

30 Mar 2020

# People analytics

Understand what people analytics is, different types of HR data, and the importance of people analytics strategy and process

## Introduction

People analytics, also known as HR analytics and workforce analytics, is the use of people-data in analytical processes to solve business problems. People analytics uses people-data, collected by HR systems (such as payroll, absence management) as well as business information (for example, operations performance data). People analytics provides people professionals and their stakeholders with insights about their workforce, HR policies and practices. Ultimately people analytics can help to improve evidence-based decision making.

This factsheet explores the value of people analytics to organisations. It provides an overview of the quantitative and qualitative types of HR data, correlations and causal relationships, the key people responsible for people analytics in a workplace and the aims of a people analytics strategy.

## What is people analytics?

People analytics, also known as HR analytics and workforce analytics, is the use of people-data in analytical processes to solve business problems. One recent academic [evidence assessment](#) defines it as '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'.

Analytics may be used to look at the traits of the workforce, in particular its human capital: the value of individual knowledge, skills and experience of individuals and teams. Our research report [Human capital analytics and reporting: theory and evidence](#) summarises key academic concepts for practitioners to apply through people analytics strategy.

## Why is people analytics important?

People analytics enables HR and their major stakeholders to measure and report key workforce concepts, such as performance, well-being, productivity, innovation and alignment. This in turn enables more effective evidence-based decisions by strategic business functions. People analytics enables HR teams to demonstrate the impact that HR policies and processes have on workforce and organisational performance. It can also be used to demonstrate return-on-investment and social -return-on-investment for HR activity. HR leaders are increasingly interested in improving HR effectiveness and efficiency, so people analytics is an important way in which HR teams can evaluate and improve people and business performance.

Our New Profession Map highlights the importance of people analytics to the people professions by putting analytics at the centre of being an evidence-based practitioner. It's highlighted as part of the core knowledge and as a new professional specialism.

## What is HR data?

HR data is information about any aspect of employees or the HR management system. Data comes in many forms, and may be quantitative or qualitative.

**Quantitative data** can be measured and illustrated through numbers

- Objective
- How many? How much?
- Facts are value-free / unbiased
- Measurable
- Report statistical analysis. Basic element of analysis is numbers
- 'Counts the beans'
- Examples: number of employees, remuneration rates, productivity

**Qualitative data** can't be measured and are often subjective assessments representing an individual's view of something.

- Subjective
- What? Why?
- Facts are value-laden and biased
- Interpretive
- Report rich narrative, individual; interpretation. Basic element of analysis is words/ideas.
- Provides information as to 'which beans are worth counting'
- Examples: employee opinion survey feedback, appraisals and performance reviews,

learning and development outcomes

For example, a fondness for chocolate is qualitative data as it relates to an individual's preference towards chocolate, while the dimensions of a chocolate bar is quantitative data as it relates to its numerical size (length, width and height). In HR, an individual's age or performance rating is quantitative data, whereas their engagement data (such as job satisfaction) is qualitative.

Data is held in many places in an organisation but ideally should be managed by a specific data owner who is responsible for maintaining it, keeping it secure and ensuring management in line with the data protection policy. Only those responsible for the HR data should be able to change any aspect of the HR data itself (for instance changing terminology or definitions for specific HR indicators).

## Correlation and causation

HR analytics can help identify cause and effect relationships, by investigating the relationship between two sets of data to be investigated, and determining whether the relationship is correlational or causal.

- **Correlation** is when two or more things or events happen around the same time which might be associated with each other, but they aren't necessarily related in a cause-effect relationship. It implies a mathematical relationship between two things which are measured, and is often described numerically with a value between 0 and 1, where 0 is no relationship and 1 is a fully predictive relationship. For example, there is a 0.01 correlation between eye colour and height, so knowing someone's eye colour does not mean you know how tall they are. They are virtually independent. But there is a 0.8 correlation between smoking and incidence of lung cancer, so it's possible to say that smokers are more likely to develop lung cancer. However, this doesn't necessarily imply smoking causes lung cancer in every case.
- **Causation** is when one event or thing happens and as a result of it happening, another event or thing happens. If the first event did not happen, then the second does not happen. There is not a mathematical/probabilistic relationship between the two, but instead a time-based cause-effect relationship.

Just because two things correlate, it doesn't necessarily mean there's a causal (or cause-effect) relationship between them. For example, an increase in sales in a team which also has high engagement does not necessarily mean that engagement causes more sales. Other factors, such as improved training, or increase in customer-facing staff, may also be causing an increase in sales. Therefore, it's important to analyse as much data as possible before drawing conclusions.

## How does people analytics work?

HR analytics uses workforce or HR data, either qualitative or quantitative, to investigate a certain concept with the help of computer programmes and modelling techniques. There are three main levels of HR analytics capability. Most organisations are able to do level 1 only, very few are able to complete level 3 analytics:

- **Level 1a- descriptive analytics:** Uses descriptive data to illustrate a particular aspect of HR, for example recording absence, annual leave, and attrition and recruitment rates. At level 1, no analysis is applied to the data beyond using it to describe a certain concept, or illustrate its change over time (sometimes called trend analysis). See our factsheet which gives commonly-used [measures of turnover and retention](#).
- **Level 1b - descriptive analytics using multidimensional data:** Combines different data sets, or types of data, to investigate a specific idea can help to uncover interesting relationships between different HR activities and processes. Using two different types of data to create an analytics output is known as multidimensional analytics (for example, combining leadership capability data with engagement scores to measure leadership effectiveness).
- **Level 2 - predictive analytics:** Uses data to predict future trends can help HR professionals to plan for future events and scenarios, and ensure they are able to deliver to the business. Predictive analytics for forecasting requires high quality and robust data, and specialist technology and capability.
- **Level 3 - prescriptive analytics:** Applies mathematical and computational sciences to suggest decision options to take advantage of the results of descriptive and predictive analytics. Prescriptive analytics specifies both the actions necessary to achieve predicted outcomes, and the interrelated effects of each decision.

## Who is responsible for people analytics?

Approaches differ across organisations and sectors with businesses developing individual approaches to how they conduct people analytics. Large organisations may centralise analytics capabilities. This enables them to own and manage the people analytics process and provide insights to customers/users in the business. Some organisations prefer to base individual HR analysts within small centres of expertise to explore specific concepts and deliver outputs from a decentralised model. Others prefer to outsource analytics to external experts who can use HR data to provide insights and guidance from an independent expert perspective.

Organisations tend to move between approaches according to their HR operating model. As such, different combinations of people analytics, technology and management can co-exist at one time.

## People analytics strategy and process

### People analytics strategy

HR managers running analytics activity should align analytics projects to both the HR strategy and the business strategy. Taking a strategic and planned approach to people analytics, for example tackling a specific business issue, is likely to create the most value for the business and create further demand for HR insights. This is also beneficial in demonstrating HR's return on investment.

The people analytics strategy should have three aims:

1. Connect HR data with business data to demonstrate a particular aspect of the organisation that business leaders should be informed about to help them make decisions.
2. Enable HR leaders to design and implement HR management activity in an efficient and effective manner.
3. Allow the business and HR to measure the effectiveness of HR in delivering against its objectives.

To help people professionals to develop their people analytics practice, our practitioner's guide explores the first steps to building a people analytics strategy, developing simple analytics capabilities.

### People analytics process

The people analytics process should follow nine steps from planning through to the evaluation of the process:

1. **Plan:** Develop the goals and purpose for the analytics activity. Map the requirements of the customer and plan questions/queries which will be answered by the analytics process.
2. **Define critical success factors:** Define the measures that will show if the project has been a success. Examples of what these can be based on include: delivery on time, impact of project, feedback from users.
3. **Data audit:** Map the data which is currently available and grade its quality. This will illustrate where any gaps in data may be, which should be filled before progressing.

4. **Design the process:** Define roles and set objectives for team members. Define resource requirements and map stakeholders for the project.
5. **Design the data collection strategy:** Design the collection and processing stages of the analytics activity.
6. **Data collection:** Collect data from data sources. This can be from drawing on established data sets (for example, absence records) or running new data collection processes (for example, engagement survey).
7. **Analyse data:** Depending on the customer requirements, analyse the data and develop insights in the form of recommendations and guidance for the users of the data.
8. **Report data:** Report in a clear and simple way illustrating a solution to their issue, or further areas of investigation if further data is required.
9. **Evaluate:** Review the data-analytics-insights process and evaluate impact. Review and update process as required.

## Examples of people analytics in action

People analytics can be applied to virtually any aspect of HR activity. For example:

- **Enhancing employee morale:** instead of absorbing the costs of losing key employees, organisations can mitigate against increased attrition rates by measuring the happiness and well-being of their employees and adapting their offer to employees accordingly. Career-development planning, and learning and development for high performers are both ways in which HR departments can use HR data to help improve the morale of the workforce.
- **Improving retention:** An organisation which is suffering from high turnover of key employee groups can use people analytics to anticipate areas with specific issues and can then tailor their incentives to curb attrition accordingly. Better measuring the impact of HR activity on turnover can illustrate the specific needs of certain employee groups, for example adapting incentives for senior leaders to meet their needs if they have specific requirements to keep them from leaving.

More case studies of people analytics in action can be found on our [Valuing your Talent](#) web pages and in our research report [Human capital analytics and reporting: theory and evidence](#).

Find out more about how HR and finance professionals are using people data in our

report [People analytics: driving business performance with people data](#) developed in association with Workday, as well as the international summary reports [People analytics: international perspectives](#).

## Further reading

### Books and reports

EDWARDS, M. and EDWARDS, K. (2016) *Predictive HR analytics: mastering the HR metric*. London: Kogan Page.

HUUS, T. (2015) *People data: how to use and apply human capital metrics in your company*. London: Palgrave Macmillan

KHAN, N. and MILLNER, D. (2020) *Introduction to people analytics*. London: Kogan Page.

MARR, B. (2018) *Data-driven HR: how to use analytics and metrics to drive performance*. London: Kogan Page.

Visit the [CIPD and Kogan Page Bookshop](#) to see all our priced publications currently in print.

### Journal articles

ANGRAVE, D., CHARLWOOD, A., KIRKPATRICK, I., LAWRENCE, M., and STUART, M. (2016) HR and analytics: why HR is set to fail the big data challenge. *Human Resource Management Journal*. Vol 26, No 1, January pp1–11

BASKA, M. (2018) [Six ways analytics will future-proof HR](#). *People Management* (online) 6 June.

BOUDREAU, J. and CASCIO, W. (2017) Human capital analytics: why are we not there? *Journal of Organizational Effectiveness: People and Performance*. Vol 4 No 2, pp119-126. Reviewed in [In a Nutshell](#), issue 69.

JEFFERY, R. (2019) [Amazing insights you can learn from people analytics](#). *People Management* (online). 21 February.

RASMUSSEN, T. and ULRICH, D. (2015) Learning from practice: how HR analytics avoids being a management fad. *Organizational Dynamics*. Vol 44, No 3, July-September. pp236-242.

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This factsheet was last updated by Edward Houghton.