gone from the thesis but not lost. Parting is easier when you know it's not necessarily for ever. What I especially hadn't considered was the struggle to let go of content from my study participants. Given that the word count from the interviews was close to three times the size for the full thesis, it was clear that only a very small proportion of their actual words would make it in. Letting go of content however wasn't easy.

11.4 Workplace Impact

As well as having a direct impact on me, the process of studying for a DBA and the learning it has given me will also have affected the people I work with. I am certainly having different discussions with colleagues and my own management line because I now have a broader perspective.   I've long been interested in the importance of language, my MBA dissertation (Coleman, 1996) flowed in part from a realisation that people were debating the topic of "Morale" without agreeing what the term actually meant. The DBA program has introduced me to a range of fresh perspectives and insights, including the whole area of Social Constructionism (eg Gergen, 1999) and a deeper appreciation for the impact language has. Indeed, earlier today as I write this, I was on a call where a colleague mentioned a change in terminology from "Market Rate" to "Market Range" for a particular metric. My immediate reaction was to ask whether we were expecting to see any changes in people's reaction and use of the metric due to the name change. I am also able to engage with the work of IBM colleagues who are also pursuing higher degrees. I've provided a sounding board for a colleague writing an MBA dissertation and engaged with other colleagues around their doctoral studies, including research on size heuristics in perceptions of energy consumption(Cowen & Gatersleben, 2017).

In the thesis one of my recommendations for practice is the need for a broader skills agenda to equip employees with the skills required for working with analytics. In my IBM role, I take decisions on the content of learning for project managers in IBM. A recently released course has a module on understanding and handling data, which is directly attributable to the perspective that undertaking this DBA has given me.

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APPENDIX A - LETTER INVITING PARTICIPATION IN THE STUDY

Subject :- Request for your help

Hello <name>,

I am writing to ask whether you'd be willing to help with some research that I am performing as part of my University of Winchester doctoral degree program.

You are one of a small number of people that I have randomly selected from IBM UK's population of first-line managers to invite to take part. No preparation is needed and there is no follow up activity required. All I need is an hour of your time.

If you agree to take part then I will set up a 1 hour Webex meeting for us so I can explain a bit more about the research and get your responses to a few questions.

It would, of course, be great if you were able to take part, but I do recognise that for some people, business pressures or other factors may mean it's not a good time. If that's you please just let me know and I'll remove you from the list.

I do need participants to have been in a first line manager role for at least the last 12 months. If you don't meet that criterion then please let me know as I'll need to approach someone else instead.

Many thanks,

Michael

APPENDIX B – EMAIL SENT FOLLOWING INTERVIEW

Subject : DBA Research on HR Analytics - Thank you

<name>,

Following our call I just wanted to drop you a quick email to say thank you for consenting to be part of my research project.   I'm very appreciative of your willingness to get involved.

As I said when we spoke, the research is being done as part of a Doctoral Business Administration (DBA) degree that I am taking at the University of Winchester.

I've randomly selected some managers to invite to take part and your identity is known only to me. I will preserve that anonymity in anything that I write, nothing that I share will be personally attributable.

As agreed, I recorded our call and will use that to enable me to review the discussion we had.

If for any reason you wish to withdraw from the research then you are completely free to do so - just let me know and I will delete the recording of our call and destroy my notes.

Once again my sincere thanks for your time and for sharing your insights and perspective on HR Analytics - when I have concluded the research project I will make sure to get back in touch to share the outcome.

Regards,

Michael

APPENDIX C – INTERVIEW GUIDE FOR RESEARCH INTERVIEWS

Interviews will be conducted via Web conference and recorded.

Invitation to take part did not provide specifics of the research topic so the interview will open with overview of context and include assurance of anonymity. This, along with ability to withdraw from study at any stage, will be reinforced in the thank you email to be sent after the interview.

Primary questions are numbered and where appropriate additional probes or clarifications are included to be used if not covered naturally in the interviewee's response.

Open along the lines of …"Hello and thank you for agreeing to take part in this research project which I'm doing as part of my studies at the University of Winchester.   As I mentioned in the email that I sent, I have randomly selected a number of managers to take part and I'm the only person who knows who has been included. I will be sharing my research findings inside IBM and as part of my thesis but nothing that I share will be personally attributable, all data will be anonymized.

<Secure active approval to record the interview?

<if prompted for why then it will enable me to focus on what you are saying and transcribe it later rather than needing to capture it as we go along>

To set the context please can you briefly describe the work of the department that you manage.

< if it doesn't come out naturally from their description probe for where department members work (mobile, office, client site, etc) and degree of connection between team members (all on one project vs all on own projects)>

The topic that I'd like to talk with you about is HR Analytics – also referred to as Talent Analytics or People Analytics.

1. Can I start by asking, what do you understand by the term "HR Analytics"?
    a. If clarification needed then - I'm just interested to understand what the words mean to you, what would you associate with the term
    b. <Once they have finished with their answer> Interpretations of the phrase can differ so just to ensure that all of the conversations I have are on the same basis could we, for the purposes of what follows, agree to define HR Analytics

as - "The application of analytical techniques to data about people, in order to provide guidance or make decisions." < share slide with this definition on in web conference so we can have it in front of us for rest of discussion and secure their agreement to use this >

2. With that broad definition in mind, are you aware of any use of HR Analytics in IBM?

   a. If yes - what?

   b. Once they have finished or if they say no prompt with "A 2017 Human Capital Management study for Deloitte found that the most common areas where HR Analytics were applied were : Recruitment, Performance measurement, Compensation, Workforce planning, and Retention." < show slide with this on> Does that prompt you to think of any additional examples you have seen?

   c. <once they have finished with their answer>Thinking about all of the examples you have provided, do you regard this use/these uses to have been successful or not? Why?

3. Have you used any HR Analytics yourself?

   a. If no, is that due to a lack of availability or an active choice not to use? If active choice not to use then follow up with why?

   b. If yes, what? What data is currently used to produce the HR Analytics you use?

   c. What difference, if any, has the use of HR Analytics made to you personally in your role as a manager?

4. Do you expect to see any changes in the data used in HR Analytics over the next few years?

   a. If no - any particular reason why not

   b. If yes - what changes do you anticipate

   <if needed probe on timescales for the changes they anticipate>

5. I'm interested now in getting your view on any advantages or disadvantages that you perceive in the use of HR Analytics in IBM

   a. What advantages, if any, do you see?

   b. … and what disadvantages, if any, do you see?

6. Have any of your direct reports spoken to you about HR Analytics use in IBM and if so what do you recall of those conversations?

7. Likewise, have you had any conversations with your manager about HR Analytics, either in relation to yourself or relating to your management role?

8. <If applicable, draw from notes taken during prior questions and ask>"In one of your answers you identified x as important/stated that y/ …. please can you expand a bit further on that"

9. That is the end of the prepared questions - Is there anything else that you would like to add? Is there anything that I should have asked you that I didn't?

Conclude with thanks for their participation and stop the recording.

APPENDIX D – COPIES OF SLIDES USED DURING INTERVIEWS

The following 3 slides were shared into the web conference during the interviews.   The first slide was shown from the start. Once the participant had provided their unprompted conception of the term HR Analytics the second slide was used to provide a shared definition across all of the interviews.   The third slide was used as an additional prompt to elicit their awareness of how HR Analytics was being used in IBM.   Following the answer to that question the display was moved back to slide 2 which was then left up until the end of the interview.

Figure 3 Interview Slide 1 - Welcome

Figure 4 Interview Slide 2 – Definition of HR Analytics

Figure 5 Interview Slide 3 - Applications of HR Analytics

APPENDIX E – DISCUSSION OF INDIVIDUAL QUESTIONS

Interview opened by asking the participant to briefly describe the work of the department they manage. This question was there to get them talking and for them to provide contextual details on their part of the organization.   This will help to establish a context for the discussion and an early insight into any unusual characteristics that their team may have – be that in the nature of the work they do, their skills, and indeed how many people there are in the managers span of control. It also provides an opportunity to check that everything is working correctly with the video conference before getting into the main body of the questions.

Question 1 - What do you understand by the term "HR Analytics"?
This question seeks to gain the participants unprompted conception of the term. This provides input to the first research question and establishes where they are coming from with regard to HR Analytics.

Having allowed them to answer, a copy of my definition of HR Analytics was shared with the participants.   The intent here being to establish a common base for the rest of the conversation.   No filtering was done on prior knowledge of HR Analytics to take part in the study so it was to be expected that levels of understanding of HR Analytics would vary.

Question 2 – With that broad definition in mind, are you aware of any use of HR Analytics in IBM?
Anchored in the shared definition, this question allows their unprompted responses to be gathered.   Once that had happened participants were shown insights from an industry study showing the most common areas that HR Analytics are implemented.   Participants were asked if this prompted any further examples of HR Analytics usage in IBM.

The responses from this question provide the primary input for research question 2.

Having also heard about any additional examples they were asked if they regarded the uses they had listed to be successful or not. This provides participants with the opportunity to discuss the examples in more detail and starts to encourage them to reflect on what they have seen.

Question 3 – Have you used any HR Analytics yourself?

Having discussed awareness and views on HR Analytics usage in IBM generally, this question narrows the focus onto them and what they have done.

If they have not used HR Analytics then a follow up was asked to understand why not.

If they have used HR Analytics then probe questions were used to understand what data was behind these analytics and what difference using them had made to them in their managerial role.   These questions provide a framework for a more detailed discussion and exploration of their use of HR Analytics.

Question 4 – Do you expect to see any changes in the data used in HR Analytics over the next few years?

This question provided a space for participants to share their thoughts on what data might be used in future and the desirability of that change. Consideration of future data input is also intended here to open potential for broader consideration on how HR Analytics themselves may evolve based on new data.

Question 5 – *I'm interested now in getting your view on any advantages or disadvantages that you perceive in the use of HR Analytics in IBM*

When answering the interview questions, respondents are clearly not aware of what questions are going to come up next and hence may, as part of their answer to a question, pre-empt a future area of discussion.   With a semi-structured approach giving people freedom to respond this is going to be inevitable, especially with this question.   Where people had strong opinions, be they positive or negative, on the use of HR Analytics, some of that would already have come through in earlier questions.   This pair of questions was however very valuable in drawing out additional details.

A single question was deliberately used to ask for advantages and disadvantages together as this had worked well in the pilot and attracted positive comments on its structure. Allowing the participants to start with which ever dimension they wanted gave them flexibility in their response.

Question 6 – Have any of your direct reports spoken to you about HR Analytics use in IBM and if so what do you recall of those conversations?

This question seeks to understand the level of conversation that is happening between managers and the people who report to them on the topic of HR Analytics.   This will help to understand what issues, if any, employees are discussing with their managers.

Question 7- *Likewise, have you had any conversations with your manager about HR Analytics, either in relation to yourself or relating to your management role?*

This question is designed to provide an opportunity to explore the connection between first-line and upline leaders around the topic of HR Analytics. Potentially important as power dynamics might be altered by adoption of analytics. Also, as managers would be expected to have deeper understanding of HR Analytics usage in IBM than their reports, they may be raising different issues. This question also provides an opportunity to explore concerns that they feel personally about use of HR Analytics as it affects them and discuss it with their manager.

In one of your answers you identified x as important/stated that y/ …. please can you expand a bit further on that…

During the interview, I kept notes of any comments that I felt worthy of further exploration.   If they had not been covered naturally though the rest of the interview they were asked here.

That is the end of the prepared questions - Is there anything else that you would like to add? Is there anything that I should have asked you that I didn't?

The interview finished with a general question that offered the participants the opportunity to add any additional information that they felt was relevant.

APPENDIX F – CODING EXAMPLE

The image below shows an example of coding being applied to a page of interview data.   Black text in the right hand margin is from reading the data and identifies some of the main points being made. The red numbers in the left margin are from the coding process. On this page there are some new codes that have been added and instances of existing codes being noted can be seen. The highlighter section flags a potential quote for inclusion in the writeup.
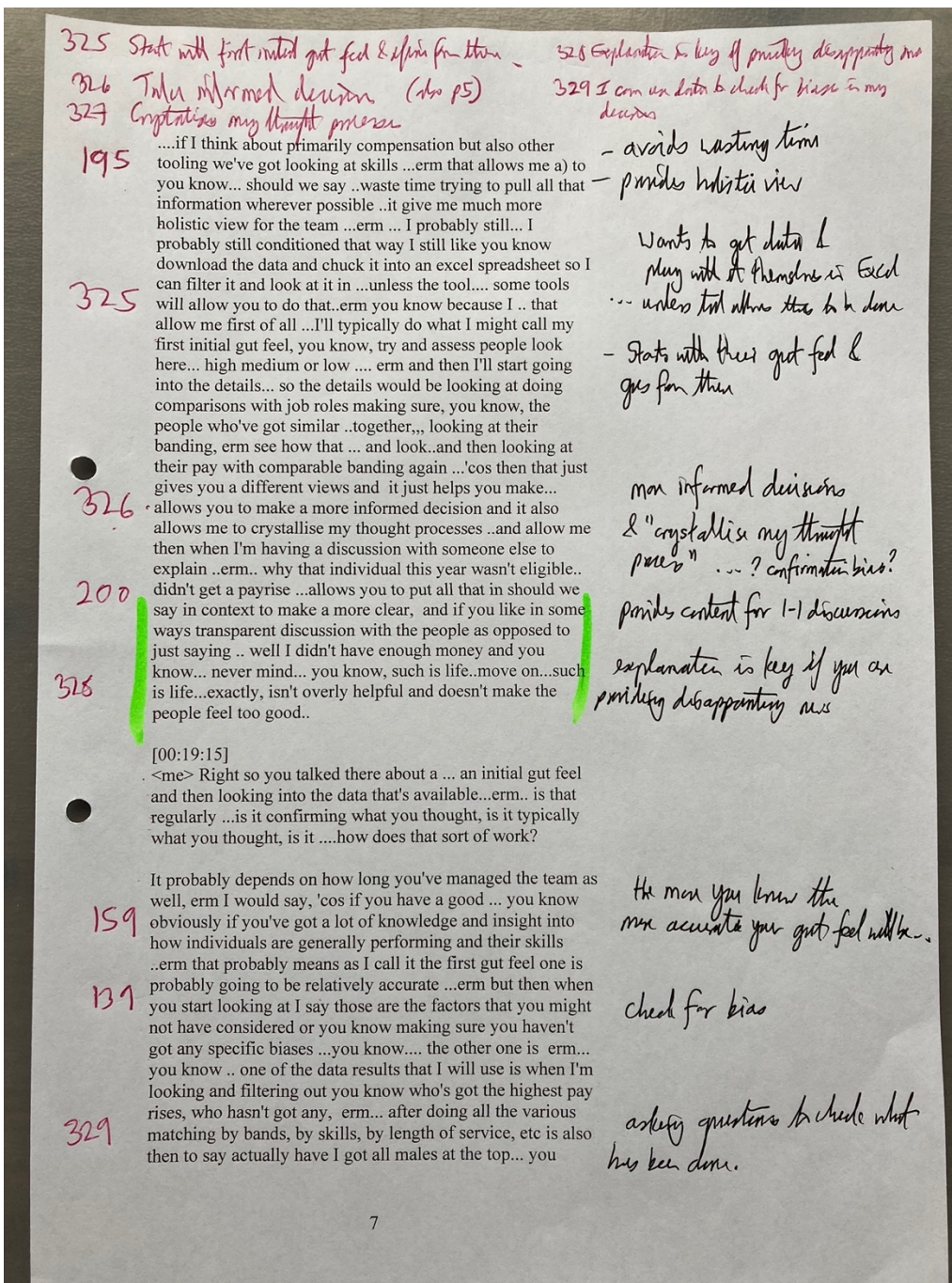

Figure 6 Coding of interview data