



# People analytics

## Good practice guide



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With organisations increasingly recognising the importance of using the employee data they collect to drive better performance, people analytics is now at the top of many HR directors' agenda. This XpertHR "Good practice" guide takes HR professionals through the people analytics process - from choosing metrics and collecting data, to analysing the data and communicating the results, all with the end goal of identifying those workforce insights that will lead to better business decisions.

## The guide covers:

- » **What is people analytics?**
- » **The business case for using people analytics**
- » **Organising people analytics within the HR function**
- » **Upskilling the HR team**
- » **Gaining buy-in from senior management**
- » **Software**
- » **Identifying the objectives of the project**
- » **Deciding what to measure**
- » **Collecting data**
- » **Cleaning the data**
- » **Analysing the data**
- » **Communicating the analysis**
- » **Using data to make business decisions**
- » **Measuring success**
- » **Data protection**
- » **Case study**

## About XpertHR

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# People analytics

## What is people analytics?

People analytics refers to the process of collecting, analysing and using quantitative and qualitative data about an organisation's employees, alongside business performance data, to provide insights on business issues, solve business problems and inform business decisions and strategy. People data can include any information relating to employees or workforce management, such as recruitment costs and absence rates or the results of employee opinion surveys and individual performance reviews. The analysis and use of the data can vary from internal or external benchmarking exercises to more complex predictive analysis.

The concept has its roots in the models of human capital measurement developed in the 1990s by companies such as Sears, Roebuck and Company in the US and Royal Bank of Scotland and Nationwide Building Society in the UK. These organisations used people data to draw a direct causal link between levels of employee satisfaction, customer behaviour and company performance. For example, Nationwide's "Genome" model used people data to quantify the impact of changes to drivers of employee satisfaction, such as reward, recognition and development opportunities, on the company's bottom line. The framework was able to generate specific predictions. It revealed, for example, that the company could improve employee satisfaction by increasing basic pay by 5 percentage points, and that this would lead customer satisfaction to rise by 0.5 percentage points and personal loan sales to grow by 2.1 percentage points. The ability to make links between different datasets was the key to the model's effectiveness; people metrics were not considered in isolation.

At the time, it seemed that human capital measurement was set to transform people management and increase HR's strategic role. However, human capital measurement never took hold, and many of these early implementations fell out of use after just a few years. Reasons for this include:

- difficulties in collecting and managing data;
- HR departments being too cautious in their approach and focusing on basic workforce metrics that did not deliver the kind of insight that would bring value to the board; and
- a lack of the statistical and analytical skills within HR required to make people analytics work.

While some of these problems still exist, various factors have put people analytics at the top of the agenda for many HR directors:

- Professional bodies are encouraging HR to embrace people analytics. According to the CIPD: "Organisations which follow good practice should have up to date, clearly defined data which is robust and of high quality, and which is used in a consistent way by skilled experts able to complete analytics activity and communicate it to business and HR stakeholders."
- New technology has made data collection and analysis easier and cheaper, meaning that even small and medium-sized organisations are able to store large amounts of data and carry out powerful analysis.
- HR software suppliers are providing HR information systems that are increasingly user friendly and capable of generating bespoke reports.
- The change in HR software has encouraged skills development, as employers have begun to seek employees with the skills to analyse large datasets. Some large organisations employ dedicated "data scientists" to provide support and guidance to HR.

## The business case for using people analytics

Many organisations collect people data, from sickness absence and labour turnover data, to recruitment spend and profit per employee. However, people analytics is not just about collecting this data; it is about interpreting the information to generate insights and inform decisions.

People analytics delivers value to organisations:

- It gives accurate information on what is happening in the organisation in relation to a given issue, such as employee engagement. This can then be used to address business problems. For example, if the HR team are collecting and analysing employee turnover data, and identify that there is a high rate of turnover of employees with less than 12 months' service, the team could look at the areas of the business or the individual managers with the highest number of first-year leavers, and use exit interview data to identify the factors that led them to leave.
- The HR team can use the data that they have collected and analysed to make decisions about where the business should spend its money and direct resources, which can ultimately save the organisation money. The savings may come directly, for example if an analysis of bonus payments reveals that payments above a certain level have no additional impact on productivity, the business might decide to set this as the maximum bonus ceiling. On the other hand, the savings may come indirectly, for example an employer may be able to reduce the cost of sickness absence by targeting health initiatives at employees identified as being at high risk of illness or injury.
- More advanced analytics can deliver insights that can inform strategy at the highest level in the organisation. The most innovative systems are able to use statistical models to predict future areas of consumer need and ensure that the business has the right resources in place to realise the opportunities arising from these needs. For example, if analysis shows that consumer demand for a new product line will peak in three years' time, HR can make sure that the organisation has the necessary talent in place to capitalise on this.
- People analytics provides information about the relationship between HR processes and interventions, and business outcomes. This should help HR to align its objectives with those of the business. Being able to see where HR interventions contribute to the organisation's goals, and where they have little impact, will help HR to design interventions that target the areas that will have most impact on the business.
- Where the HR function has traditionally had a mainly administrative role, engaging in people analytics can help to transform it into a commercially aware, strategic business partner.

## Organising people analytics within the HR function

The HR team should consider how people analytics will fit into the overall structure of the HR department. Some HR teams keep their people analytics function separate, for example by creating special roles for HR analysts. Others expect all HR team members to carry out people analytics as part of their role, either on a project-by-project basis or as a business-as-usual activity.

## Upskilling the HR team

To make effective use of people analytics, practitioners need a variety of skills as set out below.

### Carrying out quantitative and qualitative data analysis

Historically, HR practitioners have had limited need to engage with data, and they have tended to work in a reactive way, answering enquiries from the wider organisation, rather than seeking opportunities where they can add value to the business. If they are to work effectively with people analytics, the ability to conduct data analysis is essential.

People data consists of both numerical data such as absence and labour turnover data, and text-heavy information such as exit interview results and notes on performance, and practitioners must be able to gain insights from both types of data. Quantitative analysis requires numerical skills and confidence in manipulating hard data, whereas qualitative analysis requires an ability to identify themes from written passages and recorded conversations.

One way to bring the required skills into the HR team is to source analytical talent from outside the function, either by recruiting external analysts or by transferring existing employees from more traditionally statistics- and analytics-focused departments, for example finance, IT or marketing. Alternatively, organisations can invest in upskilling existing HR team members by offering appropriate support and training. This approach may take longer, but it means that they will be able to apply their existing HR knowledge when analysing and using the data.

Lessons, seminars and courses in statistical analysis are available online, and offer a cost-effective route for giving HR professionals a grounding in the skills required to carry out data analysis. Formal face-to-face training is usually a more expensive option but can be made more economical by hiring a tutor to deliver training to a group of employees in-house.

### Communicating effectively with the rest of the business

HR practitioners need to be able to communicate analytics information to line managers and senior stakeholders in a way that relates to them and their area of the business. For example, telling a line manager that his or her department has an average absence rate of 9.8 days a year is of little practical use. However, adding that this rate has increased each year for three years, that it compares poorly with the absence rate in other departments in the business, and that there are specific interventions that other managers have used to address high absence rates successfully, is likely to encourage the manager to listen and act. Good communication skills will also help HR to deliver the results of a people analytics project in an engaging and persuasive manner.

### Building business relationships outside HR

HR practitioners need to form positive relationships with people in all parts of the business. Because strategic priorities are often expressed through dialogue and informal channels, being in tune with other parts of the organisation will help the HR team to identify the issues in relation to which people analytics is likely to have the biggest impact. Good relationships can help ensure that the team are able to gather data in a timely manner, and deliver any insights revealed by their analysis to the right people. They also help ensure that the necessary people give adequate time and attention to the results of the analysis.

## Being agile and ready to change

It can take a significant period of time to complete a large people analytics project. In the interim, organisational strategies can change because of internal factors such as mergers and acquisitions, and external factors such as legislation and economic conditions. Therefore, the HR team must be prepared to change the direction of their project to ensure that it remains relevant to the wider business. This means being adaptable and able to anticipate possible opportunities and challenges, so that changes can be made.

## Gaining buy-in from senior management

People analytics usually requires some investment in terms of cost, time and resourcing, so HR will need to gain the buy-in of senior management. This means demonstrating that the organisation will achieve a return on its investment. To do this, the HR team need to make a connection between people analytics and business strategy and decision-making. Any analytics project that the HR team propose should relate to an important business outcome such as improving market share, customer service or profitability, and help to inform management action.

Achieving some low-cost “quick wins” can help HR to gain the necessary buy-in. Where the HR team are already collecting data on people management issues, they should be able to generate some useful insights relatively quickly, perhaps in a week or two. The team should analyse available data in an area that is of concern to the business. For example, where there is a known issue with labour turnover, breaking down the data by age, gender, salary or department may reveal valuable insights into who is leaving the organisation. HR will then be able to look for possible causes of high labour turnover and potential actions to address it.

When building a business case the HR team should explain the likely impact of people analytics on business outcomes (see **Identifying the objectives of the project**). For example, rather than providing employee engagement scores in isolation, they should discuss how the scores compare with those of the organisation’s competitors, quantify the positive impact that better engagement levels will have on productivity and suggest interventions that might help to achieve these improvements (see **Communicating the analysis**).

The HR team should monitor the impact of any interventions that they make and use the results as further evidence to convince decision-makers of the importance of engaging in people analytics (see **Measuring success**).

## Software

Most organisations have access to basic software programmes such as Microsoft Excel and Microsoft Access, which can be used to build simple databases and carry out straightforward analysis. In addition, many HR information systems can deliver basic management information reports, for example departmental headcount and monthly sickness absence rates. The functionality of these programmes will meet many HR users’ needs. However, to carry out more complex analytics, organisations may need to invest in more advanced statistics software, for example IBM SPSS or R package. Before purchasing new software, the HR team should ascertain that the required programmes are not already available in other parts of the business.

Where the team decide that new software is necessary, they should ensure that any new programme will be compatible with their existing IT infrastructure, and that any data they already have can be integrated seamlessly across all software programmes. They should also consider how the programme will operate. One option is to buy a programme and host it on the organisation's own servers, although this will require maintenance and regular upgrades. Alternatively, they could adopt a "software as a service" or "cloud-based" model, where the supplier hosts the programme and the organisation accesses it via a secure internet connection. This removes the need for the organisation to maintain and upgrade the system. However, it raises security concerns, so HR will need to consider what security measures are in place. Further, an ongoing licensing payment may be required.

The team will also need to decide if a standard "off-the-shelf" programme is adequate, or if they will need a bespoke programme tailored to the organisation's requirements. In the majority of cases, a standard programme will be sufficient. Only those organisations that have a requirement to run complex analyses are likely to need a custom-built system.

## Identifying the objectives of the project

When deciding on the focus of a people analytics project, the HR team will need to identify a significant or pressing business problem that could be addressed using data. This will ensure that the analysis is relevant to the business. They should define the objectives of the project on this basis.

Working collaboratively with senior management when defining the objectives of the project should help to ensure close alignment with business priorities. However, the team should be proactive; they should not wait for the organisation to approach them for answers to business issues.

To define the objectives, the team should be clear what questions the business needs to be answered. The following are examples of possible questions:

- Is our recruitment and selection strategy providing the talent we need?
- How much is staff turnover costing us?
- Are our reward levels aligned with employee and organisational performance?
- Are we helping employees develop the skills and competencies that the business needs?
- Do our engaged employees generate more revenue than disengaged staff?
- If our most talented employees leave the business, do we have suitable replacements lined up?

A business issue may be obvious. For example, the business may have an acknowledged problem with sickness absence, so the HR team could seek to answer the following questions:

- What actions can we take to reduce levels of sickness absence across the organisation?
- What impact will these actions have on business results?

Examining the business plan could help to identify areas where analytics could contribute. For example, if the business has set itself the goal of increasing sales in the US by 20 percentage points within the next five years, the team could seek to answer the following questions:

- Which of our sales people have the most success in the US?
- What skills and competencies do they have?
- How can we develop those skills and competencies in the rest of the sales team?

Most organisations collect some people data as a matter of routine, so the HR team could review this to identify business problems to address. If they choose this route, they must ensure that the chosen data will be capable of impacting on the goals of the wider business.

For example, many HR departments collect data that focuses on measures of HR efficiency, such as the time taken for HR to process new starters and input their details into the HR information system. Unfortunately, this is unlikely to grab the attention of senior stakeholders. However, if the team can translate this time into a tangible impact on the business - for example by finding that every hour spent processing new starters costs the business £100, then it may be relevant. In his essay "HR analytics and metrics: Scoring on the business scorecard", HR author Richard Beatty warns: "Too many HR functions seek 'available' metrics instead of strategic metrics that fit their organisation." He says: "Metrics should be answers to questions! If you don't ask the right questions, you will never get answers that allow you to successfully intervene and produce the desirable result."

For a first people analytics project, it is practical to choose a "quick win" - a small, specific and actionable objective that will result in a usable report for senior managers.

Whatever the size of the project, HR should communicate the objectives to the wider organisation, including senior management and any stakeholders who will be required to provide their input to the project or who may benefit from its outcomes. For example, HR could post a briefing on the corporate intranet, or arrange for a board member to give a presentation to key stakeholders. Setting clear expectations about the business results that people can expect to see is important:

- It helps stakeholders to understand the potential value of the project, and encourages senior management to invest in it (see [Gaining buy-in from senior management](#)).
- It sets realistic expectations about the likely outcomes of the project. HR should not overstate the value of the project; failing to deliver on expectations can generate distrust in the value of people analytics and set back progress.
- It encourages stakeholders to cooperate with any requests for information. Delays in obtaining data from other areas of the organisation can derail an analytics project.

## Deciding what to measure

Once the HR team have decided the objectives of the people analytics project, they should develop metrics, ie standards of measurement, around the business issue(s) that they are addressing.

Metrics that HR teams often use to address business issues include:

- cost per hire (the cost of recruiting a new starter);
- time to hire (the number of days for which a position remains vacant);
- revenue or profit per employee;
- absence rate (the number of sick days taken per employee over a particular time frame, usually one year); and
- labour turnover rate (the number of people leaving the organisation over a particular time frame, usually one year).

For example, in relation to the business question: "Is our recruitment and selection strategy providing the talent we need?", the HR team might seek to obtain measures such as:

- time to competence;
- competency and skills ratings;
- performance ratings;
- internal promotion rates; and
- turnover of employees within their first year.

Deciding what to measure will dictate what data, ie facts and figures, the HR team need, and whether this data already exists or they need to collect it. For example, where the team wish to find out the average length of service of employees who resign (the metric), they will need to collect employees' start dates and termination dates (the data).

The team should ask a number of questions when deciding which metrics to use:

- Can we explain why we want to use this metric?
- Can we explain what the metric is intended to show?
- Can we explain how the metric relates to the business and what impact it has on corporate objectives?
- How long will it take to collect the relevant data?
- How accurate and reliable is the data?

If the HR team cannot provide an acceptable answer to these questions, for example if they cannot identify a clear use for a metric or if the time taken to collect the data will outweigh the benefits of doing so, they may need to use other metrics to achieve the objectives of the project.

## Collecting data

Once the HR team have identified the metrics, they need to gather the relevant data.

### Existing data

The organisation may already be collecting the relevant data. Many organisations collect some basic people data as a matter of course, for example sickness absence and pay data.

The HR function may not "own" the relevant data; in many cases, the data is recorded and stored by line managers throughout the organisation or by other functions such as the finance department. Therefore, the HR team may need to liaise with colleagues in other departments to extract the data for the purpose of the people analytics exercise.

The team will need to decide whether or not the data is current. Where the organisation has an HR information system, data might be collected in real time. For example, as new recruits join the business, their personal details can be added to the main area of the system from the recruitment module and they will then feed into metrics such as headcount. Other people data, including pay increases, bonus payments and employee benefit choices, is often processed on a less regular basis, for example once a month, ahead of the organisation's payroll date. Some data is collected even less frequently, for example many organisations conduct employee engagement surveys once a year. Where the data is collected infrequently, so may be out of date, the team may need to collect new data.

The HR team may find that the data is unclean, ie it may be incomplete, inaccurate or inconsistent, or contain duplicates. If this is the case, they should establish a process for better data collection in the future (see **Data not already in existence**). It may take time for people to change how they collect data, and the team may encounter some resistance. To help counteract this, they should try to ensure that the changes to the process make data collection easier. It may be helpful for HR to conduct a survey of relevant stakeholders prior to making changes to the system, to identify what issues people have with the current process, and attempt to solve those problems as part of the overall changes.

## **Data not already in existence**

Where the relevant data does not exist, the HR team will need to collect it, which means establishing a data collection process.

For people analytics to be a success, the team need to ensure that data is recorded accurately and consistently throughout the organisation whether this is being done by them or other departments. Making sure that data is correct at the collection stage can cut down significantly on the time that HR will need to spend "cleaning" data prior to analysis.

The following are some tips for encouraging people to record required data and to do so accurately and consistently:

- HR should ensure that everyone who is required to record data has access to the necessary sources and tools. For example, where people are expected to record data in the HR information system, this means checking that they have the credentials to log into the system and know where to enter the data. If there is a spreadsheet for recording data, all users should know how to access it. It may help to provide a link to it on the organisation's intranet and to place the spreadsheet on a shared drive.
- HR should design data entry forms that minimise the scope for errors and inconsistencies. These should provide clear instructions on what information is required. For example, if employees are required to give a cause of absence when recording sickness absence, it can be useful to provide a "drop down" list of common reasons to ensure that everyone uses the same standard terms. Ensuring that all back-related absences are recorded as "back pain", for example, means that it will be easier to analyse the data than if various terms are used, such as "backache", "back problems" and "back". HR should be careful with catch-all terms such as "minor illness" - some employees may record a sore throat under this option, whereas others might choose "ear, nose and throat", for example. Further, it should be clear what format the data should take, for example all dates should be recorded in a consistent format such as DD/MM/YYYY.
- HR should ensure that everyone records data in the same place or through the same medium. For example, while some line managers might record sickness absence on paper, others in the same organisation might record it in an Excel spreadsheet - so using these different methods should be discouraged.
- A self-service model for recording employee data can save HR a significant amount of time and effort, so long as employees and managers actually record the data and do so accurately.
- Users should not store their own version of spreadsheets on their desktop or personal drive, as they may omit to transfer the data to the master version.
- It is good practice to password protect any centrally held spreadsheets to prevent unauthorised users from accessing confidential information or making changes to the data.
- HR should agree and issue a data dictionary to ensure consistency when recording and analysing data (see **Data dictionary**).

- The user interface for inputting data should be as intuitive and user friendly as possible. Testing and IT assistance may be necessary if changes are required to improve the interface.
- HR should give clear instructions on how often data should be recorded, eg daily, weekly, monthly or annually.

There may be resistance to recording data from people who are reluctant to add "data entry" to their duties. The HR team should ask people to record only the data that is relevant to the business problem under investigation, and communicate the business benefits of the exercise to those being asked to collect the data (see [Identifying the objectives of the project](#)).

## Data dictionary

The HR team should be clear about what they are measuring for the purpose of a people analytics exercise. For example, if they are measuring cost per hire, they need to define what factors this includes. Does it take into account the cost of HR time, for example? They should define even relatively simple metrics, such as headcount, as some people might include freelance employees and staff on zero hours contracts, whereas others might not.

To ensure that all those involved in collecting, analysing and using people data interpret metrics consistently, the HR team should compile a data dictionary setting out a definition and other important information for each relevant metric. The team may take charge of compiling the dictionary, but they should involve other departments when creating the definitions, both to obtain their input and to encourage their buy-in to the project.

Other functions could provide definitions of metrics relevant to them, for example:

- the finance department could provide definitions of financial metrics such as gross and net profit, and measures of shareholder value;
- the production department could provide definitions for output and productivity measures such as units produced per week or the ratio of units produced and hours worked; and
- the sales department might provide definitions of customer-based measures such as customer retention or customer service.

Each entry in the data dictionary should include several details on the metric, including:

- definition (what the metric means);
- data required;
- formula (how the metric should be calculated);
- use (how the metric should be used);
- complementary metrics (other metrics that might be considered alongside this metric); and
- warnings (factors to be aware of when using the metric).

The following is an example data dictionary entry for the metric "first-year turnover rate":

- **Definition:** The proportion of employees who have left within their first year at the organisation. This includes both full- and part-time employees. It includes both employees on permanent contracts and those on fixed-term contracts that exceed one year.

- **Data required:** The number of employees hired in the last 12 months and the number of those employees who have left.
- **Formula:** Total number of leavers with 12 months' or less service in the last 12 months / Total number of new recruits in the last 12 months.
- **Use:** The metric provides an indication of the quality of the organisation's recruitment, selection and/or induction processes. A high rate could indicate that:
  - the recruitment process is not providing applicants with an accurate impression of the organisation and/or role;
  - the selection process is not resulting in the selection of candidates who are a good fit with the organisation; and/or
  - the induction process is not providing new recruits with the support and guidance they require to integrate into the organisation.
- **Complementary metrics:** The metric may be used alongside other metrics to provide further insight, for example:
  - total labour turnover rate;
  - turnover rate by length of service;
  - turnover rate by age group;
  - turnover rate by role;
  - cost of voluntary turnover; and
  - cost per hire.
- **Warning:** In departments that expect a higher than average first-year leavers' rate, such as customer service, it may be more beneficial to look at turnover over a shorter time frame, for example six months or 90 days.

## Cleaning the data

A common obstacle to conducting successful people analytics is "unclean data", that is datasets that are incomplete or contain inaccuracies, inconsistencies or duplicate data. Cleaning data can be a time-consuming task - analysts can spend up to 80% of their time cleaning data on any given data project. However, where the organisation has a good system in place for collecting data (see [Collecting data](#)) this is likely to cut down significantly on the time needed for cleaning the data.

Cleaning data involves:

- correcting spelling mistakes and typographical errors;
- putting the data into a consistent format, for example formatting all dates into a DD/MM/YYYY format, and checking that all digits use the same number of decimal places;
- deleting duplicate records - generally, there should be only one record for each employee, for example; and
- identifying and amending any obvious anomalies - if an employee's salary falls well outside the normal range, for example, this might indicate that the data was entered incorrectly.

Many software programmes offer tools that can help analysts with each of these steps. A spell checker, for example, will identify most typographical errors, and most spreadsheets offer a tool for identifying duplicate records. Producing a basic list of descriptive statistics on a dataset, for example the mean, median and range for each variable, should help users to identify any outliers.

Following the steps outlined above is unlikely to result in data that is 100% accurate. To attain data with this level of accuracy would require the HR team to audit all the data. In order to obtain data with an acceptable level of accuracy and consistency, HR should audit a subset of the data, for example by comparing a subset of data listed in an Excel spreadsheet against paper records. If the team find only a few errors this should indicate that the data is sufficiently accurate.

## Analysing the data

Having cleaned the relevant data, the next step is to conduct some analysis. There are three main stages of data analysis, which are:

- reporting, which looks at what happened;
- further analysis, which looks at why it happened, providing context for the results; and
- predictive analytics, which looks at what could happen in the future.

### Reporting

Reporting is the most basic form of analysis. It involves applying a formula to a dataset to derive basic insights. For example, obtaining the mean and median figures on a dataset will provide a useful overview. Basic formulas are readily available in software packages such as Microsoft Excel.

A simple report may reveal, for example, that the organisation had a median sickness absence rate of six days per employee over the past year. However, it will not provide any context for the result or explain the reasons behind it.

### Conducting further analysis

Having run a report on the data, HR then needs to ask: "What is this data telling us?" To answer this question, further analysis is required, which includes:

- benchmarking against internal and external measures;
- identifying trends; and
- establishing correlations.

### Benchmarks

Benchmarks allow organisations to put their data in context. Benchmarks may be internal, for example an organisation could compare its overall labour turnover rate in 2016 with the equivalent figure from 2015 and 2014, or it could compare turnover between different departments in the organisation.

Benchmarking can also be external, for example the organisation could compare its sickness absence rate with the rate in similar organisations. Organisations can be matched in terms of industry, size or location, for example, or through a combination of such factors. Matching the comparators as closely as possible will help to ensure that external benchmarks are valid. XpertHR's **benchmarking tool** provides benchmarking data on a wide range of metrics, including absence, pay awards and benefits, recruitment and retention, and training and development.

## **Trends**

Trends (also known as time-series analysis) indicate how variables - ie measurable factors such as absence, labour turnover and company profit - have changed over time, which can be very useful. For example, if the HR team find that sickness absence has increased every year for the past three years, this could suggest that there is an underlying problem that the organisation needs to address.

Identifying trends essentially requires HR to carry out a series of benchmarks over time. HR will need to calculate an average figure (typically the mean or median) for a variable over a particular period of time, eg several months or years. For example, an organisation might look at how its sickness absence rate has changed on an annual basis by calculating the median sickness absence rate for each year over a period of five years.

The sample used for comparison should remain fairly steady year on year. HR should take account of any significant changes in the workforce, for example if the organisation has acquired a new business or made a significant number of redundancies, as this could affect the sample to the extent that annual comparisons are difficult to make.

It is usual for HR to present trends in the form of line graphs, with separate data points plotted for each time period. This gives a clear visual illustration of whether the variable is trending up, trending down or remaining steady over time.

## **Correlations**

Correlations look at how two (or more) variables interact. For example, where one variable is absence levels and the other is department, and the amount of absence varies by department, this shows a correlation between the two variables.

HR might need to use specialist statistics software to find a correlation. Correlations are presented as scatter plots, with one variable on the horizontal (x) axis and the other variable on the vertical (y) axis. If the data points align with one another, HR can say that there is a correlation. If variable x increases as variable y increases, this is a positive correlation, for example where performance levels and bonus payments both increase. If variable x decreases as variable y increases, this is a negative correlation, for example where salary decreases as turnover increases. If the data points are scattered across the graph, there is no significant relationship between the two variables.

Correlation does not necessarily mean causation, ie that a change in one variable is the cause of the change in another variable. A third factor may help to explain the relationship between two variables. Taking the absence and department example referred to above, it might be established that customer service is the department with the highest level of sickness absence. However, if employees working in customer service are paid less than employees working elsewhere in the organisation, it may be that employees on low pay are more likely to take sick leave no matter in which department they work.

## **Predictive analytics**

Predictive modelling offers the potential for great rewards, both for the business and for HR's standing in the organisation. It is highly complex and requires a substantial amount of accurate and reliable data. It is therefore likely that, to conduct predictive modelling, an organisation will need to have an established history of using analytics and a team of skilled analysts. See **Data as a predictive tool** for more information.

## Communicating the analysis

There are various people within the organisation to whom the HR team should report the results of their analysis. Senior decision-makers will need to be informed, as they will have been involved in the project from the start and their backing will be needed to move the project forward.

Whether or not the information should be shared with line managers and employees will depend on what the project is and the extent to which they have been, or are likely to be, involved with it:

- Where they have been involved in recording the data, sharing a basic summary of the analysis will demonstrate that the data is being used and encourage them to continue to record the data.
- Where there are changes to policy and practice as a result of the analysis, understanding the impact that the data has on the business will encourage people to follow through on the changes.

Further, creating an open culture around data can prompt valuable conversations about the quality and content of the data, and people's feedback may help to improve data collection, analysis and use in the future.

To make an impact, rather than presenting raw data, the communication should include context to help the audience understand the data. It might, for example, demonstrate how the data compares against internal or external benchmarks (see [Analysing the data](#)). The make-up of the audience should play a part in informing the contextual information chosen. For example, when communicating with senior leaders, HR are likely to want to demonstrate what impact the metrics have on the organisation's objectives and/or bottom line, so might present the data in the form of £s added to or lost from the bottom line.

Creating a compelling message will help HR to make an impression. When communicating with the senior leadership team, it can be particularly effective for HR to approach data communication as if telling a story, using a plot with a beginning, a middle and an end. This should cover: where the organisation is now, and whether that is good or bad; what action is recommended as a result of the analysis; and what a successful outcome would look like. This will help senior leaders to understand what the data means for the organisation and how it could be used to achieve its strategic goals.

The make-up of the audience will also play a part in the decision about how the analysis is communicated. A written report and face-to-face presentation may be appropriate for the senior leadership team, for example, whereas it may be sufficient to communicate the analysis to line managers and employees via the corporate intranet or a "town hall" event. A visual element to the communication (for example bar charts, line graphs, pie charts and scatter plots) is likely to help people understand the analysis and can be used to convey a lot of information in an easy-to-digest format.

There may be occasions when it will be uncomfortable for HR to communicate the outcome of a people analytics project to the leadership team, for example if sickness absence levels are rising rapidly or the cost of recruitment is spiralling out of control. However, it is important to be honest; the HR team should present the data clearly and concisely without trying to assign blame or hide the facts. They should put forward potential solutions to problems, and be prepared to answer questions.

## Data dashboards

A data dashboard is a useful way to present data. This is a tool that draws together people data and displays it in one place, typically visually, in graphs and charts, to make it easier to spot trends and issues at a glance. Dashboards are usually made available online so that they can be readily updated and are easy to access, but it is possible to print them out and distribute them as hard copies.

Where the HR team is conducting a specific people analytics project, they could use data dashboards to communicate the data and analysis to senior leaders, either on an ad hoc basis or in real time for them to access at any time through the HR information system or corporate intranet.

Data dashboards can also be used to display "health check" metrics. These are key people metrics that the HR team collect and analyse on an ongoing or regular basis. The relevant metrics will depend on the needs of the organisation, but typically include: organisation headcount; headcount by department; vacancies by department; sickness absence by department; and revenue or profit per employee.

Data dashboards should not display too many metrics as they can become unwieldy. They should focus on the information that relates most directly to the organisation's corporate objectives. For example, if a large expansion is planned, the dashboard could include details of vacancies and time to hire broken down by department and/or location. An online dashboard could link to less essential data via menus or hyperlinks.

The HR team may need to outsource the task of creating a data dashboard, either internally to IT or marketing or to a third-party specialist.

## Using data to make business decisions

HR should use people analytics to make or recommend business decisions that will help the organisation to achieve its strategic goals and have a measurable impact on the bottom line. For example, if the business has a goal of improved customer service, and an analytics project reveals a clear causal link between high bonus levels and improved customer service ratings, HR can be confident in recommending to the board that it should increase the bonus pool. The key is that any actions that the HR team suggest should lead to clear business outcomes, for example reduced employee turnover, improved employee performance or increased profitability.

## Taking action

Although the HR team will analyse the data and recommend actions to the business, other departments in the organisation may be responsible for taking the actions. If an analysis points to a need to increase the budget for bonus payments in order to improve levels of employee motivation, for example, the required action will involve the finance department. Therefore, the HR team should work closely with senior leaders across the organisation to determine how to effect the changes.

The team may need to work closely with line managers to encourage them to take actions as a result of the findings. Showing them the results that they can achieve is one of the best ways of doing this (see also **Communicating the analysis**). For example, one of the key drivers of Nationwide's "Genome" model (see **What is people analytics?**) was that it "talked the language of the business"; it translated people data, such as employee engagement scores and length of service, into business results, such as mortgage and

personal loan sales. This allowed line managers to evaluate the impact of people data in a tangible way. For example, knowing that increasing overall customer satisfaction by 1 percentage point would improve the company's overall financial performance by more than £6 million gave line managers a more compelling reason to manage employees' customer service performance than being told by senior management that improving customer service was a general corporate objective.

## Data as a predictive tool

The concept of "predictive modelling" is at the most advanced end of the people analytics spectrum. This involves taking historical data and using it to make reliable predictions about important business issues. For example, Nationwide's "Genome" model was able to use HR metrics such as employee satisfaction and basic pay in combination to generate highly specific predictions about business indicators such as sales growth (see [What is people analytics?](#)). Some organisations use data models to predict which employees are most likely to leave the organisation, and what actions are likely to encourage them to stay, which can save the organisation thousands of pounds in recruitment and training costs.

Predictive analytics involves spotting patterns and trends, which requires a certain amount of data to have been gathered over a period of time. The amount of data needed to make accurate predictions will vary depending on the business question. For example, the impact on employee productivity of increasing weekly bonus payments should become evident within a few months, whereas the impact on business performance of recruiting senior managers only if they have achieved an MBA may take several years to materialise. Skilled analysts can identify the point at which a trend has stabilised, ie when adding more data would have relatively little impact on the predictive quality of a model.

To make confident predictions, analysts need to have the skills to be able to identify the drivers behind the results of their analysis, as several variables may be involved. For example, if the HR team increase the weekly bonus payments for a group by 10 percentage points, and the group's productivity rises by 5 percentage points, the analyst will need to consider whether or not other variables such as training and development were present, and what effect they had.

## Measuring success

The HR team will need to assess the success of actions taken within the organisation as a result of the data analysis project to identify any return on investment. A return on investment should help to secure funding for further people analytics work, and continued success with people analytics may result in it becoming a "business-as-usual" process.

To demonstrate a return on investment, HR should take before and after measures. If the recommended actions were designed to reduce sickness absence, for example, the measures could include the median sickness absence level. If absence levels improve, HR will be able to demonstrate a correlation between the initiatives that it introduced and a fall in absence levels.

Proving that any improvements were due wholly to the changes recommended by HR as part of a people analytics exercise can be difficult. This is particularly so where the measures used to determine success are business metrics such as profitability and shareholder value, as almost every aspect of the business can affect these measures. However, a record of sustained success will help to demonstrate the value of people analytics, and the more analytics projects that the team conduct, the larger the portfolio of evidence of its benefits will be.

## Data protection

Organisations that engage in people analytics must act in accordance with the Data Protection Act 1998, because data that relates to individuals who can be identified from that data amounts to "personal data" under the Act, and the activities involved in people analytics amount to "processing" personal data.

Data protection law changes in 2018, when the General Data Protection Regulation (GDPR) comes into force. The relevant requirements under the Data Protection Act 1998 and the GDPR are broadly similar.

## Anonymisation

Where data is anonymised it will not fall within the scope of data protection law. Anonymisation prevents individuals from being identified from data, so it is not personal data as defined by law. It requires all personal information to be stripped out of a dataset irreversibly. Data that should be removed includes the employee's name, ID number, job title, date of birth, telephone number, email address and residential address.

For anonymisation, the identifying information must be deleted permanently from the dataset; HR and other departments within the organisation must not retain information that would enable individuals to be identified at a later stage. This may not be possible because the identifying data may be needed for other purposes, such as processing benefits payments.

Even where permanent deletion is not possible, if the personal data can be removed for the purpose of the analytics project, this should be done to protect the privacy of the individuals whose data has been collected.

Whether or not personal data has been removed on a permanent basis, aggregating the data is an effective way of ensuring that individuals cannot be identified from it. For example, when conducting an analytics project based on a group of individuals, the data should be aggregated and reported in summary form so as not to disclose personal data relating to a particular individual.

For further guidance on anonymisation, see [\*\*Anonymisation: managing data protection risk code of practice\*\*](#), produced by the Information Commissioner's Office.

## Data protection principles

Where an organisation processes personal data, it must do so in accordance with the data protection principles under data protection law. Below we consider the principles that have most significance in relation to people analytics.

### **Fair and lawful**

One of the key requirements of data protection law is that personal data must be processed fairly and lawfully. To establish whether or not processing is fair, before undertaking an analytics project, HR should assess how the project will affect the individuals whose data will be collected, analysed and used.

This can be achieved by undertaking a privacy impact assessment, which is a risk management process that requires HR to consider how the project will affect the privacy of the individuals involved, and implement solutions to reduce identified privacy risks.

Reducing privacy risks could involve, for example, training staff who will be handling the data on how to do so appropriately, anonymising information where possible and implementing a retention policy to delete personal data after a certain period of time.

Fair processing also requires employers to be transparent with people when they collect their data. Prior to collecting data for the purpose of people analytics, the HR team need to explain to employees various matters such as what data will be collected and how it will be used.

If the data has already been collected for another purpose, and the relevant individuals have not been informed that their data will be used for the analytics project, HR should inform them of this prior to analysing the data or using it in any other way. This can be done by providing a "privacy policy" or "fair processing policy" to the individuals concerned by way of an email where the data of a group of individuals will be analysed as part of a particular project, or distributing a written policy to the wider workforce if the project is being undertaken on a larger scale.

Where the HR team transfer the data to a third party to assist with the people analytics project, they must make the relevant individuals aware of this before the transfer takes place.

The requirement for lawful processing means that organisations must satisfy at least one of the legal grounds for processing set out under data protection law in order to justify processing personal data. In the context of people analytics, HR might seek to rely on the legitimate interests ground, in that there is a necessity to process data for the purpose of pursuing the legitimate interests of the organisation, such as to improve business performance, solve business problems or inform decision-making and strategy. Consent, which is one of the other legal grounds for processing, is unlikely to be sufficient on its own; there is some concern that the conditions for valid consent are not satisfied in the employment context because it is not considered to be "freely given". Therefore, while the HR team may choose to obtain consent from the individuals to whom the data relates, they should not rely on consent alone.

The HR team should establish the legal ground(s) for processing on which they are relying prior to undertaking a data analytics project, and keep a record of these ground(s).

### ***Data minimisation and storage limitation***

Data protection law embodies the concept of "data minimisation", which requires organisations to keep the amount of data collected and processed to a minimum. Pursuant to this, HR should decide on the project's objectives, develop the relevant metrics and ensure that the data collected is relevant and not excessive in achieving those objectives and measurements. For example, if the purpose of the project is to find out the cost of staff turnover to the business, it would be excessive to collect data concerning sickness absence.

Further, in order to comply with the storage limitation principle, HR should not keep personal data for a long period of time. Data retention policies (the organisation's internal policies establishing for how long records containing personal data should be retained for legal, operational, regulatory and compliance needs) should note the period for which data may be retained after completion of a people analytics project, and establish a procedure for securely and permanently deleting the data when it is no longer required.

## **Security**

HR should investigate what information security systems and processes are in place to keep the data collected secure at all times to ensure compliance with the integrity and confidentiality principle. The HR team should work closely with other departments, particularly IT. Processes for keeping data secure include ensuring that the data is password protected, encrypted (where it is being transferred outside the organisation), locked in filing cabinets (where hard copies are made or kept) and accessed only by members of staff who have been trained in data protection compliance and who need to access the data for the particular project.

## **Individual rights**

Individuals have rights in relation to accessing their personal data, including the right to be provided with a copy of the data where they make a request to see it. HR must ensure that it has a process in place so that, on receipt of a request by an individual, it can easily access and collate the individual's information and respond to the request in a timely manner.

Individuals also have rights in relation to automated decision-making, meaning decisions that are based solely on the automated processing of their personal data, where the decision significantly affects them. Broadly, the rights are that employees may ask their employer not to make such a decision, but where such a decision is made, the organisation must inform the employee about this and he or she can ask the organisation to reconsider the decision or take a decision on a different basis.

Automated decision-making may not be an issue in the context of people analytics, because decisions are usually taken by humans or with human oversight. If any decisions are made solely through automated processing, the HR team must ensure that they have a procedure in place to deal with individuals' rights.

## **Disclosing and transferring personal data**

Data protection law sets out specific requirements that organisations need to meet where they give personal data to third parties or transfer data outside the European Economic Area (EEA). HR might transfer personal data to a third party where it is outsourcing part of a people analytics project, for example where an external organisation is analysing the data or storing it as a cloud service provider. HR might transfer personal data to a country outside the EEA where, for example, the organisation's HR data is housed on a global server located at its headquarters in the US.

The legal rules around disclosing personal data to third parties and transferring it outside the EEA are detailed and complex, and outside the scope of this guide, but the HR team should be alert to the issues involved. The organisation must be satisfied that any relevant third party has processes and procedures in place to keep the data secure, and there must be a written contract in place with the third party that satisfies specified legal requirements. When transferring data outside the EEA, there must be specific measures in place to ensure that the data continues to be adequately protected.

Where an analytics project involves one or both of these situations, the HR team will most likely need to involve other departments in the organisation (such as the compliance and legal teams) to ensure that the organisation complies with the legal requirements.

## Case study

Fictional Supermarkets Ltd is a supermarket chain with 25 supermarkets and 1,200 store staff.

At the start of the year, the board set out a new five-year plan for the business, which included three objectives, these being:

- to grow sales revenue by 5 percentage points;
- to improve customer service ratings by 10 percentage points; and
- to develop a profitable line of "own brand" goods.

Jane Doe, the company's HR director, identified the goal of a 10-percentage-point improvement in customer service ratings as an area in relation to which the HR function could have a strategic impact in the short to medium term. She approached the board with an idea for a project to examine the link between employee skills and customer service ratings, to see if an increase in training spend could help the company to achieve this goal. The board was pleased to see the HR function focusing on business goals and gave the project its backing.

At the outset of the project, the HR team identified two metrics that would help with the project: customer service excellence; and the percentage of employees who completed the company's customer service training e-learning module.

HR gathered data on customer service excellence using the results of the company's regular email and telephone surveys. There was a delay in the process because the customer service department was reluctant to share its data, citing issues of privacy. Doe approached the senior leadership team to ask if they could intervene, and eventually she was able to secure access to anonymised data. The HR team sourced the completion rate of the customer service training module from the company's online training and development system, which keeps a record of every training module completed by employees.

Store	Average customer service rating (%)	Customer service training completion rate (%)
Aberystwyth	83	72
Bangor	56	58
Cheltenham	78	98
Derby	82	86
Exeter	32	43
Fife	78	88
Grantham	92	97

The HR team then conducted an analysis to see if there was any correlation between the two metrics. They found a strong relationship: in stores where a large number of employees had completed the customer service training module, ratings of customer service were excellent, and in stores with low completion rates, customer service ratings were poor.

HR presented the results of its investigation to the senior leadership team in a short face-to-face presentation. It used graphics to highlight the key information, including a scatter plot that illustrated the clear correlation between the two metrics.

## Relationship between customer service training and customer service rating



HR concluded that the high correlation between the two metrics suggested that a higher completion rate of customer service training would lead to better levels of customer service. The board agreed and decided to make the company's customer service training module mandatory for all existing store staff and all new starters. It also asked HR to present its findings to all store managers at the next company meeting, to allow them to see the evidence behind the decision and to obtain their buy-in to the new approach.

Doe and her team decided that they would conduct the analysis again in 12 months' time to check the continuing existence of a correlation between customer service ratings and completion of the customer service training module, and to see if customer service ratings had improved.

### About XpertHR

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