

# Impact of People Analytics for sustainability of organisation

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**Abstract:** People analytics only recently has become a big buzzword, it is based on ideas and practices that have existed in the HR field since a long time. At the beginning of the so-called data explosion in 2004, Lawler and colleagues were calling for HR to step up and lead the business towards using people data to drive business impacts. They were calling for something revolutionary to happen in the HR profession. HR was challenged to modernise. The workplace has in some ways radically changed, and in others stayed very much the same. The rapid increase in digitally connected devices helped organisation understand their workforce in more detail. Personal fitness technology collected heart-rate data and enabled stress rates of the employees. Warehouse pickers have their productivity measured and performance set in real time. This paper mainly focuses on analysing HR function's capability of conducting people analytics using people data, evaluating organisational performance driven by people analytics, to understand if people analytics has an impact on performance appraisal of the employee. However, workplace data is now more available than ever to the business, and the HR profession is uniquely positioned to understand, through people data and insights, and how the workforce is contributing to overall business performance. The use of data and analytic tools to identify insights on people that enable faster, accurate, and confident business decision-making. Data is the modern currency, with value that extends far beyond the organisation that collects and owns it. The challenge for businesses is to make the best use of the huge volume of people data that's available, in order to compete and thrive in the ever-evolving digital economy. It allows for the better matching of people to jobs and for more efficient and cost-effective recruitment and talent management.

**Keywords:** People Analytics, Talent Management, Digital Economy, Productive Measure, Efficient Decisions

## Difference between People Analytics & Human Analytics:

People analytics, HR analytics, human capital analytics are all terms used to describe the practice of applying analysis processes to understand workforce-related business issues (for more information see Charlwood et al 2017, Houghton 2017). Marler and Boudreau (2017), which describes the concept in the following way: 'HR analytics consists of a number of processes, enabled by technology, that use descriptive, visual and statistical methods to interpret people data and HR processes. These analytical processes are related to key ideas such as human capital, HR systems and processes, organisational performance, and also consider external benchmarking data.' Marler and Boudreau 2017

## Introduction

The association of PA with HRM is obvious, given the emphasis on optimising recruitment, retention, assessment, promotion, remuneration, turnover and other aspects of human capital management. The Information Technology (IT) and cybersecurity professions are also stakeholders, since data analytics are essential for red-flagging corporate threats, such as the misuse of organisational information, intellectual property theft or fraud (Guenole, Ferrar, & Feinzig, 2017).

In an increasingly initializing society, the use of data has never been greater. Data analytic techniques, are being used to understand social phenomena, assess policies, attune consumer marketing, real-world applicability.

It is important to understand the workforce in order to optimise with the trend.

In many ways, organisations as machines, calibrate to maximise outputs and minimise waste, with employees seen as potential resort to boost effectiveness. Although most organisational theorists claim organisations to be adaptive socio-technical systems that use data analytics and visualisation tools to render more comprehensive and actionable forms growing. PA promises to help organisations understand workforce as a whole, by making data about employee characteristics, behaviour and performance more attainable, explicable.

While these issues are important for all organisations, the potential value of automated techniques is magnified in those which are large and distributed, since traditional information needs and oversight mechanisms may exceed conventional HRM capabilities.

## Review of Literature:

- As noted by Bassi (2011), metrics and measurements were discussed as far back as the late 1970s. More than 30 years ago, HR researchers grappled with issues related to the measurement of human resource management (Fitz-Enz, 1984).
- During the 1990s, the focus shifted to viewing people as a valuable organizational resource and capability that can create competitive advantage (Barney & Wright, 1998; Huselid, 1995; Pfeffer, 1994; Ulrich, 1997; Ulrich & Lake, 1990; Wright, Dunford, & Snell, 2001).
- During the first half of the 2000s, new ideas such as HR Scorecards and Workforce Scorecards were developed (Huselid, Becker, & Beatty, 2005; Ulrich & Beatty, 2001), tools that would allow organizations to measure the impact of HR activities and practices on organizational performance. During the mid-2000s, there were many calls for more scientific and evidence-based approaches to HR (Boudreau & Ramstad, 2007; Pfeffer & Sutton, 2006; Rynes, Colbert, & Brown, 2002; Rynes, Giluk, & Brown, 2007).
- In the last few years, PEOPLE ANALYTICS has received considerable attention in influential practitioner-oriented management outlets such as Harvard Business Review, and in a string of reports written by global consulting and technology giants. The topic of PEOPLE ANALYTICS is currently the subject of much debate in the HR literature (Rasmussen & Ulrich, 2015; Ulrich & Dulebohn, 2015).

- Currently, a main focus of the research on PEOPLE ANALYTICS is how to use PEOPLE ANALYTICS as a decision support tool predict future events, so-called “predictive analytics” (Fitz-Enz & John Mattox, 2014; van den Heuvel & Bondarouk, 2016, p. 8).
- In addition, it is evident that the proliferation and availability of Big Data has paved the way for PEOPLE ANALYTICS, as much of the thinking around PEOPLE ANALYTICS has been developed in the aftermath of the introduction of Big Data (Angrave et al., 2016).
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### Research Methodology:

#### RESEARCH DESIGN:

Descriptive research method

#### DATA METHODS:

**Secondary Data:** It is collected from websites, e-journals, magazines, newspapers and books.

#### Methods of People Analytics:

This scoping review aimed, through an analysis of online sources and academic literature, to better understand the nature, usage of PA, as well as issues arising in the field. The specific objectives were to examine the review prompted by findings of a recent systematic literature review on HR Information Systems (HRIS) in healthcare, which emphasized the importance of HR data for effective management and organisational coherence. Scoping reviews are often used to understand emerging topics that are poorly understood, where research is about apt knowledge that is being generated outside academia. Scoping reviews thus address broad rather than narrow research questions and seek to profile the literature and understand it holistically, rather than to critically appraise the methodological quality of individual studies (Holeman, Cookson, & Pagliari, 2016). Data collection took place in four main phases, which are summarised below.

#### 1. Mapping the use of PA-related terms online

To inform our literature searches, we first created a draft set of ten keywords [HR, *Human Resource*, People, Workforce, Employee, Human Capital, Manpower, Staff, Personnel, Talent], drawing on the results of the recent systematic evidence review on HRIS in the context of healthcare (Tursunbayeva et al., 2016) and adding the word “*Analytics*” to each of these.

We analysed each of these keyword combinations in online searches, following previous research to obtain insights on users’ (Internet search behaviour) Google Trends analytics was used to chart the countries which search term has been the most popular. Open coding was used to sort the results into thematic categories.

#### 2. Scoping relevant academic research

Using a subset of 7 core keywords refined after analytics suffix the word, we undertook preliminary searches of the academic literature using the Scopus database. To check the *inclusivity* to be relevant were cross-referenced with those appearing in two benchmark literature sources: Firstly, a recent review of academic research on HR Analytics by Marler and Boudreau (2017) which used similar search terms and shortlisted 14 relevant papers dating from 2004. Secondly, a list of relevant articles informally maintained by the Human Capital Analytics Group (HCA Group, 2017) of the Copenhagen Business School, encompassing 28 articles dating from 2002. The *disciplinary affiliation* of journals publishing PA research was assessed with reference to their classification in the Scimago Journal Ranking Portal (2017), except for the Scopus articles for which this information was available in the database. Where articles specified keywords, these were cross-referenced with our seven search terms to identify those most frequently used. Finally, we analysed the *concepts* appearing in article titles and abstracts with reference to a framework by Isson and Harriott (2016) which organizes PA into 7 “pillars” according to its potential impact on: 1. Workforce planning; 2. Sourcing; 3. Acquisition/hiring; 4. Onboarding, culture fit, and engagement; 5. Performance assessment and development and employee lifetime value; 6. Churn and retention; and 7. Wellness, health, and safety.

#### 3. Scoping commercial PA tools and services

To identify vendors of PA tools and services, we searched for each of our 7 core PA keywords in Google and analysed the first page of results for each one, based on previous studies showing that 91% of searchers check only this page (Van Deursen & van Dijk, 2009).

#### 4. Scoping online training courses

Again, using the 7 keywords refined through Phase 1, we searched the Wikipedia list of massive online open courses (MOOC) by “Notable providers” (Wikipedia, 2017). After examining the openly accessible information describing each course. These were cross-referenced with the “Profile of a Perfect Data Analyst” developed by the Nesta global innovation foundation (2014), which includes: Core skills (Analytical or Technical); Domain and Business Knowledge (Knowledge of the sector, Awareness of business goals and processes); Soft skills (Storytelling and Team-working) and Competencies (Analytics Mindset, Creativity and Curiosity).

#### People analytics: enabling data-driven insights

People data is recognised as important for improving decision making by professionals, including HR. Evidence-based practice recognises people data as part of ‘organisational internal data’, one of four forms of evidence alongside scientific literature, professional expertise, and stakeholder values and concerns (Barends et al 2014). These practices ‘helps management to evaluate imperatively its validity, generalizability and applicability of evidence’ and makes a favourable outcome more accurate. People analytics practice is undertaken to provide executives, HR professionals and line managers with information needed for workforce support and HR analytics. Research has shown that organisations are applying HR analytics to a broader array of workforce issues. Numerous systems and tools are available that provide a number of outputs, from basic reporting of ‘people metrics’ and descriptive analytics through predictive and prescriptive analytics (Bassi 2011, Evans 2012). Table 1 outlines these areas further

**Table 1: Analytics Types**

Type	Description	Reference
<b>Descriptive analytics:</b> for example, HR metrics, HR reporting, HR benchmarking, HR scorecard	Summarise data into meaningful charts and reports, often representing trends over time. Lagging data of historical insights.	Evans 2012
<b>Predictive analytics:</b> for example, intention to leave, predicted sick days per period.	Using historical data to predict future outcomes using data to model relationships between variables and then extrapolating these relationships forward in time. Predictive analytics helps to highlight relationships undetectable through standard descriptive methods. Able to offer trend analysis and forecasting. Combination of lagging data to creating leading indicators.	Evans 2012
<b>Prescriptive analytics:</b> for example, combination of product turnover data, pricing strategy, and worker rota to design optimal opportunity for successful sales	Using optimisation to identify the best alternatives to minimise or maximise an objective. The mathematical and statistical techniques of predictive analytics can also be combined with optimisation to make decisions that take into account the uncertainty in the data.	Evans 2012

### **Beyond HR: why people data matters to a broader set of stakeholders**

External stakeholders being interested in measures relevant to workforce information. CIPD research has shown that they interest in the environmental, social and governance (ESG) investment community towards workforce information. Pensions and Lifetime Savings on workforce disclosures, showcase the importance of workforce information for investment group. The link between functions for people data has been a subject of research, specifically with the development of integrated data. People data also features increasingly in debates regarding ‘good work’. In the UK the Taylor Review of Modern Working Practices initiated a debate on the quality of modern work in the UK (Taylor et al 2017); and the findings of the first comprehensive measure of UK job quality by the CIPD highlighted that robust information on business action towards improving job quality is severely lacking (Gifford 2018). The UK job quality agenda is itself heavily reliant on the evidence of change coming from organisations, and it is the form of this evidence as ‘people data’ that shows why such information is now of considerable value to organisations and their stakeholders.

### **Understanding performance through people analytics:**

The role of people risk People analytics and people data are often cited as an important tool for understanding the role of people in creating value in organisations, particularly through the measuring and reporting of performance (McCracken et al 2017). Data illustrates the link between people and performance. People analytics have various models that can help to uncover the relationship between outcomes and data.

While exploring human capital analytics, Boudreau and Cascio apply the LAMP model – Logic, Analytics, Measures and Process – to demonstrate on how ‘push’ approach can influence performance. Whereas – ‘the pull’ element – further steer utilisation of analytics. There are five essential conditions that must be in place for pull to be effective:

- 1 receiving analytics: data on time according to needs
- 2 attending to analytics: analytics outputs having advantage and value to users
- 3 trusting analytics: users must trust the information they receive to apply it
- 4 focusing on central decisions using analytics
- 5 understanding the inference and recognising need of evident usage of human capital analytics.

HR outcomes are composed from a performance perspective for the wide majority of HR practices, with little attention paid to the risks correlated with these performance outcomes. From a financial perspective, risk is associated with any decision to invest in human capital or the HRM practices which support it – and any investment in either of these elements carries with its uncertainty of financial return/return on investment (Bhattacharya and Wright 2005). In reaction to this some have gone so far as to argue the case for an HR audit capability, using data to assess both the performance of the function and the focus on quality outcomes (Wall and Wood 2005). However, this audit capability, would only be useful if it has both the quality of data required and an appropriate language to convey relationships of value creation and value capture. HR audit may be in practice but difficult to achieve within the current HR function; Regardless, a focus on measurement and reporting specifically if aspects of human capital risk are to be both understood and managed effectively and measured the extent to which human capital risk, or ‘people risk’ have an impact. The work defined seven areas of people risk, which are outlined in Figure 1.

Fig:1: seven dimensions of people risk (CIPD 2018)



McCracken et al (2018) found that organisations are still developing and understanding people risk reporting. A key issue highlighted how annual reports failed to adequately detail the type and content of the people risk issue, one probable barrier to this being the quality of internal people data and analytics. Therefore, people analytics could play an crucial role to entitle better people risk management and better people risk reporting by large organisations.

#### Sources of gathering data:

- Employee surveys
- Telemetric Data
- Attendance records
- Multi-rater reviews
- Salary and promotion history
- Employee work history
- Demographic data
- Personality/temperament data
- Recruitment process
- Employee databases

HR leaders must arrange HR data and initiatives to the organization's strategic goals. For example, a tech company may want to improve collaboration across departments to increase the number of innovative ideas built into their software. HR initiatives like shared workspaces, company events, collaborative tools, and employee challenges can be implemented to achieve this goal. To determine how successful initiatives are, HR analytics can be utilized to examine correlations between initiatives and strategic goals.

Once data is pooled together, HR analysts provide workforce data into knowldegable data models, algorithms, and tools to gain applicable insights. These tools provide insights in the form of dashboards, visualizations, and reports. An ongoing process should be put in place to ensure continued improvement:

- Benchmark analysis
- Data-gathering
- Data-cleansing
- Analysis
- Evaluate goals and KPIs
- Create action plan based on analysis (continuously test new ideas)
- Execute on plan
- Streamline process

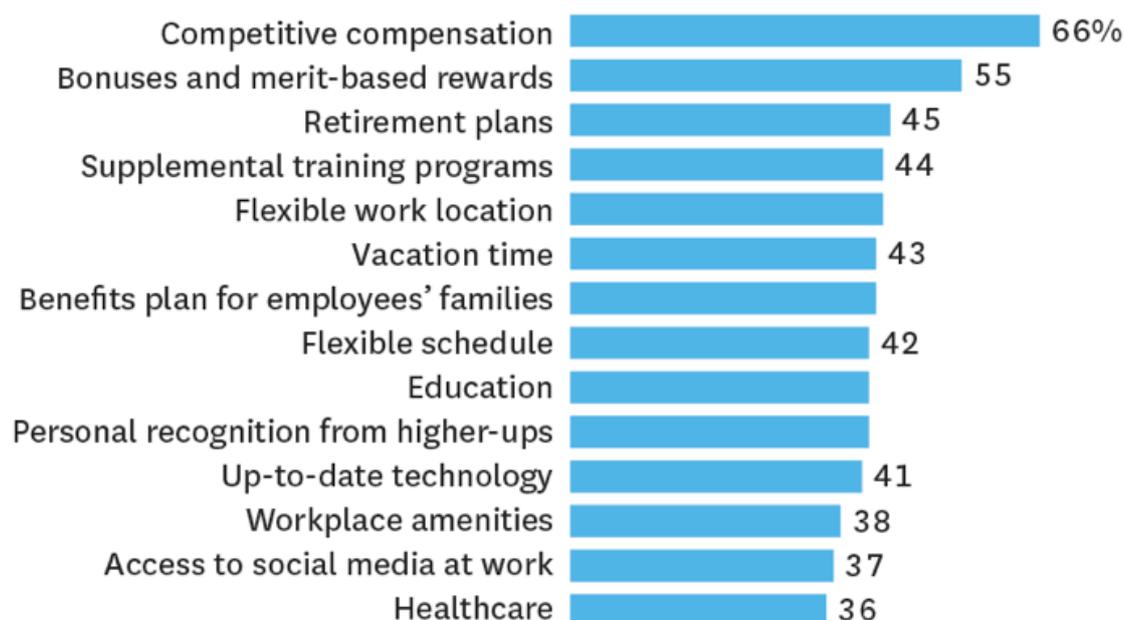
#### Application

##### 1.Retention

The cost to restore an employee could be over 200% of their annual salary. The true cost might even be higher due to training/onboarding, lost productivity, recruitment, and decreased self-esteem among other employees. Losing an employee that's in the top 1% of performers could make a difference between growth and decline. For this reason, decreased attrition and improved employee involvement are often top priorities for HR departments. HR analytics can help improve retention through a churn analysis that looks at data points like:

- Current churn rate
- Attrition by department
- Attrition by estimated commute time
- Similar attributes of employees with longer tenure
- Similar attributes of employees who leave within 1 year
- Onboarding experience
- Survey data
- Qualitative data such as employee interviews
- Employee performance data to forecast future attrition

## WHAT EMPLOYEES VALUE AT WORK



SOURCE SAP

HBR.ORG

Through this data-driven approach, HR analytics can illustrate the major causes of attrition, and new policies, along with training programs, can be put in place to help eliminate the problem. For example, data might show that ambitious employees are not challenged or employees are frustrated with a certain management style. Human resource analysis will reveal these issues, and then it will be up to leadership to take action. It's also possible to spot an at-risk employee before they leave so pre-emptive actions can be taken to rectify issues. For example once a high-performer may not be as productive because he feels he or she is underpaid. An analysis of productivity alongside a comparison of market-value salaries can help spot this.

### 2. Employee development

Almost 40% of employers feel that they cannot find people with the necessary skills and competencies for entry-level jobs and almost 60% say entry-level candidates are not prepared professionally.

HR analytics is also playing an essential role in evaluation of employee development (or workforce development) programs to fill the skills gap. Analytics tools can help human resource management evaluate company needs, allocate resources to train employees most likely to eliminate those need gaps, for acceptable results. The goal is to close the skills gap so a company can emulate with increasingly agile global competitors.

Data visualizations fed by employee and customer feedback data can show the development of employee professional growth. For example, a retail clothing chain may discover through customer feedback that sales acquaintances are friendly, but have trouble providing outstanding customer service when items are not in stock. An employee development program can be put in place to educate associates on the keys to customer success. This could take the form of a pilot training program for employees in the lowest-performing locations.

## 2017 Skills Gap Report

### HOW SHOULD WE PAY TO RESKILL AND RETRAIN THE U.S. WORKFORCE?

	Government funding	Corporate funding	Tax benefit for learning	People pay their own way
Overall	27%	26%	34%	13%
Under 40	35%	25%	31%	10%
Over 40	21%	27%	37%	15%



research.udemy.com

The best employee advancement and talent management programs connect employee goals with business goals, and investment is often dependent on the ability to attach these to revenue. The process is successful when Rate of Interest is achieved, creating a feedback cycle where success increases revenue and investment in development.

### 3. Employee Engagement

An affianced workforce is critical to attracting and engaging talent. The challenge is to determine which factors will result as an increase in revenue of the company. This makes employee engagement a very difficult metric to quantify and take action on.

How can HR analytics help with employee engagement?

- Employee engagement survey data collected using statistical data
- Discriminant analysis to pinpoint the requirements of different segments within the organization
- Factor analysis is used to correlate engagement initiatives with retention and productivity
- experimentation of new ideas to measure up lift in engagement of employees

Google is a perfect case study on how people analytics can be utilized to increase employee engagement. It is one of the most data-driven cultures in the world. Its People Operations team makes use of a mix of quantitative and qualitative data factors to measure what employees' value most and to keep them engaged.



They discovered, through an amalgamation of employee surveys and productive analytics, that prominent managers tend to have the following qualities:

1. Coaching skills
2. Does not micromanage
3. Is genuinely concerned for well-being of employees
4. Results-oriented
5. Excellent communicator (listens and shares)
6. Develops employees
7. Clear vision and strategy for team
8. Possesses key technical skills to help guide their team

**4.Compensation and incentive program**

Compensation is often the largest business expense, which highlights its importance in organization decision-making. Data analytics manifests can help analyse large volumes of employee and market data to achieve a competitive advantage. Professional HR analysts will keep track of what competitors provide their employees so as to ensure top talent is attracted and retained in the company.They can also contemplate exit surveys during the recruiting process and declined offers to better understand the compensation and incentive landscape.

HR analytics can provide:

- Incentive programs are implemented in order to motivate employees to maximize productivity. Data analysis can provide insight into the most eloquent monetary and non-monetary rewards. For example, an HR department might formulate a referral program where employees receive a bonus for referring new employees. With adequate data, HR can regulate what the ideal bonus amount is and cross-reference this to the increase or decrease in quality of hires.
- Another application can be Sales Team Motivation. What proportion should be assigned to each salesperson and how their bonus structure should look like? This may vary on the team, region, and products sold.
- Executive compensation analysis needed to attract and retain top leaders. HR analytics can scrutinize the market rates for executives at homogeneous companies, bonuses that properly motivate, and perks are to be provide. This is critical to the direction of the organization that can either make or break it.

**Future of PA**

We’re encountering seismic shifts in the Human Resource landscape, and efficient organizations realize they need to embrace a data-driven culture to compete and retain top talent. Data analysis is now an essential tool to move beyond intuition, but challenges remain in selling its benefits to the Consumer-Suite. Once consensus is gained, partners and human resource management answers are needed to be chosen with care as to meet the ensured goals.

Psychology is also playing an impeccable role in HR analytics. Industrial-organizational psychology (I-O psychology) applies psychological principals to organizations. Its objective is to increase productivity and employee well-being. A general application is to match employees with the best-fit job within the organization, and analytics is one tool (I-O) which practitioners use to make these decisions.

Ten disruptions identified by Josh Bersin from Deloitte should be on every CHRO’s mind as they move to incorporate analytics and the cloud systems that support it:

1. Shift from automation to productivity
2. Acceleration of HRMS and HCM cloud solutions
3. Continuous performance management
4. Feedback, engagement, and analytics tools
5. Reinvention of corporate learning
6. The recruiting market is thriving with innovation
7. The well-being market is exploding
8. People analytics matures and grows
9. Intelligent self-service tools
10. Innovation with HR itself

**Articles**

**1. PA objectives/practices represented in the articles**

Most of the articles in the list were general overviews or discussions of PA as a sub-discipline of HR. This included defining what PA is, its adoption rates in multi-cultured organisations, kinds of data that may be used for PA analyses, potential success and barriers that could affect PA implementation within organisations. Nevertheless, all of the PA objectives/practices from Isson and Harriott’s (2016) 7 pillars framework were present in the studies analysed, as described in Table 1. Many focused on performance assessment and development and employee lifetime values and onboarding, culture fit, and engagement. Another dominant category, primarily in the studies found in Scopus, is workforce planning, including studies concerned with new scheduling models or identifying and estimating employee expertise. Other studies focused on the use of PA for: churn and retention; wellness, health, and safety; sourcing; and acquisition/hiring.

Table 1. PA objectives described in studies yielded by the Scopus search, HCA group list, recent review.

Study focus	Scopus list	HCA group list	Marler Boudreau list	and
Workforce planning	9	–	–	
Sourcing	2	–	–	
Acquisition/hiring	1	–	–	

Study focus	Scopus list	HCA group list	Marler and Boudreau list
Onboarding, culture fit, and engagement	1	13	1
Churn and retention	1	6	–
Wellness, health, and safety	–	6	–
Performance assessment and development and employee lifetime value	8	5	1
Diversity and inclusion	1	6	–
Collaboration	2	–	–
People Risks	1	–	–
Inter-organisational relationships	2	–	–
Generic, Technical or too little info to classify	25	–	12

Some articles focused on more than one HR objective/practice.

Studies that did not belong to any of the a fore mentioned categories were segregated into different categories. These included studies that focused on: collaborations ;diversity *and* inclusion ; People Risks ; and inter-organisational relationships.

### Conclusion

In this following paper we found the state of play of people analytics practiced globally and the magnitude to which practice appears to be an informative perspective on organisation, employee performance, and views of personnel-related risk and opportunity. An important aspect emerging from our analysis is that people analytics is persistent to be an evolving practice for the HR profession and its partners across the business. As implied at the beginning of the work, there is a risk of people analytics practice becoming a trend that fails to realise its value – but as we emphasis those professionals who are use people data, have a positive outcome. The HR profession is at its critical point in its history: it can either escort in using people data and being evidence-based, or it can yield responsibility to other functions and act as a mode of people information. These options require different models of HR, and lead to possible substitute levels of skills and capability in the profession. Therefore, if HR is to take this opportunity, it is important that people analytics practice becomes business as usual, not just within the HR profession. The fad of affiliating business and finance data to improve outcomes appears to highlight how practice is evolving beyond the realms of the HR function. This work highlights that there is much potential in developing people analytics practice, both in terms of the HR teams and individuals producing and consuming data, and the non-HR professionals are yet to realise the potential value of people data to their outcomes. To get to this point HR must take a step ahead to establish people analytics as a core component of the future evidence-based profession. Only by doing this we can believe that the potential value long promised by people analytics will finally be realised. We therefore suggest that people analytics is a re-badging of the concept of HR Analytics and adopt this terminology in the paper.

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