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People Analytics
Predictive people analytics demystified

New analytic capabilities mean that organisations are able to predict business outcomes based on workforce and people analytics. Data is an asset that can be utilised to benefit organisations, and people analytics is the practice of collecting and interpreting data on the workforce to make better business decisions. It can help organisations measure and develop skills within the organisation while predicting employee performance based on past behaviour. When using data analytics effectively, organisations can improve overall productivity and employee performance by identifying and filling skill gaps through repeatable, scalable and objective HR decisions.

Why people analytics is important

Research on people analytics adoption shows that advanced data-driven organisations outperform emerging organisations on various financial metrics.[1]

Compared to emerging analytic organisations, those with advanced capability in people analytics have:

46% have dedicated people analytic teams	**56%** higher profit margins	**22%** higher average return on annual company equity

While widespread adoption of people analytics might be limited, it has grown from an HR-specific function to one that can work to benefit all departments within the company. The ability to analyse vast amounts of data should be a business-wide function , not just limited to HR.

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1   Visier, *The Age of People Analytics.*

To develop a data-savvy business, it must be a focus throughout the organisation, and should start at the top with the C-level leaders. In order to truly benefit the organisation with people analytics, HR should work closely with the C-level leaders.HR leaders are best suited to predict the future needs of the company regarding the required skill sets of future candidates.[2]

While recruitment is the main area within HR in which data analytics is applied for many organisations, it is also used in performance measurement, workforce planning and retention[3]. People analytics can be utilised throughout an organisation, as it can have a positive business impact many departments over and above HR. There is currently large growth in the use of interactional or relational analytics, and studying employee behaviour to better understand potential business improvement opportunities.

A recent report from Deloitte found that 71% of companies view people analytics as a high priority for their organisation. However, only 9% say they have a good understanding of the factors that drive performance, and 8% say they don't have any usable data in the first place[4]. A data-savvy HR team is necessary to collect and use relevant information. By understanding the analytic capabilities of your HR team and filling any gaps through development and hiring, recruiters will be well positioned to make the most of analytic tools to add long term financial value to the organisation through better hiring decisions.

Why HR's role is shifting

In the past, HR leaders have relied on trusting their gut to make people and recruitment decisions, which is often ineffective[5]. Additionally, due to the tactical day to day role requirements and time constraints of their roles, many HR leaders have struggled to advance their digital competency[6]. These factors have hindered their ability to leverage data

into talent strategies that can help transform their businesses.[7]

OLD rules	NEW rules
People analytics is viewed as an HR team focused on advanced analytics within HR	People analytics is viewed as a **business analytics team** that works across the business to **drive business results**
Analytics focused on **HR topics** such as retention, engagement, learning, and recruitment metrics	Analytics focuses on **business problems** such as sales productivity, workforce effectiveness, high-potential retention, fraud, accident patterns, and other operational needs
The organisation makes a business case for better data integration, quality, and tools	The organisation has already committed to **accurate and integrated data**, and has tools and processes to ensure **quality and ease of analysis**
The people analytics team has a strong understanding of HR data	The people analytics team understands HR data, financial data, and customer data, and it has **relationships with all the other analytics groups** in the company
The people analytics team lives in HR operations and reports to HR technology, or in functional areas	The people analytics team **operates at a senior level**, reports to the CHRO, and serves business leaders across the company
The people analytics team is a small set of technical experts with data management and statistical skills	The people analytics team is a **multidisciplinary team**, with a focus on business consulting, visual communications, and problem solving
People analytics is staffed by PhD statisticians whose primary focus is the development of models and data warehouses	People analytics is a consulting function that helps business leaders **solve problems**
People analytics focuses on employees	People analytics focuses on the **entire workforce**, including employees and contingent labor
The people analytics team focuses heavily on engagement survey data and employee happiness and culture	The people analytics team moves beyond engagement to understand the **detailed drivers of engagement** and builds **culture models** to understand what drives the workforce

Figure 2. People analytics: Old rules vs, new rules. Deloitte University Press dupress.deloitte.com

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2   Selewach, "Reasons Why HR Should Be Part of the C-Suite"
3   Collins et al., "People Analytics."
4   Collins et al., "People Analytics."
5   Prickett et al., "The Importance of First Impressions in a Job Interview".
6   Guenole et al., *Power of the People.*

7   Sinar et al., *HR Leaders Need Stronger Data Skills.*

Changing labour market dynamics are pushing HR to be faster and smarter about how it finds and develops the talent that organisations need. A recent global leadership survey found that on average, HR leaders lag behind other professionals in their ability to collect and use data to guide business decisions[8]. Investing in developing HR's data and technology skills should be a top priority if companies want to attract and keep the best talent, as people have a significant impact on an organisation's performance

Developing and hiring for analytical capability within the team

You can gauge HR professionals' levels of comfort with analytics by checking for specific skills when hiring and monitoring employee engagement with learning opportunities. Once you understand the different levels of analytical comfort and expertise that exist within the team, you can determine how to hire and develop each skill level. Analytical ability can be assessed by administering well-designed psychometric tests that measure general mental ability (which indicates a person can acquire job-related knowledge quickly) or monitoring current analytic performance. You should also consider less traditional evidence of learning beyond formal education, such as online courses.

Research has shown that HR professionals can be broadly categorised into one of three groups with respect to their current analytical capability[9]:

Analytically Savvy - These are HR professionals who are formally trained in analytics techniques and are adept at working with data and interpreting analyses.

Analytically Willing - These people are open-minded about analytics and are ready, able, and willing to learn, though they lack formal training in data analysis.

Analytically Resistant - This group tends to be sceptical and dismissive of the value of a data-based approach, preferring instead to rely on intuition.

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8   Development Dimensions International, *Global Leadership Forecast 2018.*
9   Guenole et al., *Power of the People.*

The key to developing analytical capability among existing employees is to provide engaging learning opportunities to workers at all levels of expertise.

Keep analytically savvy workers' skills up to date by providing opportunities for advanced training such as participation in professional groups and conferences. Pair them with a colleague who is analytically resistant to help them use data and analytics to solve a problem with which they are struggling. The ultimate goal is not to transform the analytically resistant into data experts, but to have them see the value in analytics and, ideally, embrace it as a path to success.

A good starting point for analytically willing employees is to provide a base education on HR analytics. This can be achieved by requiring all HR staff to complete an online course about the basics of workforce analytics, or by again pairing them with an analytically savvy colleague.

Measuring analytics throughout the company

Finding ways to improve HR's data and analytic skills can be challenging, a good place to start is by upskilling teams in areas that impact critical business outcomes. To achieve this, companies can support their HR leaders by helping them forge internal partnerships and making the link between people analytics and business outcomes clear.

At most companies, other departments use data and technology in ways that could apply to HR. For example, working with marketing for guidance on search engine optimisation (SEO) could help HR improve its recruitment efforts. Such internal collaborations may not only help employees attain new skills, but also develop a collaborative and data-driven culture.

HR needs to tie its people and performance data and business outcomes. This process begins with gathering data about the skills, capabilities, and behaviours of the existing workforce, including its leaders, which is often done through assessment. By collecting data on employee ability and tying it to business outcomes such as turnover or

productivity , HR can highlight key areas of risk and opportunity for the company.

Taking these initial steps can yield big dividends. Research shows that companies excelling in using data and analytics to drive their talent strategy are more than six times more likely to have a strong leadership team. Moreover, those with the strongest digital leadership capabilities outperform their peers by 50% in a financial composite of earnings and revenue growth.[10]

People analytics can have a range of benefits on a business, and a large section of this is through HR analytics for recruitment.[11] Within HR analytics many aspects can be measured[12], some of the more important ones are: employee net promoter score, turnover rate, cost per hire, average time to fill, training cost and time, revenue per employees and the quality of hire.[13]

AVERAGE TIME TO FILL

Another commonly used recruiting metrics is the average time to fill. This looks at the average number of days it takes from a job being posted to an offer being accepted within an organisation. The time to fill can vary between companies and positions as different recruiting methods can be applied, but a survey by the Society for Human Resource Management (SHRM) found the average time to fill is 42 days.[14]

The base formula for this is:

$$\text{Average Time to Fill} = \frac{\text{Total Number of Days of Open Jobs}}{\text{Total Number Open Jobs}}$$

10 Development Dimensions International, *Global Leadership Forecast 2018.*
11 Green, "10 Predictions in HR".
12 Altiero, "14 HR Metrics and How to Calculate Them".
13 Visier, *The Age of People Analytics.*
14 SHRM, *Human Capital Benchmarking Report.*

To gain a better understanding of their recruitment process, many HR leaders will break down the time to fill into segments. As each company's hiring process is different these segments can include:

- Time to advertise an open position in all channels
- Time to identify an acceptable candidate
- Time to complete assessments
- Time to complete all interviews
- Time to create and extend an offer
- Time for a candidate to accept an offer

This sort of breakdown helps recruiters get a fuller picture of their time to fill and identify problems within the recruitment process that may be increasing time to fill more than is necessary.[15] The above metric equation can be used to calculate the average time for each of these segments.

Hiring faster increases team productivity as you won't lose high-quality in-demand candidates who may be gone in as few as 10 days. Slow hiring means that key unfilled positions are open for dozens of additional days. And with no one in the job, the work remains undone. The productivity or revenue loss for some jobs may be several thousand dollars for every position vacancy day. The strain of team members having to fill-in for vacant positions may also increase team stress and turnover.[16]

EMPLOYEE NET PROMOTER SCORE

A net promoter score (NPS) is used to determine customer satisfaction, and similarly, an employee net promoter score (eNPS) can be used to determine employee engagement and happiness.

15 Smykal, "Breaking Down The Time To Fill Metric".
16 Sullivan, "Recruiting's Top 7 Bottom-line Business Impacts".

To get an eNPS score, employers must routinely survey their employees, for example twice a year or once every quarter. The survey should ask employees to anonymously rate their willingness to refer their company to a friend or colleague, or something similar, on a scale of 1-10.

Break the results into these three sections:

- Ratings from 0-6 are detractors
- Ratings from 7-8 are passive
- Ratings from 9-10 are promoters

To calculate your eNPS, use this equation:

$$\text{eNPS} = \%\ \text{Promoters} - \%\ \text{Detractors}$$

eNPS is a great metric for business leaders to measure frequently and use to set goals around improvement each time the survey is conducted. A higher eNPS shows higher employee engagement, which in turn predicts lower levels of attrition.

TURNOVER RATE

Employee turnover rate is one of the most commonly used HR metrics. It shows the percentage of employees who leave a company during a given time frame that the company intends to replace. Turnover metrics can help gauge a company's culture; high turnover rates could mean internal issues that leadership should address, but low turnover rates mean that your employees are motivated to stay.[17]

One way to calculate this metric is:

$$\text{Turnover Rate} = \left(\frac{\text{Number of Separations}}{\text{Average Headcount}} \right) \times 100$$

It is also important to monitor early turnover, employees who leave within their first year:

$$\text{New Hire Turnover Rate} = \left(\frac{\text{Number of Employees Who Leave After <1 Year}}{\text{Total Number of Separations During the Same Period}} \right) \times 100$$

Decreasing turnover can have a significant impact on an organisation, as turnover costs are usually higher than recruitment and training costs combined. According to a recent study, the average turnover cost per nurse is \$23,800.[18]

COST PER HIRE

Calculating cost per hire helps companies and hiring departments understand the cost of each new hire, which is why it is often viewed as one of the most important recruiting metrics.

This requires some time to accurately calculate, as there are internal and external expenses that need to be calculated first but accurately measuring cost per hire can help determine how cost-effective a recruiting strategy is.

External recruiting costs can include agency fees, advertising, job fairs, etc.

Internal recruiting costs can include salary and benefits for everyone involved in the recruiting process as well as recruiting software, etc.

To calculate cost per hire:

$$\text{Cost Per Hire} = \frac{\text{Total External Costs} + \text{Total Internal Costs}}{\text{Average Headcount}}$$

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17   Reh, *How to Avoid Excessive Employee Turnover.*

18   (North, et al. 2013)

TRAINING COSTS AND TIME PER EMPLOYEE

Learning and development are important for both employers and employees. As many businesses put a lot of resources to help train their workforce, it is important to be able to monitor and be able to justify the time and cost of training[19].

One popular metric for this is training cost per employee, which breaks down how much on average the company is spending on learning and development per person.

The formula to calculate this metric is:

$$\text{Training Cost Per Employee} = \frac{\text{Total Money Spent on Training}}{\text{Number of Employees Who Participated in Training}}$$

The second component of this is training time per employee. This breaks down the average hours of training time per person and can help a business determine how many training hours each employee needs to meet larger organisational goals.

Here's how to calculate this HR metric:

$$\text{Training Time Per Employee} = \frac{\text{Total Number of Training Hours}}{\text{Total Number of Employees}}$$

REVENUE PER EMPLOYEE

Revenue per employee is a ratio used to determine the revenue generated per individual working at a company. This can be used for determining the efficiency and productivity of an average employee and can help determine how a company is best able to utilise its employees and contribute to its business growth[20].

To calculate a monthly number:

$$\text{Revenue Per Employee} = \frac{\text{Monthly Revenue}}{\text{Number of Employees}}$$

To calculate a yearly number:

$$\text{Revenue Per Employee} = \frac{\text{Yearly Revenue}}{\text{Number of Employees}}$$

Generally, this ratio is employed to compare the performance of companies within an industry, as labour-intensive companies usually have lower ratios compared to those which require a lesser amount of labour.

QUALITY OF HIRE

Measuring the quality of hire is a process that is still evolving, and as such companies can measure it in a variety of ways. Figuring out how to define the measurement of quality of hire is a challenge and depending on what an organisation's priority is, quality of hire can mean different things. Common quality-of-hire metrics can include turnover rates, job performance and employee engagement, or any of the other hiring metrics we have mentioned in this chapter. Quality of hire can also be defined as the on-the-job performance of new hires, compared to a standard employee.

Measuring Quality of Hire

As pre- and post-hire performance quality measures are distinct, candidate metrics should be calculated both pre- and post-hire to effectively measure the quality of hire at each stage.

19   Altiero, "Why On-Demand Learning Is More Important Than Ever".

20   Corporate Finance Institute, "What is Revenue Per Employee".

To calculate pre-hire quality, you can use measures such as candidate assessment scores and structured interviews, depending on what you assess candidates on and how you wish to measure hire quality. When this measure is properly calculated, employers can focus on specific sources of hiring problems within recruitment before they impact the quality of hire.

To measure post-hire performance, individual employee performance goals can be set up at a monthly, quarterly, or yearly basis. The same goes for team or departmental goals. This can also be measured through metrics such as turnover and revenue per employee but is a more general calculation less specific to individual employees.

It is essential to be able to link the scores you calculate the relevant outcomes that contribute to profitability at your organisation. You should be able to say, "that we reduced our time-to-fill X percent, which got our design team to finish their project a quarter earlier, resulting in X dollars of savings which contributed to X amount of revenue."

A focus on hiring top performers in revenue-generating jobs will immediately increase revenue. For example, spending time and resources to hire top salespeople can yield dramatic results as they can sell between 4 and 10 times more than the average salesperson. Prioritising the hiring of innovators will also dramatically improve productivity and business results as innovators can produce 10 to 25 times the output of an average worker in the same job. Hiring more innovators may indirectly encourage current team members to increase their levels of innovation.[21]

Hiring candidates who have both the required current skills and the soon-to-be-needed "future skills" will reduce the training need when the needed job skills shift. Hiring individuals that are self-directed learners and that are already developing your firm's required "future skills" make it possible to maintain team productivity and innovation over an extended period. While there may not be one "right" way to

measure employee performance, monitoring performance can assist with promotions, salary increases and business growth.

If you're serious about people analytics, you will need the right tools

To make the most of people analytics, organisations need to make sure they have the right technology to help the team, otherwise they will struggle to collect and analyse the data[22]. Organisations should first look at their core human capital systems providers, such as the payroll provider or their main recruiting platform, as these providers should be able to provide analytic data and the tools to understand it.

It is crucial to ensure that data collection and analytics is not siloed, but this can be difficult when dealing with multiple systems and vendors. Integration between Job Boards, ATS, Core HR, LMS, TMS & Recruitment systems is required to ensure data and insights across the employee lifecycle can be accurately analysed and improved. Multi-feature systems such as HubSpot or Scoro can decrease the complications with this as they assist with multiple tasks rather than a singular function.

The team will also need a statistical analysis tool such as Excel, SPSS, or SAS. Not everyone will need to use it, there may be a statistician that uses it, but you will need to have that type of technology.[23] Adopting a visualisation or presentation tool, such as Tableau or PowerBI, can help other people at the company understand the data. Not everyone will be able to interpret information from a statistical analysis with a bunch of tables, so using a tool that can show charts and graphs will help organisations make the most of their data.

Once there is a firm grasp of people analytics within the team, specialised tools can provide even further information, such as survey tools that automatically compute correlation or analyse the sentiment behind an employee's written responses

21   Sullivan, "Recruiting's Top 7 Bottom-line Business Impacts".

22   McLaren, "Getting People Analytics Right".
23   Bersin, "Introduction to People Analytics"

Summary

HR analytics are essential when identifying and securing the best talent; as well as for tracking and analysing recruiting metrics which can help strengthen talent acquisition strategies. People analytics is an effective way to make evidence-based decisions that improve organisations. However, looking at individual attributes will have a limited impact if organisations are unable to see how a team will work together and how to improve employee relations. It is important to look at relationships between employees as well as individual performance. If companies use relational people analytics, they can estimate the likelihood that an employee, a team, or an entire organisation will achieve a performance goal. This data can be used to tailor staff assignments or to develop a team. The best companies will use people analytics to build an efficient and more productive work environment.[24]

High performing analytics teams should borrow from and work closely with business operations, finance and other departments – not focus solely on HR. To succeed, organisations need to shift their cultural mindset from "HR measuring HR" to "HR enabling the business to deliver".

To build an extraordinary workplace, you need to harness the power of analytics. Today's business executives should be applying pressure to all aspects of their business to use analytics to improve their processes. The application of big data and analytics are being used more to harness potential and build a stronger workforce that is fully aligned with company values and organisational success. This new analytical discipline means we can measure what potential and current employees are likely to do and therefore impact business results.

Key Points

- New analytic capabilities mean that organisations are able to predict business outcomes based on workforce and people analytics.

- When using data analytics effectively, organisations can improve overall productivity and employee performance by identifying and filling skill gaps.

- Advanced data-driven organisations outperform emerging organisations on various financial metrics.

- Collecting data on employee ability and tying it to business can help highlight key areas of risk and opportunity for the company.

- Key aspects to measure are employee net promoter score, turnover rate, cost per hire, average time to fill, training cost and time, revenue per employees and the quality of hire.

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24 Leonardi and Contractor, "Better People Analytics," 70-81.

CHAPTER ELEVEN: REFERENCES

Altiero, Michael. 2018. *14 HR Metrics and How to Calculate Them*. 27 06. Accessed 06 28, 2019. https://www.extensisgroup.com/blog/14-hr-metrics-and-how-to-calculate-them

Altiero, Michael. 2018. *Why On-Demand Learning Is More Important Than Ever*. 19 03. Accessed 07 03, 2019. https://www.extensisgroup.com/blog/why-on-demand-learning-is-more-important-than-ever

Bersin, Josh. 2019. *Introduction to People Analytics*. 10 05. Accessed 06 28, 2019. https://www.linkedin.com/learning/people-analytics/introduction-to-people-analytics

Collins, Laurence, David R. Fineman, and Akio Tsuchida. 2017. *People Analytics: Recalculating the Route*. 28 02. Accessed 06 20, 2019. https://www2.deloitte.com/insights/us/en/focus/human-capital-trends/2017/people-analytics-in-hr.html

Corporate Finance Institute. 2015. *What is Revenue Per Employee?* Accessed 07 03, 2019. https://corporatefinanceinstitute.com/resources/knowledge/finance/revenue-per-employee/

Development Dimensions International. 2018. "Global Leadership Forecast 2018." Trends Report. Accessed 06 28, 2019. https://www.ddiworld.com/glf

Green, David. 2018. *10 Predictions in HR*. 13 12. Accessed 06 28, 2019. https://www.linkedin.com/pulse/human-touch-10-predictions-hr-2019-david-green/

Guenole, Nigel, Jonathan Ferrar, and Sheri Feinzig. 2017. *Power of the People: How Successful Organizations Use Workforce Analytics To Improve Business Performance*. FT Press Analytics.

Leonardi, Paul, and Noshir Contractor. 2018. "Better People Analytics." *Harvard Business Review.*, 11-12: 70–81.

McLaren, Samantha. 2019. *Getting People Analytics Right*. 13 06. Accessed 06 28, 2019. https://business.linkedin.com/talent-solutions/blog/talent-analytics/2019/getting-people-analytics-right-with-josh-bersin

North, N., W. Leung, T. Ashton, E. Rasmussen, F. Hughes, and M. Finlayson. 2013. "Nurse Turnover in New Zealand: Costs and Relationships with Staffing Practises and Patient Outcomes." *Journal of Nursing Management*, 21(3) 419-428.

Prickett, T, N Gada-Jain, and F. J Bernieri. 2000. *The Importance of First Impressions in a Job Interview*. Chicago, IL: Midwestern Psychological Association.

Reh, F. John. 2019. *How to Avoid Excessive Employee Turnover*. 10 01. Accessed 07 02, 2019. https://www.thebalancecareers.com/employee-turnover-2275788

Selewach, Ron. 2018. *Reasons Why HR Should Be Part of the C-Suite*. 12 04. Accessed 07 24, 2019. https://www.hrmc.com/reasons-why-hr-should-be-part-of-the-c-suite/

SHRM. 2016. *Human Capital Benchmarking Report*. Human Capital Report, Society for Human Resource Management.

Sinar, Evan, Rebecca L. Ray, and Adam L. Canwell. 2018. *HR Leaders Need Stronger Data Skills*. 25 10. Accessed 06 27, 2019. https://hbr.org/2018/10/hr-leaders-need-stronger-data-skills

Smykal, Emily. 2015. *Breaking Down The Time To Fill Metric For Recruiters*. 11 9. Accessed 06 28, 2019. https://www.jibe.com/ddr/breaking-down-the-time-to-fill-metric-for-recruiters/

Sullivan, John. 2019. *Recruiting's Top 7 Bottom-line Business Impacts That Most Ignore*. 3 06. Accessed 7 24, 2019. https://www.ere.net/recruitings-top-7-bottom-line-business-impacts-that-most-ignore/

Visier. 2018. *The Age of People Analytics: Survey on Characteristics, Value Achieved, and Leading Practices of Advanced Organizations*. Survey Research , Visier.