AAM
Business School

HR ANALYTICS

III SEMESTER

(Approved by Alagappa University)

Table of Contents

Course Content:

Module: I: Introduction to HR Analytics: Concept of HR Analytics – Process of aligning business to human resources – History of HR Analytics – Importance and benefits of HR Analytics – HR Analytics framework and models – Ethical issues in HR Analytics

Module: II: HR Business Process and HR Analytics: Concepts of HR Business Process – Statistics and Statistical modelling for HR Research and HR decision-making – HR Research Tools and Techniques – HRIS – HR Metrics – HR Scorecard – HR Dashboards – Reasons for HR Analytics

Module: III: Forecasting and Measuring HR Value Propositions: Value Proposition and HR Decisions – Sustainability in HR Decisions – HR Analytics and HR Value Propositions – Talent Analytics – Workforce Analytics – HR Optimization through HR Analytics – HR Forecasting, HR Plan and HR Analytics – Predictive Analytics

Module: IV: Data in HR Analytics: Concepts of HR Data – Steps for HR Data Collection – Big Data for HR – Transforming HR Data into HR Information – Process of Data Collection for HR Analytics – Data Collection for effective HR Measurement – HR Reporting – Root Cause Analysis – Datafication of Human Resources

Module: V: HR Analytics and Predictive Modelling: Basics of HR Analytics and Predictive Modelling – Different Phases of HR Analytics and Predictive Modelling – Examples of Predictive Analytics – Data and Information for HR Predictive Analysis – Software Solutions – Predictive Analytics Tools and Techniques

HR ANALYTICS

Analytics is defined as the interpretation of data patterns that aid decision-making and performance improvement. HR analytics is defined as the process of measuring the impact of HR metrics, such as time to hire and retention rate, on business performance.

What Is HR Analytics?

HR analytics is a methodology for creating insights on how investments in human capital assets contribute to the success of four principal outcomes: (a) generating revenue, (b) minimizing expenses, (c) mitigating risks, and (d) executing strategic plans. This is done by applying statistical methods to integrated HR, talent management, financial, and operational data," says Collins in an exclusive discussion with HR Technologist.

"Mick Collins, Global Vice President, Workforce Analytics & Planning Solution Strategy and Chief Expert at SAP SuccessFactors"

HR analytics focuses primarily on the HR function and is not – as is largely believed – exactly interchangeable with **people analytics** or workforce analytics.

The terms HR analytics, people analytics, and workforce analytics are often used interchangeably. But there are slight differences between each of these terms. It would help you to know the difference to be able to assess the most relevant data to their function.

The difference between HR Analytics, People Analytics, and Workforce Analytics

HR analytics: HR analytics specifically deals with the metrics of the HR function, such as time to hire, training expense per employee, and time until promotion. All these metrics are managed exclusively by HR for HR.

People analytics: People analytics, though comfortably used as a synonym for HR analytics, is technically applicable to "people" in general. It can encompass any group of individuals even outside the organization. For instance, the term "people analytics" may be applied to analytics about the customers of an organization and not necessarily only employees.

Workforce analytics: Workforce analytics is an all-encompassing term referring specifically to employees of an organization. It includes on-site employees, remote employees, gig workers, freelancers, consultants, and any other individuals working in various capacities in an organization.

HUMAN CAPITAL MANAGEMENT

How Does HR Analytics Drive Business Value?
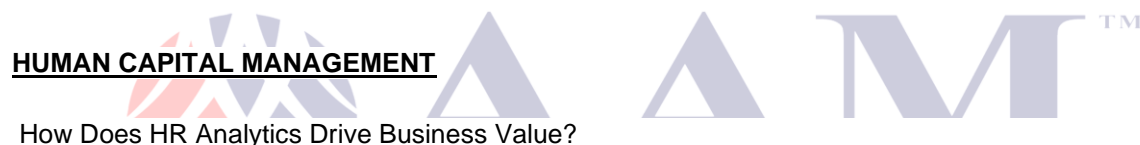
HR has access to valuable employee data. How can this data be used to enable change in the organization?

There is a great deal of discussion on replicating the consumer experience in the employee experience. Essentially, the data on consumer behavior and mindset can help develop strategies to maximize sales by capitalizing on those factors. Similarly, the data useful for the HR function can be used to improve employee performance, the employee experience, and in turn, maximize business outcomes.

Collins offers an example of how HR analytics can be used to enhance business value. "HR analytics could be used to measure investments in reskilling, which will deliver the right competencies to support a new revenue model, using data-driven insights to modify the training offering as sales results emerge."

This is definitive granular data that can not only impact the bottom line, it can also transform **employee engagement** in an organization.

"As such," Collins continues, "you might think about the 'ROI' of HR analytics being that of increasing the business value derived from using data for talent decisions."

HR analytics enables HR professionals to make data-driven decisions to attract, manage, and retain employees, which improves ROI. It helps leaders make decisions to create better work environments and maximize employee productivity. It has a major impact on the bottom-line when used effectively.

HR professionals gather data points across the organization from sources like:

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

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

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

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

APPLICATION
RETENTION

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

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

WHAT EMPLOYEES VALUE AT WORK

Category	Value
Competitive compensation	66%
Bonuses and merit-based rewards	55
Retirement plans	45
Supplemental training programs	44
Flexible work location	
Vacation time	43
Benefits plan for employees' families	
Flexible schedule	42
Education	
Personal recognition from higher-ups	
Up-to-date technology	41
Workplace amenities	38
Access to social media at work	37
Healthcare	36
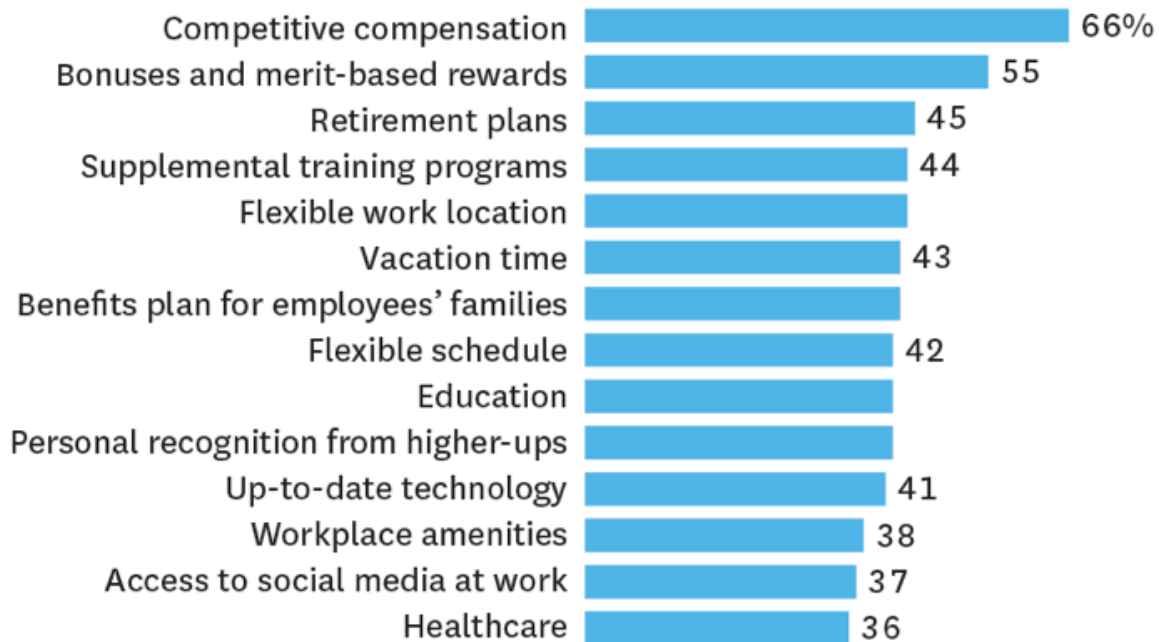
Through this data-driven approach, HR analytics can illuminate the major causes of attrition, and new policies, along with training programs, can be put in place to help mitigate the problem. For example, data might show that high-aspiration employees are not challenged or employees are frustrated with a certain management style. Human resources analysis will reveal these issues, and then it will be up to leadership to act. It's also possible to spot an at-risk employee before they leave so preemptive actions can be taken to resolve issues. For example, a once high-performer may not be as productive because he feels he or she is underpaid. An analysis of productivity alongside a comparison of market-value salaries can help spot this.

EMPLOYEE PERFORMANCE

As qualified candidates become more difficult to find and retain, improvements in performance evaluation can prove to be tremendously valuable. HR analytics leverages your employee data to determine who your best and worst performers are, based on factors like past work experience, length of employment, and to whom they report. Common characteristics between groups of employees can emerge, which can be used to properly motivate employees and ensure they receive the right rewards. Career progression is an important component to monitor, as well, since employees are much more likely to leave if they're not satisfied with their career trajectory. Analysis of promotion rates, promotion wait times, and qualitative data from employees will help HR meet employee expectations and keep them motivated. Leadership traits may

emerge in some employees, and companies can determine which characteristics correlate with future leaders. HR can then foster this potential, resulting in long-term ROI for the organization.

RECRUITING

Organizations need to first determine who their ideal candidate is and what skills are needed for the job. This can be discovered through discussions with hiring managers, analysis of previously successful hires, and available market data. Organizations can then match their need to where the largest pool of applicants with that skillset resides. For example, the best cities for PR jobs according to Forbes are Los Angeles, New York, and Washington D.C., so a recruiter may want to focus efforts in these cities if they aren't able to find local talent for the job. Likewise, a recruiter may look at college graduate data to see where the best new talent is if they need to fill an entry-level position. Talent acquisition teams also need to adopt channel optimization strategies based on recruitment analytics. A continuous process of evaluating which channels drive the best candidates at the most efficient price is extremely important. Data analytics may reveal one source has a lower cost per applicant, while another may provide the best talent. HR analytics can also be used to craft the best recruitment message to the right candidate based on internal, open-source, and third-party data. This is all data that HR analytics platforms can consume and transform into easily digestible formats such as dashboards and charts. Recruitment relies heavily on metrics gathered during the interview process. Important metrics include:

- Average number of applicants
- Number of applications to offer
- Scheduled maintenance windows for system patching, security updates, and AWS infrastructure management
- Number of final rounds to offer
- Offer acceptance rate

TOP USES FOR DATA IN TALENT ACQUISITION

56% | Increase retention

50% | Evaluate skills gaps

50% | Build better offers

46% | Understand candidate wants

41% | Do workforce planning

39% | Predict candidate success

38% | Assess talent supply and demand

31% | Compare talent metrics to competitors'

29% | Forecast hiring demands
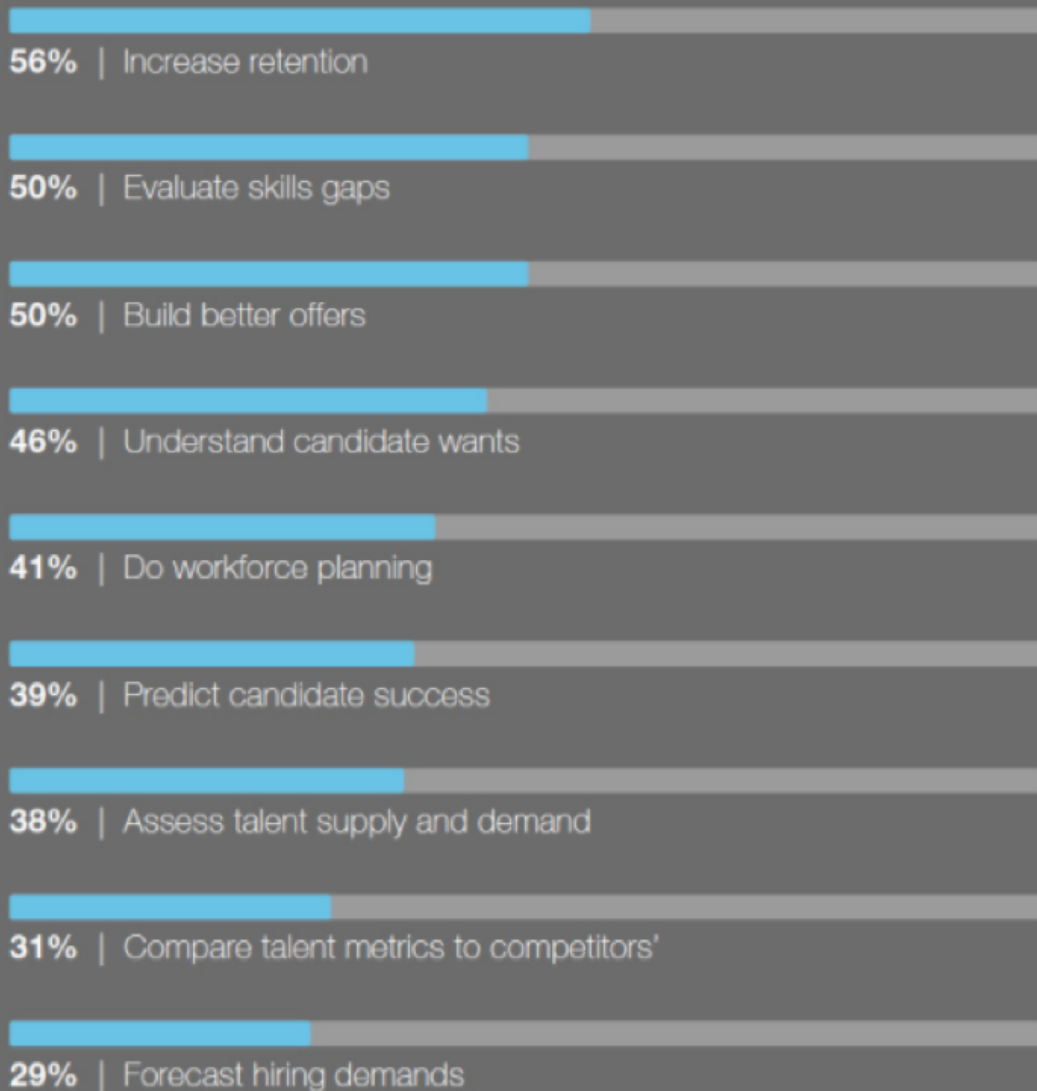
Over time, HR analysts can also see which candidate characteristics predict the best employees. Pre-screen exams are often used to test candidates, and analytics can help determine what types of questions these exams should contain. For example, a candidate who applied for a Python developer role can be asked a series of questions to assess competence within the program.

EMPLOYEE DEVELOPMENT

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

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

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

2017 Skills Gap Report

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

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

Udemy
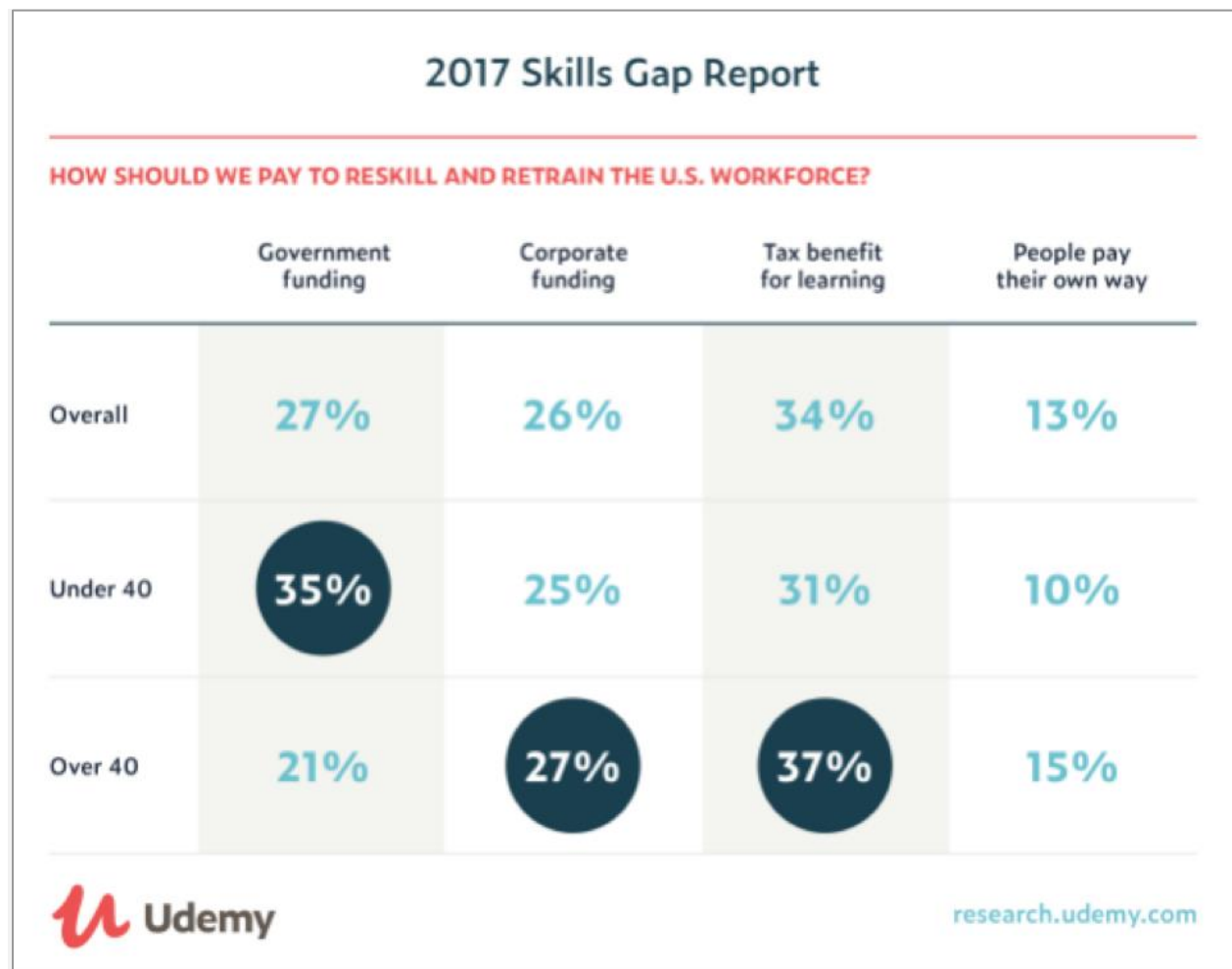
The best employee development and talent management programs align employee goals with business goals, and investment is often dependent on the ability to tie these to revenue. The process is successful when ROI is achieved, creating a feedback cycle where success increases revenue and investment in development.

WORKFORCE PLANNING

Not only do organizations need to ensure they have employees with the right skills presently, but they also need to be able to anticipate future departures or changes in the organization's needs, particularly for business growth. HR needs a data-driven approach to successfully navigate the ever-changing composition of organizational talent. This ensures that workforce and capacity planning are optimized.

For example, an electronics OEM may need to anticipate a greater need for call center support with the release of new products in the next quarter. Once again, HR needs to be aligned with the goals of the business and upcoming changes. Predictive analytics and data analytics platforms are changing the way HR can utilize and anticipate these changes.

EMPLOYEE ENGAGEMENT

An engaged workforce is critical to attracting and engaging talent. The challenge is determining which factors will result in revenue for the company. This makes employee engagement a very difficult metric to quantify and take action on.

How can HR analytics help with employee engagement?

- Statistical analysis of employee engagement survey data
- Discriminant analysis to identify the needs of different segments within the organization
- Factor analysis to correlate engagement initiatives with retention and productivity
- Inform testing of new ideas to measure lift in engagement

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

They discovered, through a combination of employee surveys and productivity analytics, that great managers tend to have the following qualities:

1. Coaching skills
2. Does not micromanage

3. Is genuinely concerned for well-being of employees and expresses this

4. Results-oriented

5. Excellent communicator (listens and shares)

6. Develops employees

7. Clear vision and strategy for team

8. Possesses key technical skills to help guide team

COMPENSATION AND INCENTIVE PROGRAMS

Compensation is often the largest business expense, which underlines its importance in organization decision-making. Data analytics platforms can help analyze large volumes of employee and market data to achieve a competitive advantage. Smart HR analysts will keep track of what competitors offer employees to ensure top talent is attracted to the company. They can also look at exit surveys during the recruiting process and declined offers to better understand the compensation and incentive landscape. HR analytics can provide:

- Incentive programs to motivate employees to maximize productivity. Data analysis can provide insight into the most impactful monetary and non-monetary rewards. For example, an HR department might implement a referral program where employees receive a bonus for referring new hires. With enough data, HR can determine what the ideal bonus amount is and cross-reference this to the increase or decrease in quality of hires.

- Sales team motivation is another application. What quota should be assigned to each salesperson and what should their bonus structure look like? This may vary on the team, region, and products sold.

- Executive compensation analysis needed to attract and retain top leaders. HR analytics can analyze the market rates for executives at similar companies, bonuses that properly motivate, and perks to provide. This is critical to the direction of the organization and can either make or break it.

What are the Benefits of HR Analytics?

In sum, HR analytics will move from an operational partner to a more strategic center of excellence. Companies are now realizing company success is built on people, and HR analytics can light the way from intangible theory-based decisions to real ROI through the following:

- Better hiring practices

- Decreased retention

- Task automation

- Process improvement

- Improved employee experience

- More productive workforce

- Improved workforce planning through informed talent development

What are the Biggest Challenges of HR Analytics?

The road to actionable HR analytics is not always easy. There are several challenges organizations need to overcome so they can reap the rewards:

- Finding people with the right skillset to gather, manage, and report on the data

- Data cleansing

- Data quality

- Too much data to parse or not knowing what data is most important

- Data privacy and compliance

- Proving its worth to executive leadership

- Tying actions and insight to ROI

- Identifying the best HR technologies to keep track of the data

HR Analytics: A Brief History
Reference website:

https://www.microstrategy.com/us/resources/introductory-guides/hr-analytics-everything-you-need-to-know#compensation

4 HR Analytics Frameworks to Use in an Organization

People analytics is helping HR shape their strategies in regard to hiring, training, and employee management to help create a solid, stronger workforce. But HR is one of the last business departments to start fully embracing data analytics. Most organizations with departments that use analytics are using it to increase their customer engagement and grow their sales numbers, like marketing, customer service, and sales teams. Accounting and finance departments often use them to help identify trends that can be applied to business strategy.

Businesses are starting to understand how analytics can improve their HR processes and ultimately help them improve their business. While HR analytics aren't customer-focused, they are people-focused and can help HR better hire, manage, and support the people who will help shape the organization and grow it towards its goals.

Building an HR analytics framework, however, is the first step to being able to apply and use analytics in your HR endeavors. Here are several steps to take to begin or improve your HR analytics journey.

Building a better HR analytics framework for your organization

The only way to truly get actionable insight that your business can understand and use is to know where to look for data and, more importantly, what you're looking for. Businesses who successfully implement useful HR analytics use a process that helps them define and align on goals and then collect meaningful data that can be acted upon. Many businesses achieve this through the LAMP framework: logic, analytics, measures, and process. These are the four components of a measurement system that can drive change in an organization and enable more effectiveness.

#Logic

This is the step that helps companies to know where to look for insight and connect data points to meaning in order to make better decisions. The connection between the numbers and effects and outcomes is vital in understanding the "why". Are there connections between employee health and wellness and employee turnover, for instance? Where are the connections in your business practices and your employee performance? This what the logic step of an HR analytics framework can help you understand. InformIT notes that "This framework depicts the connections between HR and management practices, which affect employee attitudes, engagement, and turnover, which then affect the experiences of customers, which affect customer-buying behavior, which affects sales, which affect profits." Companies who are able to understand the connections between their HR practices and people's issues and how they impact the business are the most successful in implementing changes that matter. Analytics helps to highlight the connections.

#Measures

Good analytics systems built from a solid framework help make sure what you're measuring is meaningful to your specific organization and business needs. It also helps make sure that what you're measuring is accurate and meaningful data. Inform IT notes, "Factors such as employee turnover, performance, engagement, learning, and absence are not equally important everywhere. That means measurements like these should focus precisely on what matters. If turnover is a risk due to the loss of key capabilities, turnover rates should be stratified to distinguish employees with such skills from others. If the absence has the most effect in call centers with tight schedules, this should be very clear in how we measure absenteeism. Lacking a common logic about how turnover affects business or strategic success, well-meaning managers draw conclusions that might be misguided or dangerous, such as the assumption that turnover or engagement have similar effects across all jobs." It's important to know why you're measuring what you're measuring and understand accurately how it affects your business.

#Analytics

Analytics is really how data can provide answers. You may have data that suggests that your employees are engaged in their work based on employee feedback surveys; you may also have customer surveys that indicate they are satisfied with their interactions with your brand. You may believe that more engaged employees work in a way that produces higher customer satisfaction and more loyalty. That may very well be true, but analytics software and systems will help you identify the relationship and let you draw more accurate insights. Analytics allows you to dig deeper with a more holistic approach. It reveals the right conclusions from the data and transforms information into relevant, meaningful knowledge.

#Process

This refers to the change management process within an organization. If an organization has used HR analytics to support their employee management, that means that they can create changes based on that data. This is one of the most important steps in the HR analytics system – going from data and information to meaning and then decisions.

The approach to data in HR is the key to solving people problems. It also helps meaningful data and analysis from that data in front of business leaders who can actually affect and support needed changes. InformIT

says that leader needs to "buy into the idea that human capital decisions have tangible monetary effects, they may be more receptive to greater sophistication" and other changes to their employee performance management that are needed to help support business success.

https://www.techfunnel.com/hr-tech/4-hr-analytics-frameworks-to-use-in-your-organization/

A Model for Understanding Analytics in Human Resources

HR analytics, talent analytics, people analytics, and workforce analytics have become a confusing jumble of concepts. They can have different meanings depending on context, but we frequently use them interchangeably.

To make matters worse, the term "analytics" often becomes conflated with reporting and business intelligence. Software vendors package reports and dashboards in their applications and call it analytics. Business intelligence vendors wrap their entire suite of offerings into "analytics," using it as an all-inclusive term.

Embedded analytics is powering a new hype cycle, with competition driving a rush to bring reporting and analytics directly into business applications, enabling better decision-making. A new model for delivering actionable information to business users is rendering IT-driven, centrally provisioned, highly governed and scalable system-of-record reporting obsolete. The future belongs to self-service data preparation and data discovery, where users can employ plain-language search tools to find the answers they need to seize opportunities at today's speed of business.[1]

Words matter. They can shine light on a concept or obscure it. When the future of a project or strategic initiative depends on shared understanding, lack of clarity has consequences. We want to spend a few minutes to develop a framework for bringing your team together by promoting clarity of meaning.

The Analyst's View

When researchers and data professionals refer to analytics they are describing statistical and predictive

Figure 1: Types of HR Work in Analytics Teams

Source: HR Magazine UK. November 28, 2016.

modeling—much different from the reports people use every day to manage everyday business operations. They focus on predictions and connecting between data and business outcomes. Reporting information in dashboards is not analytics, it is operational or management reporting. Predictive analytics is also much different from the simple analysis we use to correlate information from various sources to understand what is happening now or occurred in the past.[2]

Little of the work data teams do is predictive analytics. At the strategic level, few things matter, but they matter a lot. Answering the big questions that determine the direction of the business is worth the investment in sophisticated statistical modeling. Most data work is reporting on processes and events (Figure 1). We don't mean to say reporting is not important. It is essential, but requires fewer resources.

Marketing Messaging

Human capital management software vendors include "analytics" in their marketing, but few offer true analytics in their reporting functions. Data preparation tools are usually not part of the package. We can expect those things to change quickly. Gartner, Inc's strategic planning assumptions for analytics point to a radical shift in the way business software vendors deliver data to end users.

According to Gartner, by 2018

- most business users and analysts will have self-service tools for data preparation,
- stand-alone self-service data preparation will expand into full analytical platforms or be integrated into existing platforms, and

- smart, governed, Hadoop-based, search-based and visual-based data discovery will converge into self-service data preparation and natural language generation.[3]

ANALYTICS IN HR

To make sense of the way we use terms for analytics in HR, we reviewed the way vendors and practitioners use the terms and applied our experience and understanding to the differences among them. In many contexts, the differences do not matter, but when they do matter, a lack of understanding can lead a project team astray.

- **Workforce Analytics** focuses on workforce metrics and optimization, applying statistical models

Figure 2: Analytics in Human Resources

Workforce Analytics
- Size and shape of the workforce

HR Analytics
- How HR performs

People Analytics
- How people impact the business

Talent Analytics
- Finding, developing, and nurturing talented people

© Pixentia 2016
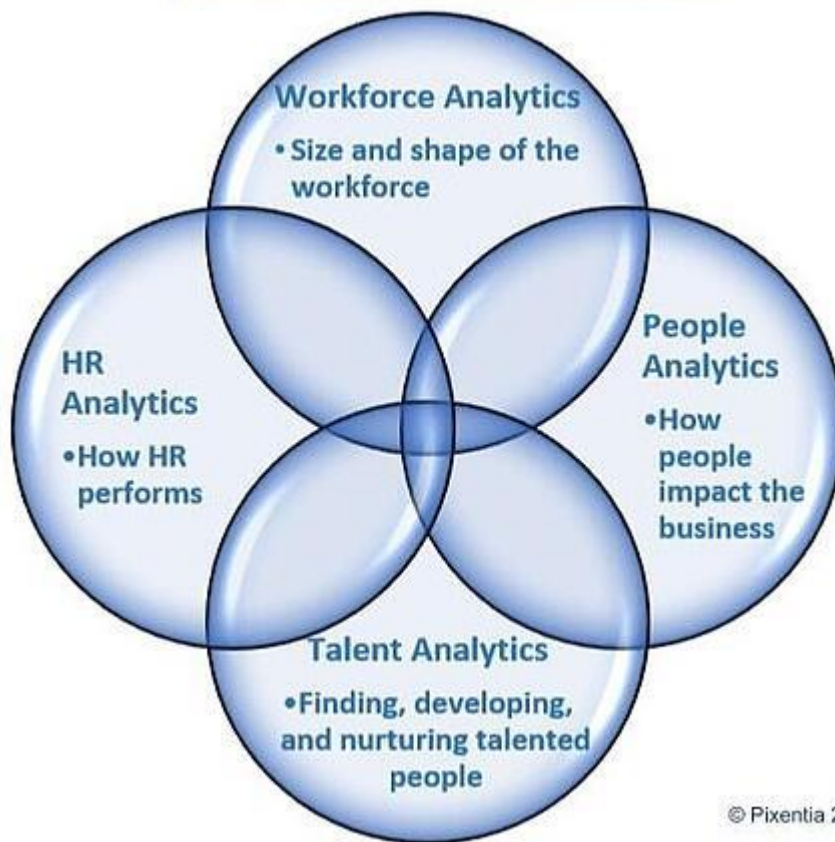
  to worker-related data to optimize human resource management. (Techopedia). In a general sense, it relates to the size and shape of the workforce.
- **People Analytics** originated with the Google approach to making people management decisions (Sullivan). A radical departure from the subjective approach to managing people decisions, it infers application of the same rigor used in engineering decisions to people decisions.[4]
- **Talent Analytics** means anything from using data to manage the workforce to planning a single career, depending on the source. Bersin defines it as "the use of measurement and analysis techniques to understand, improve, and optimize the people side of business" and conflates it with big data and people analytics.[5] Merriam-Webster defines "talent" as the natural endowments of a

person or a group of individuals. Those attributes are what drive the competitive advantage people bring to an organization.

- **Human Resource Analytics** is the application of analytics to HR processes to improve employee performance and return on investment (Techopedia). In its strictest sense, it focuses on how well the HR organization provides services, with the ultimate output being performance and productivity.

Use these suggestions as a starting point for creating the lexicon that works for you. Clarification of terms will help your planning and project teams form operational definitions that foster common understanding.

The LAMP Framework

We believe that a paradigm extension toward a talent decision science is key to getting to the other side of the wall. Incremental improvements in the traditional measurement approaches will not address the challenges. HR measurement can move beyond the wall using what we call the LAMP model, shown in Figure 1-3. The letters in LAMP stand for logic, analytics, measures, and process, four critical components of a measurement system that drives strategic change and organizational effectiveness. Measures represent only one component of this system. Although they are essential, without the other three components, the measures and data are destined to remain isolated from the true purpose of HR measurement systems.

The LAMP metaphor refers to a story that reflects today's HR measurement dilemma:

> One evening while strolling, a man encountered an inebriated person diligently searching the sidewalk below a street lamp.
>
> "Did you lose something?" he asked.
>
> "My car keys. I've been looking for them for an hour," the person replied.
>
> The man quickly scanned the area, spotting nothing. "Are you sure you lost them here?"
>
> "No, I lost them in that dark alley over there."
>
> "If you lost your keys in the dark alley, why don't you search over there?"
>
> "Because this is where the light is."

In many ways, talent and organization measurement systems are like the person looking for the keys where the light is, not where they are most likely to be found. Advancements in information technology often provide technical capabilities that far surpass the ability of the decision science and processes to use them properly. So it is not uncommon to find organizations that have invested significant resources constructing elegant search and presentation technology around measures of efficiency, or measures that largely emanate from the accounting system.

The paradox is that genuine insights about human resources often exist in the areas where there are no standard accounting measures. The significant growth in HR outsourcing, where efficiency is often the primary value proposition and IT technology is the primary tool, has exacerbated these issues.[7] Even

imperfect measures aimed at the right areas may be more illuminating than very elegant measures aimed in the wrong places.

Returning to our story about the person looking for keys under the street lamp, it's been said, "Even a weak penlight in the alley where the keys are is better than a very bright streetlight where the keys are not."

Figure 1-3 shows that HR measurement systems are only as valuable as the decisions they improve and the organizational effectiveness to which they contribute. HR measurement systems create value as a catalyst for strategic change. Let's examine how the four components of the LAMP framework define a more complete measurement system. We present the elements in the following order: logic, measures, analytics, and, finally, process.

Logic: What Are the Vital Connections?
Without proper logic, it is impossible to know where to look for insights. The logic element of any measurement system provides the "story" behind the connections between the numbers and the effects and outcomes. In this book, we provide logical models that help to organize the measurements and show how they inform better decisions.

Most chapters provide "logic models" for this purpose. Examples include the connections between health/wellness and employee turnover, performance, and absenteeism in Chapter 5, "Employee Health, Wellness, and Welfare." In Chapter 4, "The High Cost of Employee Separations," on employee turnover, we propose a logic model that shows how employee turnover is similar to inventory turnover. This simple analogy shows how to think beyond turnover costs, to consider performance and quality, and to optimize employee shortages and surpluses, not just eliminate them. In Chapter 8, "Staffing Utility: The Concept and Its Measurement," we propose a logic model that shows how selecting employees is similar to optimizing a supply chain for talent, to help leaders understand how to optimize all elements of employee acquisition, not simply maximize the validity of tests or the quality of recruitment sources. In Chapter 9, "The Economic Value of Job Performance," we propose a logic model that focuses on where differences in employee performance are most pivotal, borrowing from the common engineering idea that improving performance of every product component is not equally valuable.

Another prominent logic model is the "service-value-profit" framework for the customer-facing process. This framework depicts the connections between HR and management practices, which affect employee attitudes, engagement, and turnover, which then affect the experiences of customers, which affect customer-buying behavior, which affects sales, which affect profits. Perhaps the most well-known application of this framework was Sears, which showed quantitative relationships among these factors and used them to change the behavior of store managers.[8]

Missing or faulty logic is often the reason well-meaning HR professionals generate measurement systems that are technically sound but make little sense to those who must use them. With well-grounded logic, it is

much easier to help leaders outside the HR profession understand and use the measurement systems to enhance their decisions. Moreover, that logic must be constructed so that it is understandable and credible not only to HR professionals, but to the leaders they seek to educate and influence. Connecting HR measures to traditional business models in this way was described as *Retooling HR*, by John Boudreau, in his book of that name.[9]

Measures: Getting the Numbers Right

The measures part of the LAMP model has received the greatest attention in HR. As discussed in subsequent chapters, virtually every area of HR has many different measures. Much time and attention is paid to enhancing the quality of HR measures, based on criteria such as timeliness, completeness, reliability, and consistency. These are certainly important standards, but lacking a context, they can be pursued well beyond their optimum levels, or they can be applied to areas where they have little consequence.

Consider the measurement of employee turnover. Much debate centers on the appropriate formulas to use in estimating turnover and its costs, or the precision and frequency with which employee turnover should be calculated. Today's turnover-reporting systems can calculate turnover rates for virtually any employee group and business unit. Armed with such systems, managers "slice and dice" the data in a wide variety of ways (ethnicity, skills, performance, and so on), with each manager pursuing his or her own pet theory about turnover and why it matters. Some might be concerned about losing long-tenure employees, others might focus on high-performing employees, and still others might focus on employee turnover where outside demand is greatest. These are all logical ideas, but they are not universally correct. Whether they are useful depends on the context and strategic objectives. Lacking such a context, better turnover measures won't help improve decisions. That's why the logic element of the LAMP model must support good measurement.

Precision is not a panacea. There are many ways to make HR measures more reliable and precise. Focusing only on measurement quality can produce a brighter light shining where the keys are not! Measures require investment, which should be directed where it has the greatest return, not just where improvement is most feasible. Taking another page from the idea of "retooling HR" to reflect traditional business models, organizations routinely pay greater attention to the elements of their materials inventory that have the greatest effect on costs or productivity. Indeed, a well-known principle is the "80-20 rule," which suggests that 80 percent of the important variation in inventory costs or quality is often driven by 20 percent of the inventory items. Thus, although organizations indeed track 100 percent of their inventory items, they measure the vital 20 percent with greater precision, more frequency, and greater accountability for key decision makers.

Why not approach HR measurement in the same way? Factors such as employee turnover, performance, engagement, learning, and absence are not equally important everywhere. That means measurements like these should focus precisely on what matters. If turnover is a risk due to the loss of key capabilities, turnover

rates should be stratified to distinguish employees with such skills from others. If absence has the most effect in call centers with tight schedules, this should be very clear in how we measure absenteeism.

Lacking a common logic about how turnover affects business or strategic success, well-meaning managers draw conclusions that might be misguided or dangerous, such as the assumption that turnover or engagement have similar effects across all jobs. This is why every chapter of this book describes HR measures and how to make them more precise and valid. However, each chapter also embeds them in a logic model that explains how the measures work together.

Analytics: Finding Answers in the Data

Even a very rigorous logic with good measures can flounder if the analysis is incorrect. For example, some theories suggest that employees with positive attitudes convey those attitudes to customers, who, in turn, have more positive experiences and purchase more. Suppose an organization has data showing that customer attitudes and purchases are higher in locations with better employee attitudes. This is called a positive correlation between attitudes and purchases. Organizations have invested significant resources in improving frontline-employee attitudes based precisely on this sort of correlation. However, will a decision to improve employee attitudes lead to improved customer purchases?

The problem is that such investments may be misguided. A correlation between employee attitudes and customer purchases does not prove that the first one causes the second. Such a correlation also happens when customer attitudes and purchases actually cause employee attitudes. This can happen because stores with more loyal and committed customers are more pleasant places to work. The correlation can also result from a third, unmeasured factor. Perhaps stores in certain locations (such as near a major private university) attract college-student customers who buy more merchandise or services and are more enthusiastic and also happen to have access to college-age students that bring a positive attitude to their work. Store location turns out to cause both store performance and employee satisfaction. The point is that a high correlation between employee attitudes and customer purchases could be due to any or all of these effects. Sound analytics can reveal which way the causal arrow actually is pointing.

Analytics is about drawing the right conclusions from data. It includes statistics and research design, and it then goes beyond them to include skill in identifying and articulating key issues, gathering and using appropriate data within and outside the HR function, setting the appropriate balance between statistical rigor and practical relevance, and building analytical competencies throughout the organization. Analytics transforms HR logic and measures into rigorous, relevant insights.

Analytics often connect the logical framework to the "science" related to talent and organization, which is an important element of a mature decision science. Frequently, the most appropriate and advanced analytics are found in scientific studies that are published in professional journals. In this book, we draw upon that scientific knowledge to build the analytical frameworks in each chapter.

Analytical principles span virtually every area of HR measurement. In Chapter 2, we describe general analytical principles that form the foundation of good measurement. We also provide a set of economic concepts that form the analytical basis for asking the right questions to connect organizational phenomena such as employee turnover and employee quality to business outcomes. In addition to these general frameworks, each chapter contains analytics relevant specifically to the topic of that chapter.

Advanced analytics are often the domain of specialists in statistics, psychology, economics, and other disciplines. To augment their own analytical capability, HR organizations often draw upon experts in these fields, and upon internal analytical groups in areas such as marketing and consumer research. Although this can be very useful, it is our strong belief that familiarity with analytical principles is increasingly essential for all HR professionals and for those who aspire to use HR data well.

Process: Making Insights Motivating and Actionable

The final element of the LAMP framework is process. Measurement affects decisions and behaviors, and those occur within a complex web of social structures, knowledge frameworks, and organizational cultural norms. Therefore, effective measurement systems must fit within a change-management process that reflects principles of learning and knowledge transfer. HR measures and the logic that supports them are part of an influence process.

The initial step in effective measurement is to get managers to accept that HR analysis is possible and informative. The way to make that happen is not necessarily to present the most sophisticated analysis. The best approach may be to present relatively simple measures and analyses that match the mental models that managers already use. Calculating turnover costs can reveal millions of dollars that can be saved with turnover reductions, as discussed in Chapter 4. Several leaders outside of HR have told us that a turnover-cost analysis was the first time they realized that talent and organization decisions had tangible effects on the economic and accounting processes they were familiar with.

Of course, measuring only the cost of turnover is insufficient for good decision making. For example, overzealous attempts to cut turnover costs can compromise candidate quality in ways that far outweigh the cost savings. Managers can reduce the number of candidates who must be interviewed by lowering their selection standards. The lower the standards, the more candidates will "pass" the interview, so fewer interviews must be conducted to fill a certain number of vacancies. Lowering standards can create problems that far outweigh the cost savings from doing fewer interviews! Still, the process element of the LAMP framework reminds us that often best way to start a change process may be first to assess turnover costs, to create initial awareness that the same analytical logic used for financial, technological, and marketing investments can apply to human resources. Then the door is open to more sophisticated analyses beyond the costs. Once leaders buy into the idea that human capital decisions have tangible monetary effects, they may be more receptive to greater sophistication, such as considering employee turnover in the same framework as inventory turnover.

Education is also a core element of any change process. The return on investment (ROI) formula from finance is actually a potent tool for educating leaders in the key components of financial decisions. It helps leaders quickly incorporate risk, return, and cost in a simple logical model. In the same way, we believe that HR measurements increasingly will be used to educate constituents and will become embedded within the organization's learning and knowledge frameworks. For example, Valero Energy tracked the performance of both internal and external sources of applicants on factors such as cost, time, quality, efficiency, and dependability. It provided this information to hiring managers and used it to establish an agreement about what managers were willing to invest to receive a certain level of service from internal or external recruiters. Hiring managers learned about the tradeoffs between investments in recruiting and its performance.[10] We will return to this idea in Chapters 08, 09, and 10.

In the chapters that follow, we suggest where the HR measures we describe can connect to existing organizational frameworks and systems that offer the opportunity to get attention and to enhance decisions. For example, organizational budgeting systems reflect escalating health-care costs. The cost measures discussed in Chapter 5, offer added insight and precision for such discussions. By embedding these basic ideas and measures into the existing health-care cost discussion, HR leaders can gain the needed credibility to extend the discussion to include the logical connections between employee health and other outcomes, such as learning, performance, and profits. What began as a budget exercise becomes a more nuanced discussion about the optimal investments in employee health and how those investments pay off.

As another example, leaders routinely assess performance and set goals for their subordinates. Measuring the value of enhanced performance can make those decisions more precise, focusing investments on the pivot points where performance makes the biggest difference. Chapter 9 describes methods and logic for measuring the monetary impact of improved performance.

You will see the LAMP framework emerge in many of the chapters in this book, to help you organize not only the measures, but also your approach to making those measures matter.

https://www.informit.com/articles/article.aspx?p=1669502&seqNum=3

HR Analytics Framework

HR&OD experts identify data sources

HR&OD and data experts jointly define HR data model

HR&OD experts identify objectives; analytics experts formalize them

Executive team effects data-driven cultural change!

CEO, CFO + CHRO

HR Data Model

Data Integration

Data Normalization

Data Storage

Formal Specification of Objectives

Analysis Engine (data mining, statistics, machine learning, etc.)

Data Sources

Executive Reporting

Self-Service Executive Dashboards

HR&OD professionals interpret results

Outcomes against objectives, metrics, statistics, classifications, ...

reports to

Model refinement

HR Analytics Champion, with the CHRO, defines the overall analytics strategy, communicates with all stakeholders, and identifies opportunities for positive cultural change

IT builds the integration infrastructure and operates the analytics environment

Analytics experts identify proper analysis technique(s)

Copyright © 2015 Cultivate Consulting

The Journey to HR Analytics

Price to Play Poker (what you need)
- Executive Support
- The Right Tools
- The Right People

Data leads to Insights …. Insights lead to Action

Phase 1

Justification

- Foundational human capital investments
- Data collection
- Reporting
- Rudimentary tools
- Distributed efforts

Phase 2

Measurement

- Metrics defined
- HR scorecards and dashboards
- Leadership accountability
- Standardization
- Improvements celebrated

Phase 3

Effectiveness

- Key Performance Indicators
- Cohesive efforts
- Process improvement
- Expanded organizational accountability
- More sophisticated tools

Phase 4

Value Creation

- Genuine insights
- Decisions based on data and learnings
- Connections between people investment and business outcomes defined
- Predictive models
- Cultural shifts

Phase 5

Impact

- Creating change
- Achieving strategic goals
- **Congratulations, you have arrived at the true purpose of analytics!**

Provided by:
STEVE WOOLWINE, PHR, Chief of Staff, Talent and Human Capital Services, SEARS HOLDINGS CORPORATION

icc
Intellectual Capital Consulting

AVIDUS ACADEMY OF MANAGEMENT

HR ANALYTICS MATURITY LEVELS SELF-AUDIT

01 At my organization HR is involved in data-driven trend analysis and data benchmarking

- ☐ Strongly Disagree
- ☐ Disagree
- ☐ Agree
- ☐ Strongly Agree

02 At my organization HR provides dashboards with relevant metrics to managers and/or executives

- Strongly Disagree ☐
- Disagree ☐
- Agree ☐
- Strongly Agree ☐

03 At my organization HR can analyze attrition rates for different groups of employees, for instance high potentials vs. low potentials

- ☐ Strongly Disagree
- ☐ Disagree
- ☐ Agree
- ☐ Strongly Agree

04 At my organization HR decisions are based on data analysis

- Strongly Disagree ☐
- Disagree ☐
- Agree ☐
- Strongly Agree ☐

05 At my organization HR runs analyses based on integrated data from different systems, like performance management, pay and recruitment

- ☐ Strongly Disagree
- ☐ Disagree
- ☐ Agree
- ☐ Strongly Agree

06 At my organization HR provides actionable solutions based on data analysis

- Strongly Disagree ☐
- Disagree ☐
- Agree ☐
- Strongly Agree ☐

07 At my organization we have a dedicated HR officer (CHRO) in our board of directors

- ☐ Strongly Disagree
- ☐ Disagree
- ☐ Agree
- ☐ Strongly Agree

08 At my organization HR continually develops predictive models to support strategic decision making

- Strongly Disagree ☐
- Disagree ☐
- Agree ☐
- Strongly Agree ☐

09 At my organization HR engages in (strategic) workforce planning based on scenarios created using predictive models

- ☐ Strongly Disagree
- ☐ Disagree
- ☐ Agree
- ☐ Strongly Agree

Deloitte.

People analytics maturity: Top findings from high-impact people analytics research

Advance your people analytics maturity

Analytics maturity is not possible without data accuracy, security, and consistency.

Mature organizations use multiple listening channels to gain a clearer understanding of talent issues.

Number of listening channels used by maturity level:

3
Low maturity

7
High maturity

The HR function must have strong data-literacy skills.

Robust people analytics teams are multidisciplinary and designed to be highly connected across the organization.

Successful analytics teams prioritize actionable information delivery, not just collecting and analyzing data.

Partnership with business, IT, finance, operations, and other analytics teams is key.

People analytics maturity

Organizations can only reach their full potential in analytics maturity when data-driven decision-making is embedded in the culture.

Top drivers of people analytics maturity

Data governance

People analytics team capabilities

Alignment with the business

Core Infrastructure

User engagement

Data culture

Maturity

Mature organizations are **2X more likely** to have a data council responsible for data governance.

Mature organizations are **3X more likely** to have strong partnerships with business units and corporate functions.

Mature organizations are **3X more likely** to have an organizational culture of data-driven decision-making.

Intro to HR Metrics and Workforce Analytics

HR and Workforce Analytics Concepts
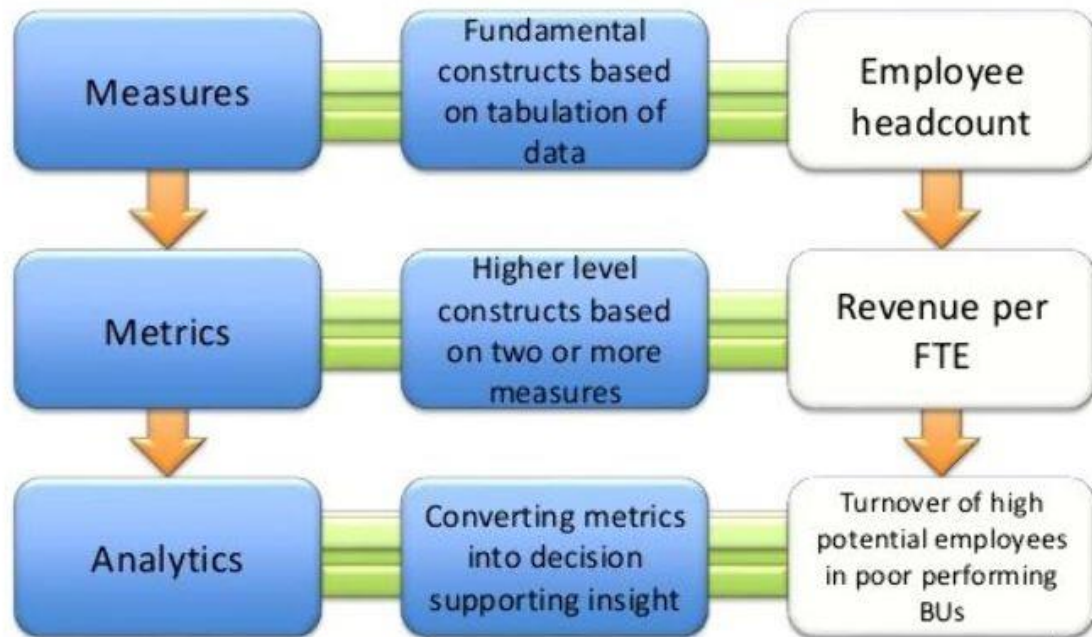
Measures	Fundamental constructs based on tabulation of data	Employee headcount
Metrics	Higher level constructs based on two or more measures	Revenue per FTE
Analytics	Converting metrics into decision supporting insight	Turnover of high potential employees in poor performing BUs

HRM METRICS PROCESS

Develop HR Metrics	Set goals	Choose KPIs
Evaluate HR KPIs	Test chosen KPIs	Use automation tools to collect data
Analyze results	Use obtain info in decision making	Amend measures or strategy if necessary

HR Metrics Showing Strategy People Process…

Strategy

This slide is 100% editable. Adapt it to your needs and capture your audience's attention.

People

This slide is 100% editable. Adapt it to your needs and capture your audience's attention.

HR Metrics

Capability

This slide is 100% editable. Adapt it to your needs and capture your audience's attention.

Process

This slide is 100% editable. Adapt it to your needs and capture your audience's attention.

Key HR Metrics

HR Staff and Expenses
- HR-to-employee ratio
- Total HR staff
- HR expenses per FTE

Staffing
- Number of positions filled
- Time to fill
- Cost per hire
- Annual turnover rate

Compensation
- Annual wage and salary increases
- Payroll as a percentage of operating expenses
- Benefit costs as a percentage of payroll

Training
- Hours of training per employee
- Total costs for training
- Percentage of employees participating in tuition reimbursement program

Retention and Quality
- Average tenure of employees
- Percentage of new hires retained for 90 days
- Performance quality of employees in first year

Development
- Positions filled internally
- Percentage of employees with career plan

© Cengage Learning
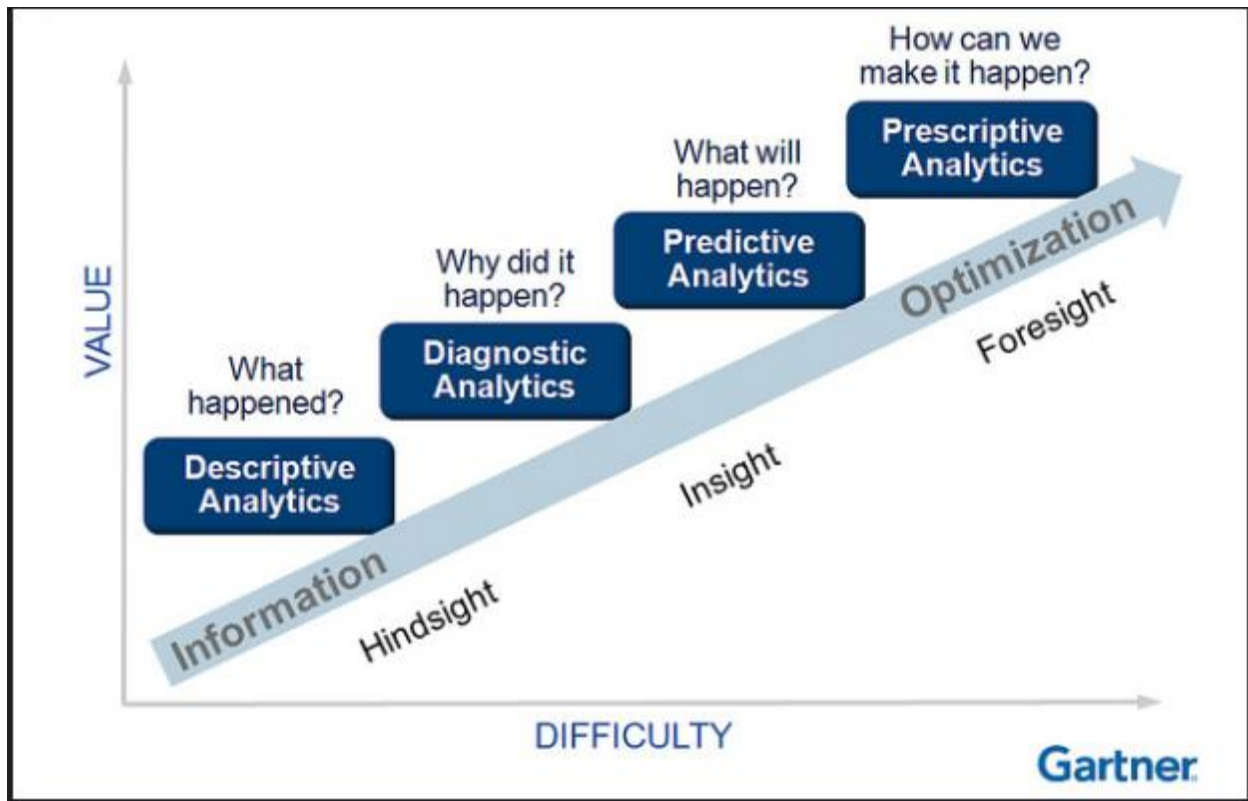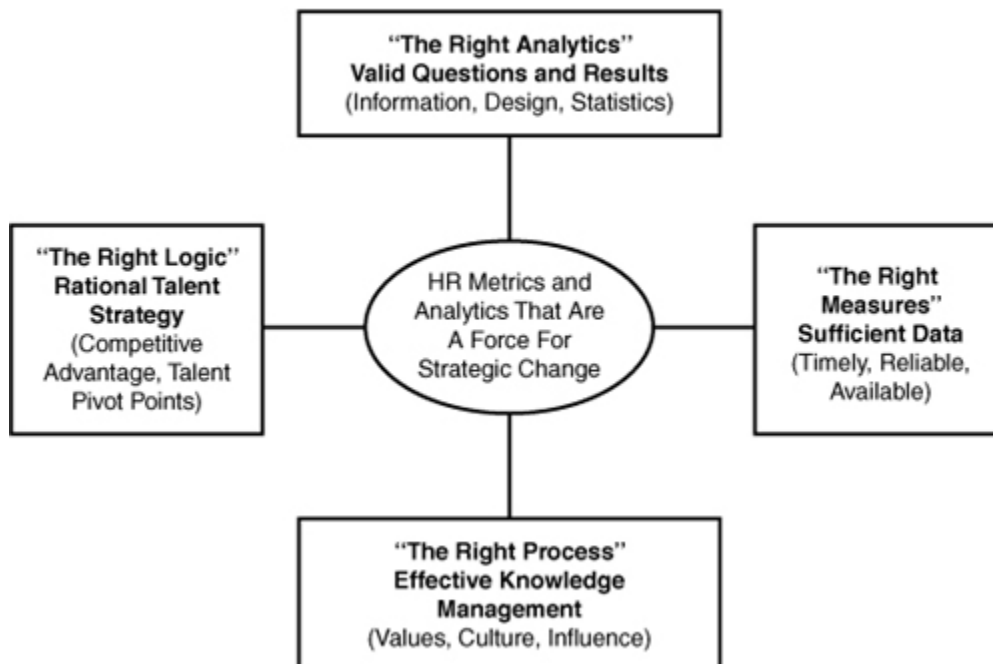
Gartner

Lighting the "LAMP"

"The Right Analytics"
Valid Questions and Results
(Information, Design, Statistics)

"The Right Logic"
Rational Talent
Strategy
(Competitive
Advantage, Talent
Pivot Points)

HR Metrics and
Analytics That Are
A Force For
Strategic Change

"The Right
Measures"
Sufficient Data
(Timely, Reliable,
Available)

"The Right Process"
Effective Knowledge
Management
(Values, Culture, Influence)

Lighting the "LAMP"

Valid Questions and Results
(Information, Design, Statistics)
"The Right Analytics"

Rational Talent Strategy
(Competitive Advantage, Talent Pivot Points)
"The Right Logic"

HR Metrics and Analytics That Are A Force For Strategic Change

Sufficient Data
(Timely, Reliable, Available)
"The Right Measures"

Effective Knowledge Management
(Values, Culture, Influence)
"The Right Process"

serco

9
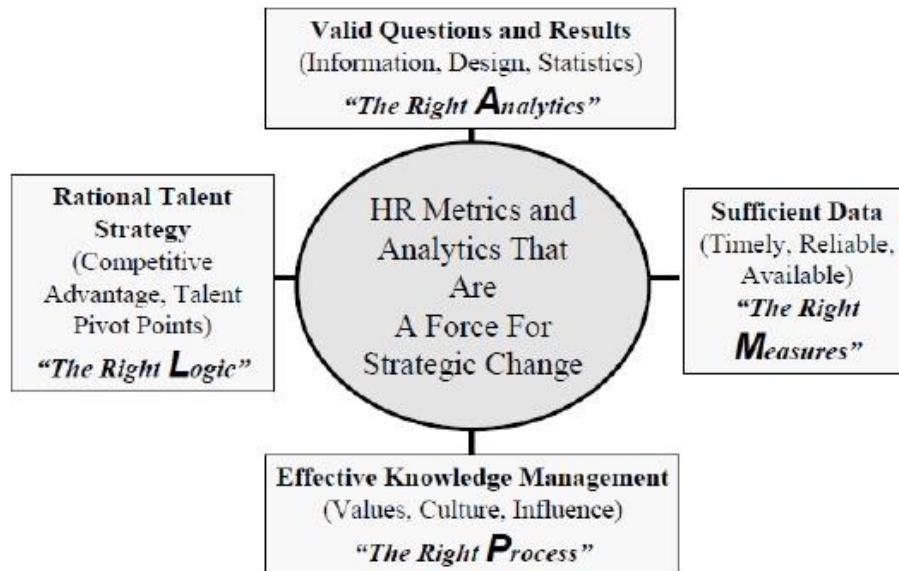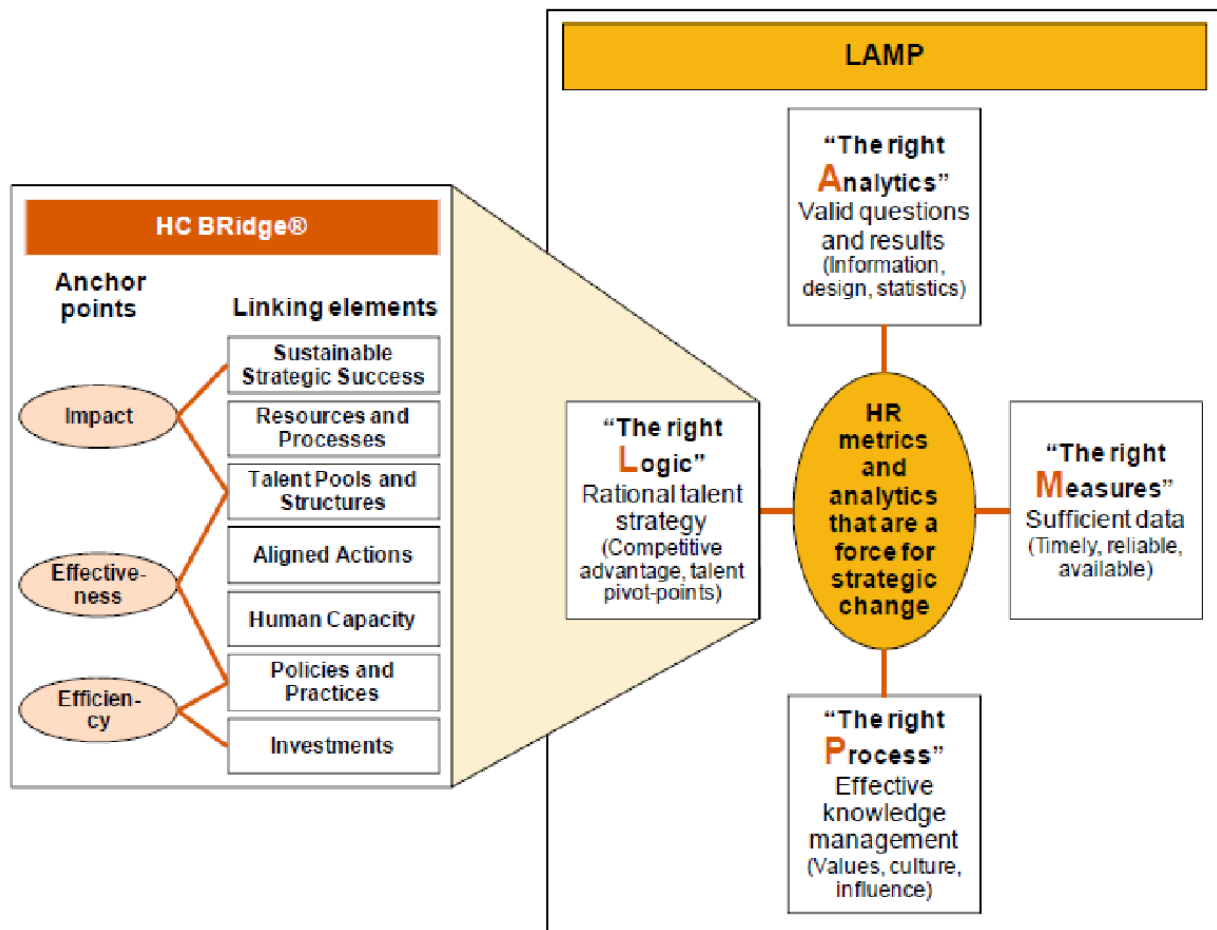
How to Design Your Organization's HR Business Processes – Sample List of HR Activities

Designing your company's HR business processes will allow you to make a distinction between the activities that are assigned to the Human Resources Department (organizational mission and role definition) or, conversely, to the management. It also allows acquiring a *global vision* of the different steps followed by employees during their entire lifecycle in the company, as well as clarifying the *organizational culture* in relation to HR management. Both in the literature and in practice, two main trends may be identified:

- The HR Department as a provider of avisory and services: It is the most up-to-date and demanding version of the HR Department. It consists in advising and supporting managers in their relations with their staff (e.g. advising them on staff recruitment/selection and development strategies, negotiating terms and conditions of employment, etc.) . In such cases, Chief HR Officers act as *"business partners"* for the company's management. They contribute to designing both the company's strategy and business plans.
- The HR Department as a "logistical supermarket" for managers: The HR Department takes orders from managers and carries them out. It does not take part in the writing of job profiles, does not intervene in the assessment of candidates during the recruitment process, and it does not provide advice on staff development issues. In other words, it serves as a *back-office* for the company's management, managing and updating the HR information system data.

In the first case, the HR Department serves as a vehicle of the company's organizational culture. It is not rare that it is endowed with a veto right against decisions of the management that could stand in contradiction with the organizational culture. The second version can mainly be found in large companies that are highly centralized or organized along lines of products – as well as in *very small structures* in which the boss rules with unlimited power.

TOOLS

The design of the company's HR business processes is mainly supported by the two following tools:

1. The list of the company's HR management activities: The aim of this listing is to get an overview of all Human Resources-related processes in the company. This step is a prerequisite to the assignment of the responsibilities to the different organizational players.
2. The responsibility assignment matrix for HR Management activities: The aim of this table is to assign all HR Management activities to the different organizational players; its contents will reflect the importance given to the HR Department.

PRACTICE

1. Inventory of HR activities: The first step in the design of the company's Human Resources processes consists in listing up all the activities that you consider to be part of your company's HR management, without bothering about their assignment yet. Once all these tasks have been listed up, you can group them into a *"catalogue of HR activities"*.

To do so, you can base your analysis on the following sample list of the HR activities of a multinational company's "Logistics" Division. *Although it is based on a multinational structure, this example may very easily be adapted to the duties of an SME's Chief HR Officer.*

2. Design of the organization's complete employment lifecycle: It can then prove useful to draw the full HR lifecycle of your company. The latter can – and even should – be based on the steps followed by employees during their employment lifecycle (illustration), from their first contact with the recruiter to their departure (via the hiring, development, training and promotion phases). These steps are always influenced by the company's *strategic orientations*. The annexed document aims to help you adapt *standard HR business processes* to the reality of your organization.

3. Responsibility assignment of all HR activities: Whatever the importance attributed to the *HR Department*, it will then prove essential to clarify the roles assigned to the different actors who take part in the HR life cycle. Drawing the responsibility assignment matrix (sample) for all HR-related activities can prove most helpful when it comes to designing your company's HR processes.

Please note that the assignment of these responsibilities will have to be adapted to each company's *organizational culture*. Thus, although the employer branding strategy (guidelines) may generally be very similar during the recruitment phase, companies tend to use *differentiation strategies* in the areas of staff management and development.

4. Implementation of HR business processes: Once all HR activities have been listed up and assigned, you can move to the project's *implementation phase*. Based on the responsibility assignment matrix and your company's *business process architecture*, you can now draw your *HR Department's organizational chart* and adapt the corresponding job descriptions (guidelines). The ultimate materialization of the HR strategy will take the form of the *employee handbook*.

By simply reading the organizational chart, an external observer should be able to assess the importance given to HR management in your company. Thus, an HR Department that is directly subordinated to the highest hierarchical level (CEO) hints at the fact that staff management is a priority for the organization. The other extreme consists in having no HR Department at all…

HR PROCESSES & ORGANIZATIONAL CULTURE

An examination of how the responsibility of your organization's HR processes is shared between the company's *management* and the *HR Department* thus allows getting a feeling of the *organizational culture*.

- An organizational culture characterized by the *willingness to maximize the commitment of employees* will organize its HR Department so as to turn the direct superior into a *coach*. This means that the HR Department will act as a "facilitator" for the company's management.
- In the contrary, a company that is strictly *oriented towards return on investment* will tend to discharge its managers from roles of advisory or support and will rather seek to achieve a *total customer-orientation*. In this case, the HR Department will be assuming a leading role in staff management and development. Although this configuration may look flattering for the HR Department in terms of power, it will result in a complete loss of managerial responsibility. Managers may indeed completely give up any participation to the development of their staff's competencies.

As has been said, the choice of the most adequate solution will have to be based on the company's *organizational values*, *mission* and *strategy*.

Posted in HR Processes & Organization, HR Strategy & Policies | Tagged hr management, hr strategy

What is a business process diagram?

A business process diagram is a roadmap for implementation—it outlines the expected outcome of a particular process and provides a concrete starting point for automation.

Diagramming a business process:

- Makes it possible to look at the big picture and take into account all types of potential scenarios.
- Identifies and eliminates redundant or unnecessary steps.
- Helps you research and understand the process so that you can see how it can be changed or improved by automation.
- Produces a visual aid that everyone can agree on.
- Helps you reduce upfront errors and prevent unnecessary changes down the road.

Before Girard Securities, a full-service broker/dealer, implemented an automated workflow, the firm spent three days mapping out its existing business processes on a whiteboard. "We sat down with representatives from every department to map out their processes and agree on the best way to automate them," explains John Barragan, COO. This whiteboarding session allowed Girard to see what parts of the process could be automated and what tools would be best for the job.

There are three steps to diagramming a business process:

1. Create an initial diagram

An initial diagram is a general overview of what the stakeholders think the business process looks like. Creating this diagram requires you to sit down with stakeholders to establish the initial, high-level steps in the business process. This is the general diagram you will be modifying throughout the diagramming process.

For example, in the case of a hiring process, the stakeholders will be HR professionals and department managers. Here is an example of an initial diagram for a hiring process:
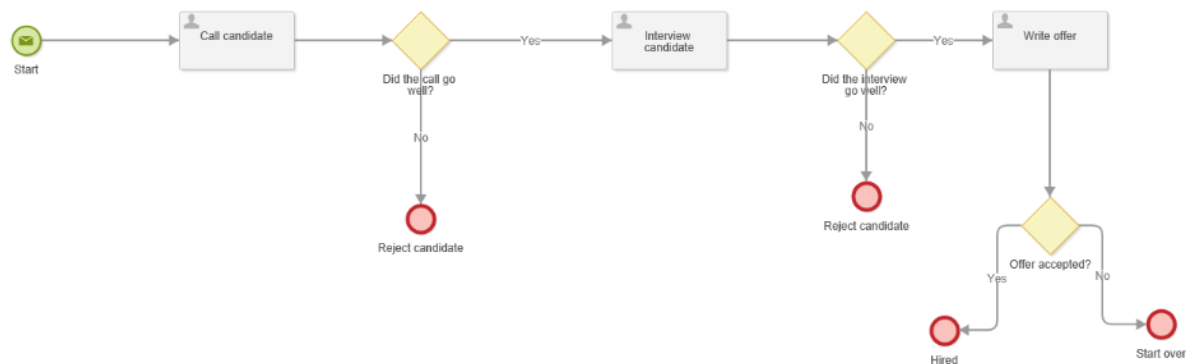
2. Gather the additional requirements and identify improvements

Gathering requirements consists of obtaining information about the business process from stakeholders, such as the HR professionals and department managers mentioned earlier.

During the requirements gathering phase, you may discover that employees don't follow established procedures or that the current office workflow is exceedingly frustrating. You can also find out how tasks are actually completed as opposed to how they are supposed to be completed. For example, the HR assistant might be contacting the candidate's personal references after the last interview, even though company policy states that references should be contacted after the initial call.

Answer these questions during requirements gathering:

- What is the overall goal of the business process?
- What triggers the start of the process?
- What signals the end of the process?

- What are the activities in each step and who is involved in each activity? (This includes <u>HR Automation</u> professionals, employees from other departments and any external users such as job applicants.)
- Are there any alternate steps in the process? (For example, if the department manager is on extended leave, who else can interview the candidate?)

Make sure you establish and agree on specific terminology when questioning users and have them explain ambiguous phrases.

Examples:

- "File" can mean a single document or a packet of individual documents.
- "Sharing" a document can mean emailing it, saving it in a network folder or transporting the hard copy.

Some other commonly used terms include:

- Bring in/store
- Can/cannot access
- Review
- Receive
- Notify
- Process

By clarifying terminology, you'll identify areas of improvement that might otherwise be overlooked. For example, you might find out the "review" phase of the hiring process requires an HR professional to make multiple copies of a resume and application, call stakeholders when their feedback is required and mediate between stakeholders.

After detailing every step of the HR process, ask yourself:

- Are there any steps in the process that seem redundant?
- Is there a certain part of the process that can be reconfigured to be more efficient?

Don't be afraid to make changes to the current process! When Amy Johnson, Systems Administrator at <u>Hanover County</u>, was automating her first business process, she spent more time diagramming the process than actually creating the automated workflow. During the mapping stage she found that it is ok to change or revise current processes in order to make workflows as efficient as possible. "Sometimes you may think that the process works one way, but in reality, there are certain steps you may have skipped."

3. Incorporate the additional requirements into the diagram

Once you've gathered the requirements, incorporate them into your diagram by adding more steps, deleting others and modifying existing ones. Don't make assumptions on little things such as the format of a date field—a diagram is useless unless it is detailed, correct and comprehensive.

Show this diagram to the stakeholders and end users to make sure your diagram is accurate and complete. Revise the diagram until everyone is satisfied with the final version, but make sure that you keep the goal of the process in mind the entire time. Remember that the final diagram should achieve this goal as efficiently as possible.

The final diagram of the hiring process is much more detailed than the initial diagram:
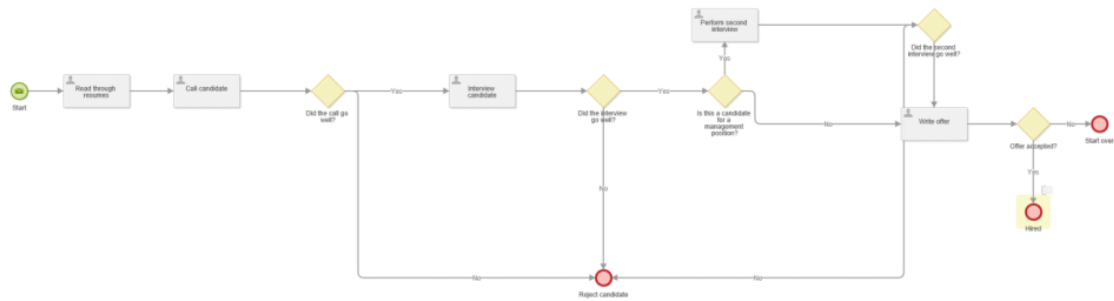
Once you have a detailed diagram, it will be much easier to translate HR business processes into automated workflows because you've made sure they are efficient, straightforward and account for everyone involved.
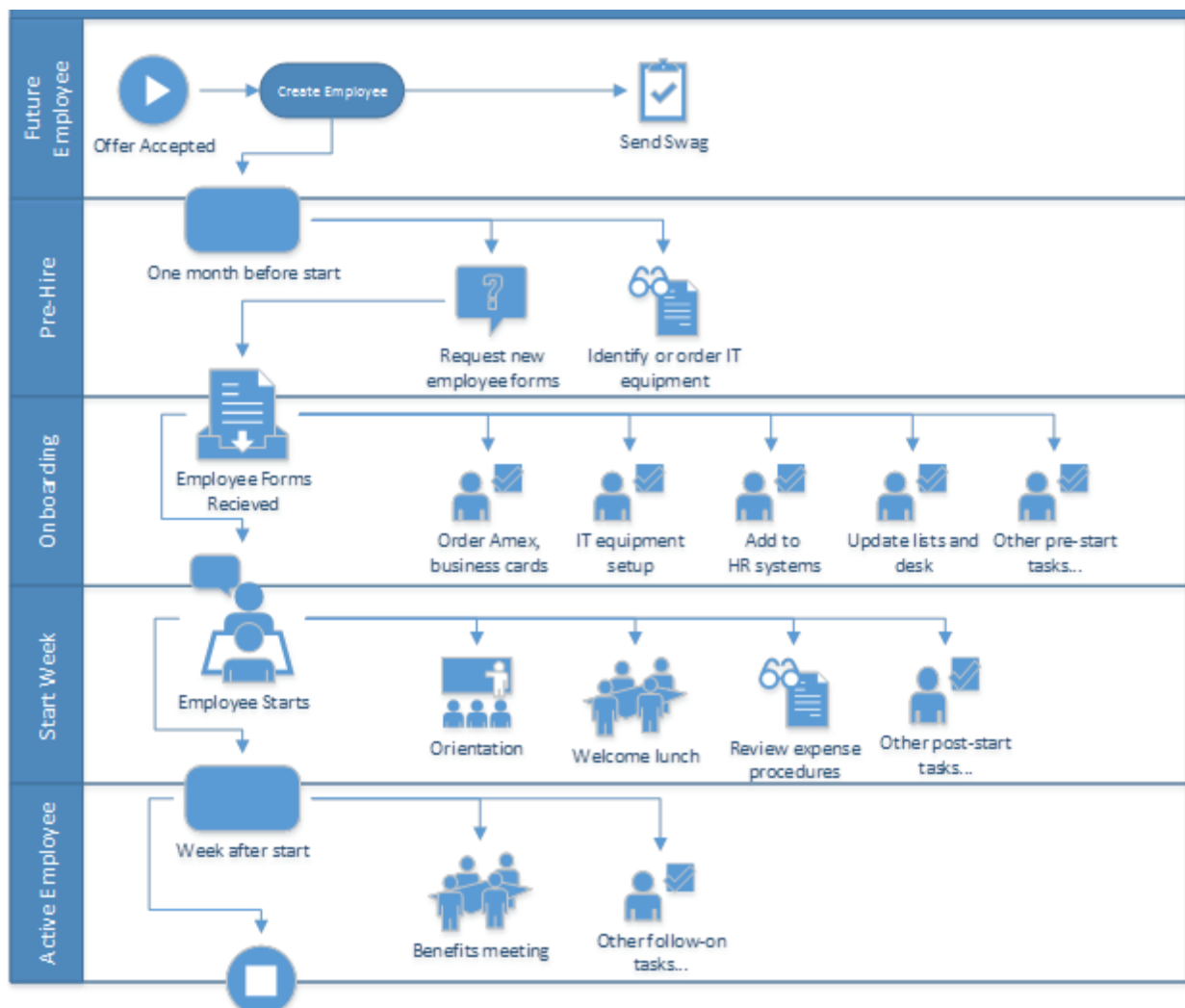
Statistics and Statistical modelling for HR Research and HR decision-making

As a statistics instructor in the early part of my career, I know how boring statistics can be (to most of us). However, grasping the fundamentals of statistics is critical for your success as an HR professional. Without it, you cannot capitalize on the huge potential data science offers HR.

In this article, I will decipher HR statistics through storytelling. I will answer 19 questions typically asked by young business and HR managers who are about to start their analytics journey.

DISCUSSION ON HR ANALYTICS AND STATISTICAL IMPLICATIONS:

Question 1: How would you define HR analytics?

Analytics is a combination of the two terms "analysis" & "statistics". It refers to any analysis driven through the application of statistics. HR analytics is analytics applied to the domain of HR. These analytics can be advanced predictive analytics, or basic, descriptive statistics. This means that HR analytics is a data-driven approach to managing people at work (Gal, Jensen & Stein, 2017).

Question 2: So how does the discipline of statistics help HR?

The world of HR, as well as people in general, can be extremely random. Statistics help to understand, capture, and predict the randomness of our world. It can reduce risk by estimating uncertainties and reveal hidden aspects in day-to-day HR processes. For example, using analytics you can predict who is most likely to leave the organization, estimate whether you are rewarding different employees fairly, and discover biases in your hiring process. Without it, you miss out on a lot of valuable information needed to make better people decisions.

It's always statistics in one form or another to the rescue!

Question 3: This sounds like statistical analysis is the solutions to all HR problems!

We wish it were. Unfortunately, statistical modeling can only explain part of the problem. We don't live in a perfect world. Unlike theoretical math, which deals with direct computations, statistics are about probabilities.

Statistical models are always subject to unidentifiable factors called noise and inherent errors. Noise and errors make our predictions less certain. Having said that, a good statistical model will be invaluable and help to make much better people decisions.

Uncertainties are not bad. They are part of everything we do. The application of statistics reduces uncertainty to their lowest denominator. This provides HR with a robust and accurate decision support system.

Question 4: Apart from noise and errors, are there are any other drawbacks in the application of HR statistics?

Yes, bias! Bias can be a significant factor in any statistical analysis. This could be due to poor sampling, selective information or even lack of adequate data altogether.

Take the popular example of the school kid who took third position in a race. Great job, kid! However, the race only had 3 participants. Perhaps a less than stellar performance after all. This is an example of selective information and could be solved by collecting more information.

In the real world, sampling biases could inject a substantial amount of selective information. It can even be deliberately designed to favor vested parties of interest, rather than representing the facts. This is not very different from accountants who cook up the financial records, isn't it?

A Rough Guide to
SPOTTING BAD SCIENCE

Being able to evaluate the evidence behind a scientific claim is important. Being able to recognise bad science reporting, or faults in scientific studies, is equally important. These 12 points will help you separate the science from the pseudoscience.

1. SENSATIONALISED HEADLINES

Article headlines are commonly designed to entice viewers into clicking on and reading the article. At times, they can over-simplify the findings of scientific research. At worst, they sensationalise and misrepresent them.

2. MISINTERPRETED RESULTS

News articles can distort or misinterpret the findings of research for the sake of a good story, whether intentionally or otherwise. If possible, try to read the original research, rather than relying on the article based on it for information.

3. CONFLICTS OF INTEREST

Many companies will employ scientists to carry out and publish research - whilst this doesn't necessarily invalidate the research, it should be analysed with this in mind. Research can also be misrepresented for personal or financial gain.

4. CORRELATION & CAUSATION

Be wary of any confusion of correlation and causation. A correlation between variables doesn't always mean one causes the other. Global warming increased since the 1800s, and pirate numbers decreased, but lack of pirates doesn't cause global warming.

5. UNSUPPORTED CONCLUSIONS

Speculation can often help to drive science forward. However, studies should be clear on the facts their study proves, and which conclusions are as yet unsupported ones. A statement framed by speculative language may require further evidence to confirm.

6. PROBLEMS WITH SAMPLE SIZE

In trials, the smaller a sample size, the lower the confidence in the results from that sample. Conclusions drawn can still be valid, and in some cases small samples are unavoidable, but larger samples often give more representative results.

7. UNREPRESENTATIVE SAMPLES USED

In human trials, subjects are selected that are representative of a larger population. If the sample is different from the population as a whole, then the conclusions from the trial may be biased towards a particular outcome.

8. NO CONTROL GROUP USED

In clinical trials, results from test subjects should be compared to a 'control group' not given the substance being tested. Groups should also be allocated randomly. In general experiments, a control test should be used where all variables are controlled.

9. NO BLIND TESTING USED

To try and prevent bias, subjects should not know if they are in the test or the control group. In 'double blind' testing, even researchers don't know which group subjects are in until after testing. Note, blind testing isn't always feasible, or ethical.

10. SELECTIVE REPORTING OF DATA

Also known as 'cherry picking', this involves selecting data from results which supports the conclusion of the research, whilst ignoring those that do not. If a research paper draws conclusions from a selection of its results, not all, it may be guilty of this.

11. UNREPLICABLE RESULTS

Results should be replicable by independent research, and tested over a wide range of conditions (where possible) to ensure they are consistent. Extraordinary claims require extraordinary evidence - that is, much more than one independent study!

12. NON-PEER REVIEWED MATERIAL

Peer review is an important part of the scientific process. Other scientists appraise and critique studies, before publication in a journal. Research that has not gone through this process is not as reputable, and may be flawed.

Question 5: So far, so good. Now, can you demystify the technicalities of statistics with real-world analogies, without the use of algebra?

Statistics has just three core parts, that's all. These three musketeers (individually or combined!) can tackle any data-driven solution for HR under the sun!

The three parts are:

- Descriptive statistics
- Inferential statistics
- Statistical modeling

Question 6: Do we need to learn all three separately?

Nope, they are joined .

Imagine both of us enter a sports auditorium and find a basket containing 4 sports balls in the middle. In this example, there are two tennis balls, one volleyball, and one soccer ball. We could refer to this as our dataset.

Now both of us, individually, are tasked to group the balls by their circumference. We don't observe each other's groupings, of course.

I identify 2 groups based on circumference:
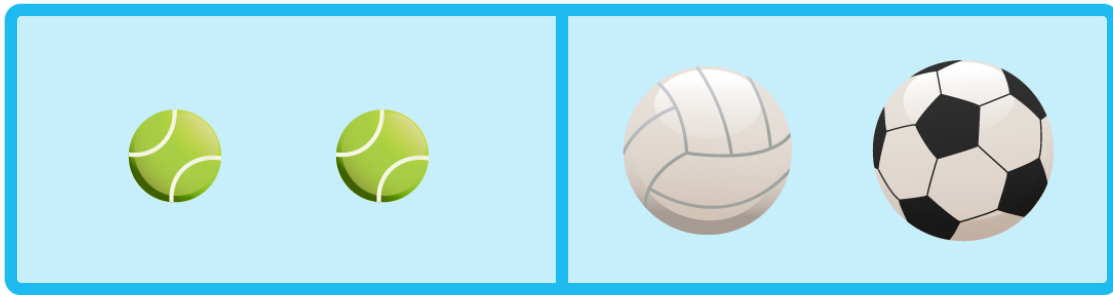
I put them back in the basket. You repeat my exercise and identify 3 groups based on circumference.

Both of us have inadvertently used descriptive statistics when we grouped the ball by circumference. We then compared the groups to the total number of balls and gave our unique solutions. However, the important question is: Why did we group them differently?

Now, this is the essence of inferential statistics.

Question 7: Okay, did one of us group them incorrectly?

Nope, that's the beauty of inferential statistics. Both of us are correct, only our inferences were slightly different. The soccer ball was 98% of the circumference of the volleyball.

For me, this 2% difference in size seemed insignificant. Therefore, I allocated them to the same group. To you, the 2% difference in size did seem significant, which made you allocate the two balls to two different groups.

See how we used the terms 'significance' and 'inferences' in conversational English? These terms for the backbone of any statistical analysis.

Question 8: So, the difference is significant to me but not to you. Significance is a matter of individual whim, is it?

Aha, that is only partly true! The decision can change even with the same level of significance. How? Let's dig a little deeper and see where the idea of confidence level originates from.

Say, instead of just one soccer and volleyball, we had 10 balls of each type. We would then need to take the average circumference of 10 units (of both types of balls). Now the average of 10 soccer balls comes out to be 99% the circumference of the average of 10 volleyballs. An upgrade from 98%, isn't it?

Here the 1% difference in size is insignificant to both of us. We, therefore, allocate both balls to the same group. See how our decision changed with a larger sample size? It's important to note we are also more confident about our inference with a larger sample size. This confidence level is an important term often used in statistics.
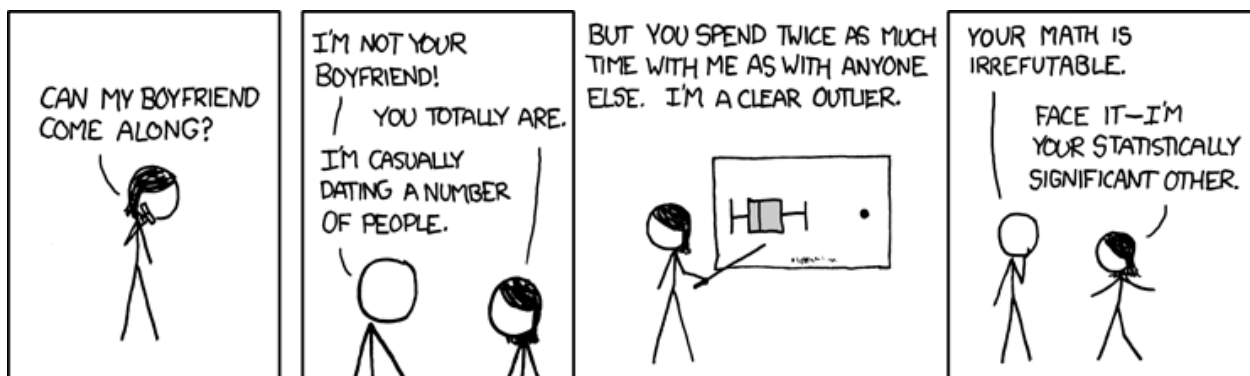
Finally, let's average 100 units of each type of ball. Now the soccer ball is 100% the average circumference of the volleyball. Now, even the most skeptic among us won't have any doubts that the soccer ball set and the volleyball set are of the same circumference.

This explains statistics in a nutshell. It's all about inferences levels (which can be tailored) and how we are more confident about our inferences the larger the sample size.

Question 9: If it's that simple, why do we need metrics to compute p-values, levels of significance, confidence intervals, ANOVA's, and so on?

There are two fundamental reasons why statistical calculations are much more complex

1. There is much more variation between individual units in most real-life processes – including HR – compared to our previous example.
2. We are measuring the difference between two groups of balls – and not between individual balls. Related to HR: we are measuring the difference between two teams of recruiters (and not between individual recruiters).
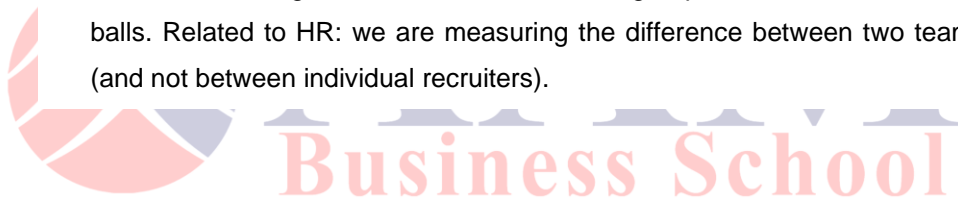
In our previous example, soccer balls and other types of balls undergo rigorous quality control in their manufacturing. This results in them having minimal variation. People, however, do not undergo "rigorous quality control" in their "manufacturing". People are a lot more diverse and have a lot more variance between each individual unit.

Both examples, however, approximate a normal distribution in real-life.

Question 10: Okay, I have heard of this before, but what exactly is normality?

Let's take the analogy of the soccer ball to another dimension using its shape. The distribution of real-life processes (like productivity per employee, or travel distance per day) when plotted on a chart manifest themselves in different shapes. However, because scores tend to stick to the average, they always follow the same pattern. They are more shaped like a rugby ball.

For the simplest explanation possible let's take look at a sand hourglass.
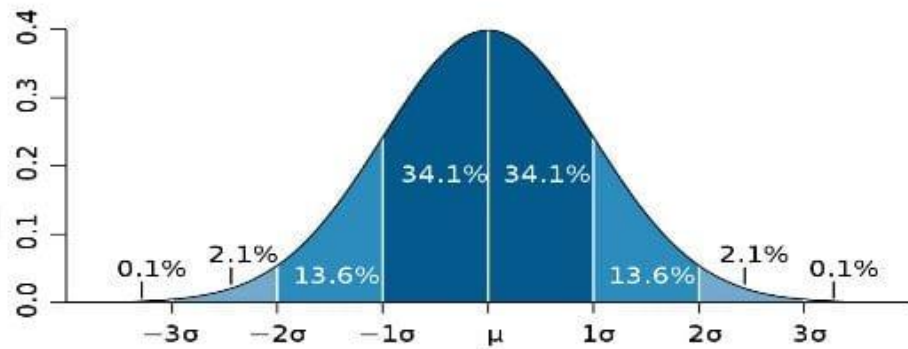
The fine grains falling through the glass have a mini microns' difference in size and weight. The pyramid, however, always follows an approximate normal distribution, time and time again (pun intended). Similar to a half rugby ball. This means variance patterns between different units are naturally expected to be within a certain range.

For another explanation of the normal distribution, look at this brilliant YouTube clip. Click the video to start – even though it looks grayed out, it works!

https://youtu.be/6YDHBFVlvls

That's exactly what most real-life data looks like. However, some processes are more like an hourglass on a stormy sea ride. Take for example performance ratings. These are skewed to one side because managers don't like to give people low ratings. These don't form a normal distribution. It's hard to differentiate people when they all score the same, that's why one of the core issues in statistics is testing for normality. The picture below shows the skewed performance distribution and the mean (average), median (value in the middle), and mode (most common value in the data set).

Every time we analyze data, we need to check if our HR data follow this hourglass-like distribution on a calm sea.

Question 11: So, does that simply mean that in a normal distribution variance must be within acceptable limits?

Exactly. A perfect normal distribution translates to 66.6% of the dataset lying within 2 standard deviations from the mean and 99.7% within 3 standard deviations. Standard deviation is a measure of dispersion, similar to measuring the variance of the width of a rugby ball from its center.

If our HR data closely follows the shape of a normal distribution, we can be sure that any statistical inference will have a good measure of accuracy.

Question 12: So, what if our rugby ball – sorry, HR data – isn't normal? Is that the end of reliable statistical analysis?

Nope, absence of normality is not abnormality. There is a working compromise here; we could use the median instead of the mean. The median is an estimation of centrality similar to the mean. We could use non-parametric methods to execute our statistical analysis but the results are touted to be less robust in real-life scenarios.

However, as a statistician, I feel non-parametric methods are one of the simplest and underutilized aspects of statistics.

Anyway, there are other hacks that you can use in your statistical analysis. Like <u>box-cox transformations</u>, removing outliers (to force normality), and others. However, this is slightly beyond the scope in this post. Please do bear in mind that there is always a hack to any statistical analysis!

Question 13: I think I have a broad overview of the capabilities and limitations of statistics: The normal distribution, variance, and statistical inference. Can you give me a real-life HR example of a normal distribution and its statistical analysis?

Sure thing! Let's take two identical pictures of our rugby ball. Then, take two printouts of it and randomly put a hundred dots on both the pictures (roughly covering the entire surface of the image). The images of the rugby balls are identical, but the pattern of dots on both the balls aren't identical.
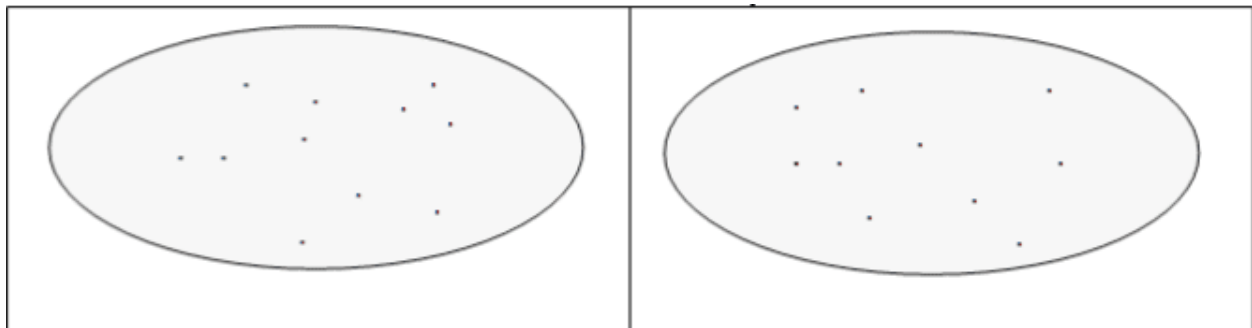
Why? Many of the random 100 dots on both the rugby balls have varying distances from the center of the image (mean). Therefore, it's hard to tell the overall difference without measuring the distances of all the dots.

Now, replace the 2 rugby ball images with 2 recruitment teams of a global recruitment center in HR. Each image, or global recruitment center, has 100 recruiters. Replace the random dots with the recruitment performance of each recruiter.

The exact center of the rugby ball represents the mean performance of each team. Are the performances of both teams equal? It's the same case. The same rugby ball. The same 100 recruiters. The same overall area. However, because the dots are scattered differently over the rugby balls, the overall performances aren't necessarily the same.

Question 14: So the performances of both the teams aren't certain to be equal. This means that the performance of individual recruits becomes key.

Yup, spot on! Instead of just one factor (the mean), we now have two factors (the mean AND the variance) that are important.

Comparison between the mean and the variance is the soul of statistics.

The mean (average of all recruiters' performances) and variance (the distance of each recruiter from the mean). Master these two concepts and you've mastered 90% of applied statistics. I *mean* it (pun intended)!

All hypothesis tests in statistics, including T-Tests, ANOVA, Chi-Square and more, depending upon equations derived from:

1. **Mean or median (average of all recruiters' performances).**
2. **Variance (the distance of each recruiter from the mean).**
3. **The total number of population (The sample of recruiters, i.e. n).**
4.
   And in some casesValues from z-distribution tables (pre-computed normal distribution tables).

That's all there is to it! As you can see, this breaks all statistics down to their 4 lowest denominators.

Question 15: Awesome! Do we typically need to do all these tests on HR data?

The exact tests would depend upon the type of insights required for the business. A typical starting point would be a t-test or an ANOVA. ANOVA literally stands for analysis of variance. Both of these check whether there is a significant overall difference between the mean of two groups, such as two HR recruitment teams.

Question 16: Can we do a t-test on our recruiter performance data?

Sure. We select a sample set from our data. Say the performance of 30 recruiters (out of 100) from each team. These are randomly selected, of course, to eliminate any bias.

Now we have the data in terms of average performance (of both the sample and the total) and the variance. That's all the data we will need.

We apply the t-test formula. It's a linear algebra jugglery on the mean, the variance and the total number of recruiters. We will explain the logic behind the formula in a next article:

$$\frac{Z}{s} = \frac{(\bar{X} - \mu)/(\sigma/\sqrt{n})}{s}.$$

The computation will take about 12 minutes via hand calculations (using a basic calculator) or a few seconds using a statistical analysis software or an Excel macro.

Now the output could be something like: t = -3.73, p = .07.

The t-value is the outcome of the t-test. P stands for probability. In this case there's a .07 (7%) probability that our findings are random – and a 93% probability that these are actually true (not caused by randomness or chance).

Based on the same report, we could still end up with different answers to our hypothesis. Why?

Because our understanding of the "significance of difference" for the p-value of t-test was different. In other words, your criteria for significance of the p-value was smaller than .10, whereas my criteria for significance was smaller than .05.

The p-value in our test is .07.

Let's compare the p-value of the test to our individual level of significance:

- **.07 > .05 (my value of significance)**
- **.07 < .10 (your value of significance)**

In your case, the p-value of the test was lower than your value of significance. This means that, according to you, there was a significant difference in the mean between the two groups.

In my case, the p-value of the test was higher than my own value of significance. Therefore, I don't think that there is a significant difference between the two groups.

The p-value means the chance that the difference between the two groups comes from random chance. As in, there is no actual difference between the two groups. In our case, there is a 7% chance that the difference between the two groups is due to chance. This was enough for you to conclude that there was a significant difference between the two groups. I had higher standards and thus did not think that this chance was low enough to warrant the same conclusion.

Question 17: What would happen if we were to increase the sample size?

Interestingly, if we change the sample size from 30 to 100, the value of p increases to .15. This would mean that there was no difference in performance between the two teams according to both of our inferences.

- **.15 > .05 (my value of significance)**
- **.15 > .10 (your value of significance)**

As you can see the inferences (decisions) change with changes in sample size.

Question 18: What about other aspects, like confidence intervals?

The narrower the confidence interval, the more confident we are about our analysis. If our data-set follows normality than its width should inversely correlate with sample size. This follows the central limit theorem. I will cover this and other key aspects of statistical tests in the next part. This part was just to give an overview of the discipline of applied statistics and its relevance to HR.
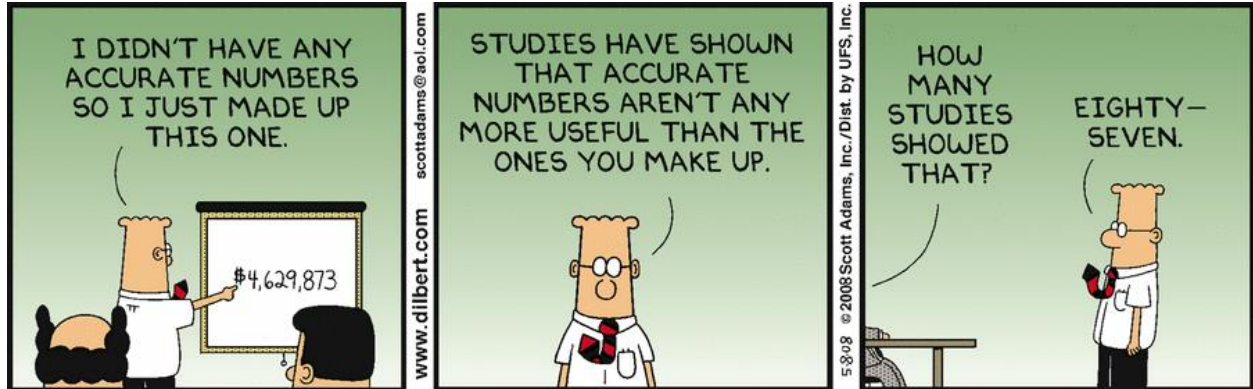
Question 19: Where can I learn more about statistics in HR?

That's a good question! We created a course specifically on <u>Statistics in HR</u>. In this course, we will cover multiple topics, split into four modules.

1. **Introduction to statistics**
2. **Methodology**
3. **Basic statistical tests**
4. **Advanced statistical tests**

HR Research Tools and Techniques

Everything you need to know about HR research. HR research is, "the task of searching for, and analysing of facts to the end that HR problems may be solved or principles and laws governing their solutions derived."

HR research implies searching investigations, re-examinations, re-assessments and revaluations. In other words, research is a purposive and systematic investigation designed to test hypothesis through structured questions.

According to Dale Yoder, "HR research is a shortcut to knowledge and understanding which can replace the slower, more precarious road of trial and error in experience. It implies searching investigations, re-examinations, reassessments and revaluation.

It is a purposive and systematic investigation designed to test carefully considered hypotheses or thoroughly framed questions".

Contents:

1. **Meaning and Definition of HR Research**
2. **Need for HR Research**
3. **Characteristics of HR Research**
4. **Coverage of HR Research Area**
5. **Objectives of HR Research**
6. **Process of HR Research**
7. **Methods of HR Research**
8. **Approaches to HR Research**

Meaning and Definition by Michael J. Jucius, Dale Yoder and Other Experts

The study of human resource practices and activities gives the extent of success or failure of policies and practices. Research on HRM activities provides an understanding of what does work, what does not work, what needs change, the nature and the extent of change. HR research is, "the task of searching for, and analysing of facts to the end that HR problems may be solved or principles and laws governing their solutions derived."

According to Michael J. Jucius, "HR research is the task of searching for and analysing of facts to the end that HR problems may be solved or principle and laws governing their solution derived".

According to Dale Yoder, "HR research is a shortcut to knowledge and understanding which can replace the slower, more precarious road of trial and error in experience. It implies searching investigations, re-examinations, reassessments and revaluation. It is a purposive and systematic investigation designed to test carefully considered hypotheses or thoroughly framed questions".

" According to another expert, HR research is "the task of searching for and analysing facts, to understand how personnel problems may be solved or principles governing their solutions derived."

HR research implies searching investigations, re-examinations, re-assessments and revaluations. In other words, research is a purposive and systematic investigation designed to test hypothesis through structured questions. It seeks to answer specific questions and is not merely an accumulation of unstructured observations. It is objective; that is, it recognises and limits bias and prejudice in every step of the process.

a. It is systematic; that is, it begins with a comprehensive designs or plan, and the investigation is conducted in terms of that design.

b. It is parsimonious; that is, it identifies methods and techniques for the solution of problems with the minimum cost.

c. It is repeatable; that is, it can be used independently by several researchers at the same time.

d. It is a planned and designed investigation analysis and fact finding. It is conducted to verify or disapprove certain assumptions or hunches. It supplements existing knowledge.

Research Procedure and Accountability:

A researcher has to follow a certain research procedure. In the first place, he has to define problem; that is he has to determine the problem that is to be solved by constructing research design. He has then to state his objective; that is, he has to determine the goal that is to be reached as a result of his research. E.g. formulates and tests a hypothesis and collects data as a result of his observation of personnel and following the issue of a questionnaire and the holding of interviews.

After the data have been collected, he classifies, analyses and interprets his information, draws conclusions, makes generalisations, or develops new hypotheses. Finally, he prepares a formal report

containing statements, tables, charts and other explanatory or illustrative material, and submits the results of his research to those for whom they are meant.

ADVERTISEMENTS:

The results of research projects, plans, findings and experiences are generally reported in a number of publications brought out by an organisation, and in a number of other journals, technical or business magazines; they are also covered in seminar reports, conference proceedings and monographs.

Yoder classifies these into three categories – (a) those professing a major interest in the field of personnel and labour relations; (b) those having a specialised focus on one or more of these; and (c) journals covering wider interests, which include reports on research in the manpower management area.

Research is not the sole responsibility of any one particular group or department in an organisation. The initial responsibility is that of the personnel department which, however, should be assisted by line supervisors and executives at all levels of management. The assistance that can be rendered by trade unions and other organisations – for example, educational institutions, private research groups and governmental agencies – should not be ignored, but should be properly made use of.

Psychologists, sociologists, economists, mathematicians, and specialists in business administration, political science and other areas should also be laid under contribution insofar as research is concerned.

According to Jucious, "The field of research requires the resources of several types of researchers and different kinds of tools. To seek answers through the methodology and principles of a single specialty is to build upon a weak foundation. Rather, research calls for a cosmopolitan attitude and interdisciplinary cooperation. The specialists who try to build a fence around all Aspects of research do themselves and industry a serious disfavor."

HR Research – Need: Build upon Existing Knowledge, Evaluation of Proposed Programmes, Practices and Activities and a Few Others

Undertaking human resource research is often crucial in solving HR problems as it is difficult to make effective decisions without accurate information.

The human resource research is needed due to the following reasons:

(i) To build upon existing knowledge – Growth of the knowledge is a continuous and a never ending process. Human resources knowledge grows at a faster rate. HR research contributes significantly for building up of the existing HRM knowledge.

(ii) Evaluation of proposed programmes, practices and activities – The proposed programmes, practices and activities are needed to be appraised thoroughly, before implementation. HR research provides necessary information for evaluation.

(iii) Evaluation of current and new policies and practices – The action research provides for implementation of policies and practices based on the results of the research.

(iv) Anticipation of Personnel Problems – The HR problems are the outcome of employees' dissatisfaction over several issues. These problems will lead to industrial disputes. The HR research can predict the possible problems and suggest measures for their prevention.

HR research is warranted due to the following reasons:

i. Growth of knowledge in the economy is tremendous and continuous. HR knowledge grows at a faster rate. HR research significantly contributes to building up of new knowledge and strengthening existing knowledge.

ii. HR research supplies the inputs needed for thorough evaluation of proposed programmes, practices and activities.

iii. In the light of HR research, current HR policies, programmes and practices need to be altered.

iv. HR research on various aspects of human behaviour helps the organization to spot out the areas of satisfaction and dissatisfaction of employees. While it may take measures to shore up satisfaction, it may take proactive measures to minimize employee dissatisfaction and the impending trouble to the organization.

HR Research – 8 Important Characteristics

Some of the important characteristics of HR research are:

(i) Human resource research is purposive. In other words, it seeks to answer specific questions.

(ii) HR research is objective. It recognises and limits bias and prejudice in every step of the process.

(iii) It is systematic. It brings with a comprehensive plan or design. Investigation is conducted based on that design.

(iv) HR research is parsimonious. It identifies methods and techniques for the solution of the problems with the minimum cost.

(v) HR research is repeatable. It can be used by different researchers at the same time.

(vi) It is planned and designed investigation and analysis.

(vii) It is conducted in a systematic manner to check or verify or disprove clues, assumptions or hunches.

(viii) It supplements knowledge and extends the frontiers of understanding.

HR Research – Coverage of HR Research Area

Research in manpower and human resources covers all those specific areas which are the subject matter of personnel administration. The scope of such research may vary from the very simple to the very complex, or from the short and inexpensive to the long and costly. Most studies reveal that the four most dominant areas of research are selection; training and development; attitudes and leadership; and measurement devices.

The human resource researcher seeks to discover the basic relationships which may lead to improved personnel decision-making in such areas as turnover, absenteeism, compensation levels and structure, job satisfaction, employee morale, assessment of managerial potential, training effectiveness, grievance handling, labour relations and collective bargaining.

Human resource research areas are often identified in terms of high or low appearance – selection, opinion measurement, training and development, appraisal, motivation, organisational effectiveness, managerial obsolescence, counselling and retirement. Managerial selection and development and general employee motivation have generally been identified as the two main human resources areas which are in the greatest need of additional research.

The fundamental objectives of HR research have been listed here:

i. Promoting and evaluating present conditions.

ii. Predicting future conditions, events and behavioural patterns.

iii. Evaluating the effects and results of current policies, programmes, practices and activities.

iv. Providing an objective basis for revision of current policies, programmes, practices and activities.

v. Appraising proposed HR policies, programmes and activities.

vi. Evaluating and reviewing the linkage between organizational strategies and HRM strategies.

The specific objectives are:

(i) To measure and evaluate present conditions.

(ii) To predict future conditions, events and behavioural patterns.

(iii) To evaluate the effects and results of current policies, programmes, practices and activities.

(iv) To provide an objective basis for a revision of current policies, programmes, practices and activities.

(v) To appraise proposed policies, programmes and activities.

(vi) To keep the management abreast of its competitors by replacing old products by new products, old techniques by new techniques and old organisational practices by new organisational practices.

(vii) To discover ways and means of strengthening the abilities and attitudes of employees at a good or high level and on a continuous basis.

(viii)To evaluate and review the linkage and knitting between organisational strategies and HRM strategies.

The HR research process begins from the stage of a sign of grievance of employees. The management to be proactive should identify the possible future employee problems and offer solutions to prevent them. If, prevention of problems is not possible, the management should conduct research for solving the HRM problems.

Following are the processes of HR research:

1. Fixing Research Problem:

A researcher has to first fix a research problem for investigation. He can discover a research problem from industrial environment, survey of literature, observation, discussion with experts, etc. Researcher has to be clear about what he intends to study and why.

2. Setting Objectives:

Once the research problem is fixed, he has to formulate appropriate objectives and hypotheses. Otherwise research would be directionless.

3. Fixing Research Method:

i. It means the method of data collection. Data are of two types. One is primary data and other one is secondary data. Primary- data refers to data collected straight from the respondents while secondary data refers to collecting data from documents, libraries, records, magazines, journals, books etc.

ii. Next step for researcher is to design the research instruments i. e., questionnaire or schedule in the case of survey research.

iii. Researcher may collect data even from observation in the case of experimental study.

iv. Researcher has to fix sample where the universe is large. There are so many sampling techniques. He/she has to arrive at a correct sampling method and right size of sample in order to get valid results. Where the universe is small, he/she can contact all and cover the entire population.

v. The period of study needs to be fixed.

4. Collection of Data:

The researcher has to collect data from the respondents.

5. Analysis and Interpretation:

The collected data need to be analysed after processing it. Tables, charts and diagrams are used in analysis. Further, statistical packages are used to confirm the results of analysis. The data analysed are interpreted and then inferences are drawn. Final segment of analysis deals with implications of the results.

6. Report Preparation:

All the findings are accommodated in the report segment and finally suggestions are made for policy makers.

HR Research – Top 7 Methods: Historical Studies, Case Studies, Survey Research, Statistical Studies, Mathematical Models and a Few Other Methods

Various methods and tools may be used in the conduct of personnel research. Of the various alternatives available, a choice has to be made of research designs. The general practice is to choose the technique which promises to yield quality with the least difficulty, effort and cost.

Usually, the methods or tools, which are available for research, are:

Method # 1. Historical Studies:

Past records and documents are systematically investigated, and interviews are conducted with former employees. Almost all big organisations maintain records of the various personnel problems — absenteeism, turnover, accident rates, wage structures, etc. The essential feature of this method is "its systematic investigation, utilising an extended time span or longitudinal dimension."

Method # 2. Case Studies:

These consist of analytically investigating the relationships which are significant in a particular situation or set of circumstances. Although the precise meaning of the findings of a case study is limited to its unique past situation, a careful analysis and thoughtful generalisation may be derived from it, which endows it with a broader significance and application.

Individual case studies may lead to the formulation of general hypotheses which would be useful in laying a foundation for additional or more intensive future research. The main merit of this method is that it enables the researcher to make a thorough, in-depth investigation of key incidents or situations, while its demerit is that it is historical in nature and does not necessarily represent general conditions.

Method # 3. Survey Research:

In a survey research, attention is concentrated on the collection of original data by administering a questionnaire or conducting a structured interview. Certain research hypotheses are established, and survey questions are designed to collect data. The correlation among observed phenomena, possible causes and related efforts is then computed, and conclusions are drawn.

This method is time-consuming and costly, and has been criticised on the ground that its application may emphasise the importance of the collection of data and not the importance of analysing these data and formulating a theory on their basis.

Method # 4. Statistical Studies:

These studies deal with the collection, analysis, classification and interpretation of mathematical data and quantitative information. They lay emphasis on the importance of qualification, mathematical manipulation, and statistical inference. They may use averages, means, medians, modes, measures of dispersion, trends, regressions and correlations. Their use is becoming increasingly widespread because of the development of high-speed modern electronic data-processing equipment.

Method # 5. Mathematical Models:

Mathematical models are generally used in research to explain the relationships among the variables that are to be examined. They help us to develop and test the designs and sequences of equations which tentatively describe the behaviour of interacting variables in terms of mathematical notations.

These mathematical models also help us to examine comparatively simple and extremely complex relationships and evolve decision rules of wide applicability.

Method # 6. Simulation:

Computers have popularised designs which involve simulation. The process begins with the statement of a hypothesis. It is used to study problems of production and inventory control, of marketing, purchasing, hiring and training of personnel, and of collective bargaining.

Method # 7. Field or Action Research:

This method has been most effectively used in understanding group behaviour in communities and working organisations. It involves difficult design problems, for the observer himself becomes a variable in the process of observation. This self- involvement on the part of the researcher gives him new insights; and these are gained from an active interaction which would not have been possible under passive observation.

ADDITIONAL READ:

<mark>**HR Research – 5 Main Approaches: Historical Research, Case Studies, Survey Research, Experimental Studies and Exploratory Study**</mark>

Following are the approaches to HR research:

Approach # 1. Historical Research:

Historical research traces the origin and development of HR problems in order to isolate and understand causative factors. It is based on past records and documents. Historical research provides a perspective of current events in the backdrop of past experiences. It systematically investigates on a time-span or longitudinal dimension.

Historical research throws light on development of a problem over a period and then suggests solution for it. This type of research is costly as it take a long time. Further, time gap between the occurrence of an event and its investigation, poses a major problem. It questions the validity of data unless it is empirically demonstrated.

Approach # 2. Case Studies:

It seeks to analyse in particular how an individual or an institution handles a given problem. This type of study enables a researcher to formulate general hypotheses which would facilitate further research for similar problems in future. However, case studies are not amenable to comparison as each case presents a unique contextual perspective.

Approach # 3. Survey Research:

In this type of research, researcher collects data from a representative sample population or from the entire universe through structured questionnaire or interview schedule. He/she frames hypotheses. Data collected are tabulated, analysed and conclusions drawn. This type of research is time consuming and costly as the investigation has to contact each and every sample respondent, for example, investigation of job satisfaction, absenteeism, attrition, morale, etc., comes under this type.

Approach # 4. Experimental Studies:

Experimental studies seek to investigate how one variable influences the other. In other words, it examines the behaviour of one variable when the other one is constant. The casual relationship is established. For example, impact of incentive on output, in order to establish a relationship between incentive and output, other variables like personality of employees, environmental influence, etc., are kept controlled.

In this context, employee can be directed to work for a number of days under identical conditions by varying incentives. If it is found that output varies with a given incentive, it can be concluded that other things being the same, that particular incentives influence the output.

Approach # 5. Exploratory Study:

Exploratory studies lay emphasis on the discovery of new ideas and insight, in order to have closer familiarity with a phenomenon or to get a new insight into a research problem to formulate hypotheses. For example, software company intends to discover why there is high degree of attrition among programmers. It may formulate specific hypotheses to be tested empirically. Thus, the reasons for attrition in this particular category of employees are found out for remedial action. This type of study may serve as a precursor for large studies. It does not involve much cost and time. It is said to be flexible in data collection.

HRIS

What is an HRIS?

HRIS stands for Human Resources Information System. The HRIS is a system that is used to collect and store data on an organization's employees.

In most cases, an HRIS encompasses the basic functionalities needed for end-to-end Human Resources Management (HRM). It has a system for recruitment, performance management, learning & development, and more.

An HRIS is also known as HRIS software. This is a bit confusing as it implies that different systems can have different software running on them. However, this is not the case. The HRIS is, in essence, a software package.

The HRIS can either run on the company's own technical infrastructure, or, what's more common nowadays, be cloud-based. This means that the software is running outside of the company's premises, making it much easier to update.

Other commonly used names are *HRIS system* and *HRMS*, or Human Resources Management system. These are all different words for the same thing. Collectively, these systems are also called Human Capital Management systems, or HCM. In this article, we will use the terms HRIS and HRIS systems interchangeably.

Benefits of an HRIS

Using an HRIS has a number of clear benefits.

- Record-keeping. An HRIS is a record-keeping system that keeps track of changes to anything related to employees. The HRIS can be seen as the one source of truth when it comes to personnel data.
- Compliance. Some data is collected and stored for compliance reasons. This includes material for the identification for employees in case of theft, fraud, or other misbehaviors, first contact information in case of accidents, citizens identification information for the tax office, and expiration dates for mandatory certification. All this information can be stored in the HRIS.
- Efficiency. Having all this information in one place not only benefits accuracy but also saves time.
- HR strategy. The HRIS enables the tracking of <u>data required to advance the HR and business strategy</u>. Depending on the priorities of the organization, different data will be essential to track. This is where the HRIS comes in.
- Self-Service HR. A final benefit is the ability to offer self-service HR to employees and managers. This enables employees to manage their own affairs. When done right, the HRIS can offer a good employee experience. Keep in mind that not all HRIS systems offer this in a user-friendly manner!

Working with an HRIS has multiple benefits for the organization, HR, and the employee. Using an HRIS becomes interesting when you have between 30 to 50 employees.

At this time, managing this basic information in Excel becomes cumbersome and simple procedures like approving employee holidays need to be standardized. Most of our readers work at large organizations. These organizations use advanced HRIS systems that we will discuss later in this article.

Different kinds of HRIS systems & software

There are different kinds of HRIS systems and software. Because an HRIS encompasses all the functionalities for HR, all separate functionalities are part of the system. These functionalities include:

- Applicant Tracking System (ATS). This software handles all the company's recruiting needs. It tracks candidate information and resumes, enables recruiters to match job openings to suitable candidates from the company's application pool, and helps in guiding the hiring process.

- Payroll. Payroll automates the pay process of employees. Contractual data is often entered into this system – sometimes combined with time & attendance data – and at the end of the month, payments orders are created.

- Benefits. Another functionality of the HRIS is benefits management. Employee benefits are an important aspect of compensation and are also managed in this system. More advanced systems offer an employee self-service model for employee benefits. In this case, employees can select the benefits they are looking for themselves. One may want more paternity leave, the other one a more expensive company car. This self-service approach to benefits is also called a *cafeteria model*.

- Time & Attendance. This module gathers time and attendance data from employees. These are especially relevant for blue-collar work where employees clock in and out. Back in the day when I worked in a supermarket, we wrote the time worked down on a piece of paper, which was then manually entered into the time tracking system by the manager. Based on this data, payment orders were generated and paid to all employees.

- Training. Learning and development is a key element when it comes to employee management. This module allows HR to track qualification, certification, and skills of the employees, as well as an outline of available courses for company employees. This module is often referred to as an LMS, or Learning Management System, when it's a stand-alone. An LMS usually includes available e-learning and other courses to be followed by employees.

- Performance management. Performance management is a key part of managing people. Performance ratings are generated once or multiple times a year by the direct manager or peers of the employee.

- Succession planning. Creating a talent pipeline and having replacements available for key roles in the organization is another key component of an HRIS.

- Employee self-service. Employee self-service was already mentioned. Organizations are focusing increasingly on having employees and their direct supervisors manage their own

data. Requests like holidays can be asked for by the employee him/herself. After approval, these are then immediately saved into the system (and registered to track for payroll and benefits purposes).

- Reporting & Analytics. A much rarer module in HRIS systems is reporting and analytics. Modern systems enable the creation of automated HR reports on various topics like employee turnover, absence, performance, and more. Analytics involves the analysis of this data for better-informed decision making. We'll explain more about this in the section below.

Reporting and analytics in an HRIS

The common characteristic for all HRIS systems is that they have been designed as transactional systems. They are databases that record a company's transactions. An example of a transaction is when an employee joins the company.

The employee record is entered, and the person is considered 'active'. If a person leaves the company three months later, a new transaction is recorded, setting the person's status to 'terminated'.

The fact that these systems are designed as transactional systems, makes them bad at data reporting and analytics. They simply haven't been designed for this. In addition, not all HRIS systems have all the above functionalities build-in.

Some functionalities, like payroll, LMS, or ATS could also be recorded in external systems. This makes HR reporting even more challenging, as it means that data is dispersed into multiple systems. In order to report data, a new layer needs to be added on top of all HR systems to report and analyze the HR data.

This is the second reason why the practical use of reporting and analytics for these systems is limited. Be aware of this when you are talking to HRIS providers, as they often tout their systems to be excellent in data reporting and analytics.

DATA MANAGEMENT
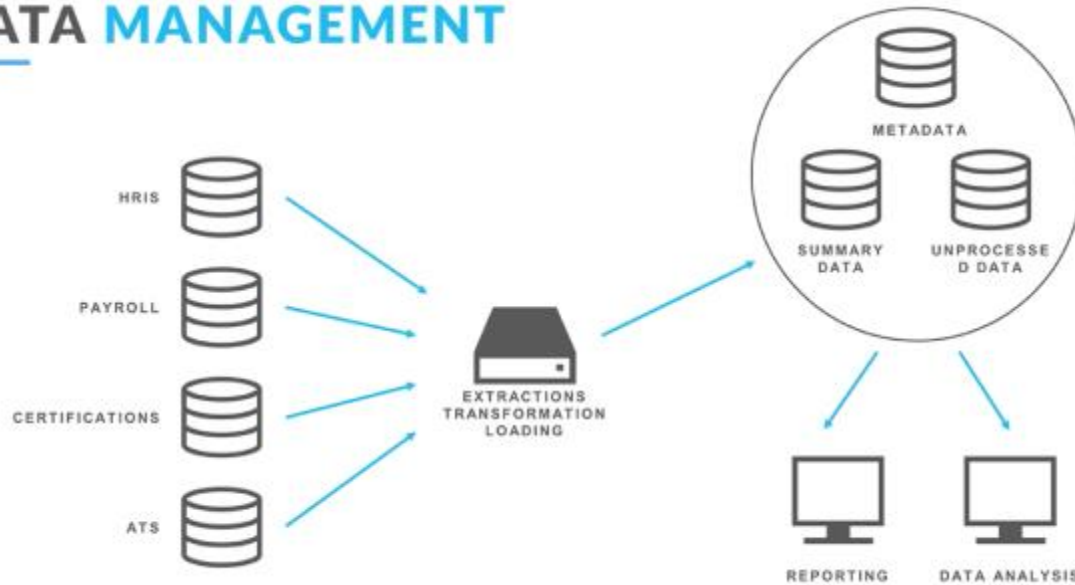
HRIS suppliers

There are thousands of HRIS suppliers. Gartner's Magic Quadrant below lists the 11 best-known Human Capital Management suits for midmarket and large enterprises. These include Workday, Oracle, SAP, ADP, Ceridian, Kronos, and more. Listing all the HRIS suppliers would be impossible, so we decided to explicitly mention the four HCMs that are considered to be leaders.

CHALLENGERS | LEADERS

Workday
Ultimate Software
Oracle
Ceridian
SAP
ADP
Meta4
Infor
Ramco Systems
Kronos

Talentia Software

ABILITY TO EXECUTE

NICHE PLAYERS | VISIONARIES

COMPLETENESS OF VISION →   As of August 2018   © Gartner, Inc

Source: Gartner (August 2018)

Cornerstone

Cornerstone OnDemand is the only company not listed in Gartner's Magic Quadrant. As one of the largest providers for Small and Medium businesses, they offer different suites including recruiting, learning, performance management, and an e-learning LMS.

Workday

Workday is arguably one of the best-known HRIS out there. Founded only in 2005, it has grown to global HRIS giant with over 10,000 employees. Workday specifically tailors to mid- and large-sized businesses.

 SAP

SAP is better known as an ERP, or Enterprise Resource System. These are systems that keep track of a company's resources, which include among other things financial assets, orders, and people. In 2011, SAP acquired SuccessFactors, making SAP SuccessFactors one of the major players in the HCM market, especially for large companies.

Oracle

Oracle HCM Cloud was released in 2011. It includes modules on talent management, workforce rewards, workforce management, and work-life solutions.

Ultimate Software

Ultimate Software was ranked by Forbes as the 7th Most Innovative Growth Company. The company provides one system of records for HR, payroll, and talent management. Systems include time and attendance, onboarding, performance management, compensation, succession management, and more.

HRIS specialist & HRIS analyst

In terms of job functions, there are two job roles that involve the HRIS. The first one is the Human Resource Information Specialist. The HRIS specialist is responsible for implementing and maintaining the HRIS for the organization.

This also involves on-the-job training to HR professionals in the use of the system. This function is usually in the IT arm of the HR department.

The HRIS analyst provides support for the HRIS. This includes researching and resolving HRIS problems and being a liaison with other parts of the business, like finance/payroll.

As an analyst, you are also involved in the generation of standard and ad-hoc reports and improvements of HRIS processes. This means improving the employee experience in using the systems, coming up with user-friendly innovations, and implementing new policies to be reflected in the system.

HRIS certification

There is no specific HRIS certification at the moment. People interested in working with HRIS systems are advised to study IT and HRM. IT is useful to understand the intricacies of the system while HRM helps to understand the processes that the HRIS is supporting.

Combining both helps to make better decisions when it comes to system implementation.

HRIS implementation in 6 steps

We could write multiple articles when it comes to HRIS implementation. For this article, we will provide a high-level overview. For more information, we recommend the Digital HR Certificate program, as that program provides much more information about software implementation.

Software implementation can be divided into multiple stages.

1. Search. In the search phase, the specific demands of the different stakeholders inside the company are inquired about. Based on these requirements, a long-list of compatible vendors is made. Based on initial inquiries, a shortlist is created. These vendors are invited to create a proposal. At the end of this phase, a compatible provider is selected.

2. Plan and align. In this phase, you choose an implementation partner, create a steering committee and an implementation team. The steering committee usually consists of senior delegates from the vendor/supplier, the HR director from the company, the internal project manager, and preferably a senior user from the business. The implementation team is concerned with day-to-day implementation.

3. Define and design. In this phase, user groups are specified and processes and workflows are mapped. Here the functional and technical requirements for infrastructure, system, and security are further defined.

4. Configure and test. In this phase, a core test team is created. This team is tasked with testing the system and suggesting improvements. After this, a user acceptance test is created by bringing in a number of users to provide final feedback.

5. Train and communicate. Before the Go-Live moment, technical staff needs to be trained, communication plans need to be created, and Frequently Asked Question and other support documents created to benefit the software implementation and uptake.

6. Deploy and sustain. This is the last phase where everyone is made ready for Go-Live. Once all support processes are in place, the system can Go-Live. Feedback needs to be constantly collected and training material updated with the evolving systems. Constant, accurate communication is key here.

By following these six steps, you can select and implement your HRIS. Again, if you want to go into more detail, check out the Digital HR Certification program. This program has courses on Design Thinking in HR and on building and implementing a Digital HR Strategy. These elements are essential when it comes to defining user requirements and implementing a software solution.

FAQ

What does HRIS stand for?

HRIS stands for Human Resources Information System. The HRIS is a system that is used to collect and store data on an organization's employees. This often includes an Applicant Tracking System (ATS), payroll, benefits, time & attendance, training, performance management, employee self-service, and so on

What is HRIS?

The Human Resource Information System is a system used to collect and store data on an organization's employees, like their name, address, age, salary, benefits, time and attendance, performance reviews, and more. This data is valuable input for data-driven decision-making in HR.

What is an HRIS analyst?

The HRIS analyst provides support for the HRIS. This includes researching and resolving problems and being a liaison with other parts of the business, like finance and payroll.

What is SAP HRIS?

SAP is an Enterprise Resource System. These are systems that keep track of a company's resources, which include, among other things, financial assets, orders, and people. SAP's HRIS module is called SuccessFactors.

What are some HRIS systems?

The best-known HRIS systems include Workday, Oracle's PeopleSoft, SAP's SuccessFactors, Ultimate software, Ceridian, and ADP. Garnter (2018) identified these providers as HRIS leaders.

Source: Gartner (August 2018)

HR Metrics

Definitions of HR metrics and Analytics

HR metrics are measurements used to determine the effectiveness and efficiency of HR policies.

Metrics help compare different data points. For example, if turnover was 5% last year and is now 7.5%, it has increased by 50%. The former are data points, the latter is the metric.

Metrics don´t say anything about a cause, they just measure the difference between numbers.

HR analytics, also called people analytics, is the quantification of people drivers on business outcomes. Analytics measures why something is happening and what the impact is of what's happening.

Consider the following example:

FROM OPINIONS TO INSIGHTS

Analytics is a way to generate insights from data and metrics

Opinion	Data	Metrics	Analytics	Insights
"I feel like a lot of people are ill this month"	Absence levels are at 12% this month	This month, absence is 40% higher than average	Because of the flue illness is significantly higher this month	Maybe we should vaccinate employees against the flu

1. This example starts with an opinion: "I feel like a lot of people are ill this month!" This opinion, however, is a gut feeling, it's not a fact. The person could be mistaken.

2. Data helps to factualize the opinion. When we look at the data, we see that absence levels are at 12% this month. With this data we still can't make a value judgment. We don't know if 12% is high or low.

3. To understand this, we need a norm (a.k.a. compare with a second data point). For example, when we know that the company average is 8.5%, and the national average is 4%, we know that this month is a really bad month – and that there's a potential problem in the company! This is where the metrics come in.Another metric could be 'cost of lost productivity due to absence'. For this, we need the following numbers:

$$Cost\ of\ lost\ productivity = absence * n\ of\ employees * avg.labor\ cost$$

Assuming that the organization has 60,000 employees with an average annual labor cost of $45,000, the formula for this month alone is:

$$Cost\ of\ absence = 12\% * 60,000 * \frac{\$45,000}{12} = \$27,000,000$$

4. Analytics helps identify causes and how it impacts the business. For example, the number of people who report flu-like symptoms has significantly increased, or the number of flu symptoms reported in the company increased at similar rates as in the country. This information helps to identify a cause.

5. The final step is insight. What will we do with these numbers? First of all, cost of absence is far above the market average. It is so high that it threatens the competitive position of the company. Second, we should try to reduce the absence of employees in a flexible manner in case a new flu epidemic sweeps the land. This can be done by fighting the cause or by fighting the symptoms: sponsoring flu vaccinations or enabling flexible deployment of on-call workers.

This example shows how HR metrics and analytics relate.

Analytics tracks the effects of metrics on business performance

To properly explain the relationship between HR metrics and analytics, we'll use the HR value chain. The value chain shows different kinds of HR metrics and how they impact business performance.

EFFICIENCY

HRM - activities & processes

- Workforce Planning
- Recruitment & Selection
- Compensation & Benefits
- Industrial Relations
- Training
- Internal Mobility
- Talent Management
- Coaching
- Downsizing
- Organization Design

EFFECTIVENESS

HRM - outcomes

- Workforce Planning
- Recruitment & Selection
- Compensation & Benefits
- Industrial Relations
- Training
- Internal Mobility
- Talent Management
- Coaching
- Downsizing
- Organization Design

IMPACT

Organizational objectives

- Profit
- Market Value
- Market Share
- Turnover
- Productivity
- Quality
- Customer Satisfaction

But also:
- Moral Values
- Fairness
- Legitimacy

AIHR
BLOG & ACADEMY

On the left, we have the so-called efficiency metrics. They show how efficient HR is in its work. Examples include cost of training, cost of hiring, number of applications, average years until promotion, et cetera.

In the middle, we have effectiveness metrics. They tell us how well HR is performing its role. Outcomes include employee retention, employee engagement, employee performance, et cetera.

The difference between efficiency and effectiveness can be described as HR input and HR output. However, the third category, the impact metrics, are the business impact of everything HR is doing. These are the results that count and that influence the (long-term) viability of the company.

Everything we do in HR needs to serve these business goals – which can differ between organizations.

Now where does analytics fit in? Analytics tracks the effectiveness of HR metrics on HR and business outcomes. It helps to answer the following example questions:

- How does learning & development investment impact sales performance for my account managers?
- Will quicker promotions help us retain our top talent?

- What can we do to retain employees and thus save money?
- How can we best improve customer satisfaction through smart people processes?

All these questions can be answered using analytics and the aforementioned HR value chain.

How to get from metrics to analytics

Now you have a basic understanding of the difference between metrics and analytics, we'll finish with how to get from metrics to analytics.

1. Start with your data: As you know now, metrics are the relations between data points. In order to start with metrics, you need to have your data right. Smart HR system design and high data quality are key components to improve before you invest into getting your metrics ready for HR reporting

2. Getting the metrics right: This step sounds easier than it is. Measuring basic data is easy but keeping track of more complicated metrics, like the % of unwanted turnover, is something a lot of companies are struggling with, as it requires them to combine multiple systems (their main HRIS and their performance system in this case).

3. Select the relevant KPIs: The second step is to select the HR Key Performance Indicators that matter most for your business. These KPIs should be connected to business goals. For each KPI a target score should be specified.

4. Identify areas where analytics adds value: You can leverage the data and metrics to add value using analytics. This starts by identifying a business case that, when solved, would add value to the business. This means that your outcomes need to be actionable.

5. Implementation of results: Once you've completed your first analytics project, you can implement the results in the organization. At this point, you've leveraged your HR data to create value for the organization and you've added to the organization's strategic goals.

11
KEY
HR METRICS

Key HR metrics on Absenteeism

Previously, we addressed the enormous costs involved in employee absenteeism. As we mentioned in that article, the first step towards analyzing absenteeism is tracking it. Here are some key HR metrics that are helpful in this process.

1. Absence rate

Unscheduled absence rate (Absence days/FTE) is a key HR metrics to measure absenteeism. It tracks the percentage of workers who are absent during a given period. This metric also provides a benchmark over time: absence levels can differ from month to month, but over longer periods of time you want the rates to be relatively low and stable. Growing absence rates could indicate a worsening work climate, increased stress in the workplace, or a flu epidemic. An absence rate of about 1 to 2% is normal (because almost everybody is ill a few days per year).

2. Absence rate per manager

By dividing the number of absence days in a team or department by the total FTE (full-time equivalent) in this team or department, HR can easily identify problem areas within the company. When certain divisions or managers structurally struggle with high absence levels, they may be doing something wrong and their performance is likely to suffer. By enabling HR to intervene before problems get out of hand, this metric can serve a diagnostic and preventive purpose.

3. Overtime expense

People don't mind working overtime every now and again. However, when overtime goes through the roof, you can expect your absence rates to follow. Excessive overtime, especially for longer periods of time (e.g. audit season for accountancy firms), also drives turnover. Consistently high levels of overtime can be fixed relatively easy by hiring additional employees.

4. Employee Productivity Index

Traditionally, employees work from 9 to 5, yet more and more people are working from home. Companies are increasingly letting the traditional mentality go. This means that performance can no longer be measured by looking at who shows up.

Nowadays, it doesn't really matter how many hours you worked in a day. What matters is what you actually achieved. A productivity index tracks this. Nonetheless, it does provide the challenge of how productivity is

defined. This will differ between organizations and functions and requires **careful consideration. We've written a full review of the 21 most important performance metrics you should know.**

Key HR metrics on Learning and Development

Learning and development is becoming increasingly important. A lack of development opportunities is the #1 reason young talent leaves your company. As such, effective training will lead to a more productive workforce. This is why training effectiveness is a key HR metric.

5. Training expenses per employee

A common metric is training expenses per employee. This metric is helpful in tracking development costs. It also helps HR to make smarter investments in developing personnel. HR is coming around to the fact that day-long training courses are both expensive and inadequate in providing the continuous learning experience sought by employees. Investing the available budget in continuous learning experiences will lead to a much more effective training program for employees.

6. Training effectiveness index

To measure the effectiveness of training, you need to measure what people learned. This is tricky. You cannot just measure an employee's performance before and after a training. This is because people generally apply for training when they feel they are underperforming. People who perform below their average for one month are more likely to return to their average performance the next month. This phenomenon is called 'regression to the mean'. This would give an unbalanced view of training effectiveness.

When testing for training effectiveness, it is better to set training goals and check whether employees have reached those goals when the training is over. Companies can also track baseline productivity and look into the impact of training over a longer period of time. Effective training is expected to help the employee become better in his/her job and thus raises his/her average performance level. In other words: after effective training, you would expect the Employee Productivity Index to increase.

7. Training efficiency

Training effectiveness is important. However, measuring the efficiency of training will help you make the most of your money.

$$Training\ efficiency = \frac{Training\ expenses\ per\ employee}{Training\ effectiveness}$$

Another metric to keep track off is how satisfied employees are with development opportunity. A lack of development opportunities is a key predictor of employee turnover. Training is often used to reward employees and create commitment to the organization. When people are unhappy with the company's new and 'amazing' Learning Management System, they won't use it – and thus won't learn. In addition, people will only learn when they are interested in what they are learning about (a.k.a. happy in their job). This makes development opportunity satisfaction a fascinating (bonus) metric — and integrates this metric seamlessly with our next topic.

Key HR metrics on Retention

Since the 'war for talent' has started, companies have been increasingly concerned about retaining their employees. That's why HR should stay on top of the most important retention metrics.

8. Employee happiness

Employee happiness (also measured as employee satisfaction) is more often recognized as a valuable HR metric. Happy employees are productive employees, they are committed to the organization and don't mind working overtime when necessary. Employee happiness is related to commitment to the organization, and commitment to the job. Low employee happiness in certain parts of the organization can be an indicator of conflict or work stress.

To learn more about metrics and how to implement them in your organization, check out our course on Strategic HR Metrics.

9. Voluntary turnover rate

We already mentioned turnover when we talked about learning and development. For a lot of companies, voluntary turnover is a key HR metric. Turnover is final; most people never come back. People often quit their managers, not their jobs. With that in mind, turnover is another metric that will help you identify potential problem areas within the organization.

10. Talent turnover rate

Now, not all turnover is bad. Preferably, the people who do not fit within the company leave. This is good turnover, but when your key talent leaves, turnover becomes a big problem. This is why you should track the turnover of both your high potentials and your low potentials. Turnover of your high potentials should be low. An important cause for high turnover amongst high potentials is a lack of career opportunity within the company.

11. Retention rate per manager

We love our manager metrics. Some managers do an amazing job engaging and connecting with their employees. Still, we all know managers who are not so good at it. Retention rates per manager or division is a metric that helps you identify ineffective managers. Once you have identified these managers, you can provide them with additional support and train them to become more effective managers.

Of course, retention rates will differ between people with different jobs. However, when similar teams in similar geographical locations show very different retention rates it indicates that there is something rotten in the state of Denmark.

What is the HR scorecard?

One of the key problems that HR has been facing in the past decades is the perception that HR doesn't add to the company strategy. Indeed, HR directors in many organizations are often still looking for a seat at the proverbial (board) table. In many organizations, HR has failed to do so.

The HR scorecard, first published about by Becker, Huselid & Ulrich in their 2001 book that bore the same title, aims to solve this.

The HR scorecard is a strategic HR measurement system that helps to measure, manage, and improve the strategic role of the HR department.

The HR scorecard is meant to measure leading HR indicators of business performance. Leading indicators are measurements that predict future business growth. These are called HR deliverables. They are also known as HR metrics, and more specifically HR KPIs, as they are metrics that are **linked to the business strategy.**

There are five steps to create an HR scorecard:

1. Create an HR strategy map
2. Identify HR deliverables
3. Creation of HR policies, processes, and practices
4. Aligning HR systems
5. Creating HR efficiencies

HR Strategy map

A large European shipbuilding company is looking to become the most innovative organization in the sector. In the external market, low-cost shipbuilding projects are increasingly moving to Asia, while the European builders are the go-to for technologically advanced ships, like navy vessels and superyachts. For this reason, a high innovation ranking is tremendously important to this company's future competitiveness.

To identify how HR can connect to this business outcome, one can create a strategy map. The strategy map helps to identify how HR is driving these business outcomes. The question here is: what HR practices drive the strategic goals of the company? You'll find an example below, which was created specifically for the recruitment function.

Recruitment Strategy Map

Strategic	Most innovative organization in the sector	
Employee growth	Hire more qualified professionals	
Financial	Decrease of recruitment cost	
Process	Decrease of lead time	More attractive employer

As you can see, the company's strategic goal is on top. Next, HR has identified its recruitment contribution to this goal. The contribution is to hire more qualified professionals. The way to do this is through becoming a more attractive employer in the competitive technical shipbuilding labor market, and through a decrease in the time it takes to hire a new employee (lead time). This specific company was doing quite badly on their lead time and was losing candidates because of it.

HR deliverables

To measure this, HR deliverables or KPIs are created. This HR scorecard example shows how these strategic goals can be measured. For example, the lead time is measured as the 'time to hire in days', which is currently 38, but has to be decreased to 25, a 34% improvement!

Recruitment Strategy Map			HR Scorecard		
			KPI	Current score	Target
Strategic	Most innovative organization in the sector		• Position in the sector-wide innovation benchmark • Time to market of last 5 new products in days	5 121	Top 3 95
Employee growth	Hire more qualified professionals		• Satisfaction score of manager after 1 year (*quality of hire*)	0.70	0.85
Financial	Decrease of recruitment cost		• Recruitment cost in Dollars	4 MM	3.5 MM
Process	Decrease of lead time	More attractive employer	• Time to hire in days • Acceptance ratio in % • Top employer benchmark	38 70% Top 40%	25 90% Top 20%

Using this strategy map and HR scorecard example, the company has now identified the leading measurements for business success. In this case, becoming a top employer, and improving the quality of hire (which is the satisfaction score of manager after 1 year), are the leading indicators of success in achieving the business strategy.

Because of these very clear indicators, the HR department knows that an increase in those two HR deliverables will lead to the company's goal of becoming more innovative, giving HR a very strategic role.

HR policies, processes, and practices

Another element of the HR scorecard is concerned with policies, processes, and practices. Here we look at what we could do to ensure that HR is successful when it comes to their key deliverables.

The idea here is that HR should create a number of High-Performance Work Systems (HPWS). An HPWS is a group of separate but interconnected HR practices designed to enhance effectiveness. In the previous example, the key deliverables include a decrease in lead time and a high ranking in the top employer benchmark. These deliverables can be supported through:

- Policies: A strong <u>employer branding</u> policy will help in building a strong reputation that will help in becoming a top employer
- Processes: Key to decreasing lead time will be an optimization between how recruiters and managers communicate. Oftentimes, managers take a long time to review resumes and plan interviews with candidates. Changing these slow processes into workflows that

guarantee next-day action, can decrease the time to hire with days, sometimes weeks. This is one of the many processes that can be implemented to enable better performance on the HR deliverables. Another example could be the application process for candidates. The candidate experience will be vital to attracting top candidates and in ensuring a good rating in the top employer benchmark.

- Practices: This looks at the specific practices that help HR achieve the aforementioned deliverables.

Creating policies, processes, and practices that create synergies is referred to as 'bundles' of practices. These practices act together to create synergy for the HR deliverables. This is also the core focus of the next step in the scorecard, aligning HR systems.

Aligning HR systems

System alignment is not about software systems. Rather, it is about aligning the different HR practices to create synergy.

For example, the employee branding efforts should focus on the type of workers that the employer is actually looking for. In addition, decreasing lead time by rushing through the process may lead to a lower quality of hire, resulting in a mismatch between what HR is doing, and some of the goals it tries to achieve.

Aligning these HR systems is key in performing on the HR deliverables.

Creating HR efficiencies

Traditionally, HR has focused a lot on creating efficiencies. When it comes to creating an HR scorecard, some efficiencies have to be thrown out of the window.

The simple reason here is that to get, for example, a higher quality of hire, your cost to hire someone might go up. In our example, the quality of hire is a strategic HR measurement. Investing money into increasing the quality of hire is well worth it. This justifies investments in assessments, employer branding projects, and other HR initiatives that boost the main HR deliverables.

The HR balanced scorecard

A common misconception is that there is an HR balanced scorecard. The HR balanced scorecard is a mix-up of the HR scorecard and the balanced scorecard.

The balanced scorecard was first published about by Kaplan and Norton in the early '90s. In 1996 the two published a book that bore that title.

The balanced scorecard is a strategy performance management tool. The scorecard lists financials goals, customer goals, internal business goals, and innovation & learning goals. These four goals give a good overview of what the company tries to achieve, i.e. the company strategy.

Relationships in the Balanced Scorecard*

How do we look to shareholders?

Financial

Goals	Measures

How do customers see us?

What must we excel at?

Internal efficiency + customer satisfaction = financial success

Customer

Goals	Measures

Are we satisfying customer needs?

Internal Business

Goals	Measures

Are we working effectively and efficiently?

Innovation & Learning

Goals	Measures

How can we serve customers better in the future?

How can we continue to improve and create value?

What are the emerging opportunities and challenges?

* Adapted from Martinsons, Davison & Tse, Fig 1 p. 74. Original source Kaplan & Norton.
https://maaw.info/ArticleSummaries/ArtSumMartinsonsDavisonTse99.htm

As we know, the HR strategy follows the business strategy, so the HR scorecard is heavily influenced by the business scorecard. Indeed, the HR scorecard takes the strategy as defined in the balanced scorecard

as the starting point and then identifies the HR deliverables that drive these outcomes. However, do keep in mind that both are different documents!

The HR scorecard: a critique

In a <u>2019 podcast interview</u>, Dave Ulrich, one of the writers of the original 2001 publication on the HR scorecard, said the following:

"I co-authored a book called *The HR Scorecard*. Today I should be shocked because it is not about the HR scorecard. What we've found is that when you looked at information and HR people who know People Analytics, the HR pieces of that, that doesn't drive business results. But when you look at the information that connects the marketplace to the company, it had the single biggest predictor of the business result, as an organizational capability. We called that external sensing."

External sensing is the idea that you look at market opportunities for customers and investors. Bringing that into the company is the biggest driver of business results. The key is, therefore, to link metrics and analytics to the business.

Although not really a critique, it is a warning about the intention of the HR scorecard. The HR scorecard should not be about HR – it is about enabling market opportunities, building competitive advantage, and driving business results.

According to Ulrich: "I often start with a question [when I talk] with business leaders or HR leaders. What is the most important or best thing HR can give an employee? It's an interesting question 'cuz it triggers a dialogue. The answers are usually a sense of purpose, a sense of belonging, opportunities to learn, compensation, teamwork. And my answer is: you've missed it. The most important thing HR can give an employee is a company that wins in the marketplace."

<u>How to Create a Balanced HR scorecard</u>

Since 1992, balanced scorecards have played an important role in the business philosophy of many companies. The concept was first introduced by the *Harvard Business Review*, which coined the phrase "balanced scorecard" as a set of BI (Business Intelligence) data points used to make, measure, and meet

goals. Successful balanced scorecards are specific. This means you don't just need them for your organization's overarching goals (like revenue) but for individual departments as well – including HR.

Like any department, your HR team needs the right framework to understand their goals. Without it, "success" is a vague target, and understanding – much less meeting – goals can be difficult. This is where your HR balanced scorecard comes into play.

How to Pick the Right HR Goals

Your goals will define your success. If you haven't set specific, achievable goals, how will you know when you've reached them? Fortunately, the end of the year is the perfect time to take stock of your human resource department's performance and set new objectives for the coming year.

It's easy to think that, from a human resources perspective, the internal perspective is the only one you *really* need for a solid HR scorecard. In reality, a holistic perspective will help your HR department find the right areas to focus on in the future. Additionally, each perspective ties into the next, so considering all four will create a better view of the factors that influence your organization's internal, HR-related issues.

What are the Four Perspectives of the Balanced Scorecard?

Like any balanced scorecard, your HR department scorecard will need the following perspectives:

- Financial
- Internal
- Customer
- Learning / Growth

Let's take a closer look at each of these four perspectives, and investigate what KPIs might be appropriate for a human resources department in each.

The Customer Perspective

Remember: Goal setting doesn't have to be solely interdepartmental, because your organization depends on departments working together towards common goals. Let's say you want to increase overall customer satisfaction. This means consistent customer communication and relationships, for starters. Other specific goals might include customer retention and return customer rates. Generally speaking, customer satisfaction correlates with lower turnover rates, which will influence employee satisfaction. Additionally, factors like employee productivity can affect turnover rate, etc. In the end, your customer service goals for HR should include direct actions that relate to finances, internal factors, and growth.

The Financial Perspective

For many organizations, the most important metric is the bottom line. Every other goal, data point, and objective should move your company toward better revenue. What's more, financial goals involve numbers – so making them specific is pretty simple. For your human resources department, find financial goals that relate to the organization's larger financial perspective. These might include:

- Reducing costs related to HR
- Reducing turnover rates
- Employee absenteeism
- Workers' compensation
- Employee satisfaction
- Employee engagement
- Employee benefits

By tracking these measurable KPIs, your HR department can create a baseline of balanced scorecard metrics that can then be correlated to the overall financial health of the organization.

The Internal Perspective

In many ways, the internal perspective is most closely related to HR. Finding specific and measurable objectives for this perspective can bit a little bit trickier, though, since they tend to involve factors that are more qualitative than financial numbers. Identifying "success" from this perspective can include factors like turnover rates, manager performance and ratings, overall employee satisfaction, and recruitment / employee retention data. On a more granular level, you can track recruitment channels and relate them to employee success. These might include referrals, online applications (through your organization's website), LinkedIn referrals, etc.

The Learning & Growth Perspective

our employees should grow with your organization. Specifically, the learning and growth perspective focuses on communication and performance improvements. Are you implementing best practices to make sure everyone is aligned with your organization's overall goals? Is every department, team, and employee privy to the data they need? Can they access and understand it easily? The answer to these questions can help you understand where your company's learning and growth strategy is at – and help you pinpoint opportunities for improvement.

Integrating Your HR Balanced Scorecard Like a Pro

Setting goals and knowing what data points you want to track is only the beginning. To truly implement a balanced scorecard in HR, you'll need a plan to deploy it. Dashboards offer an integrative, interactive way to keep your employees aligned company-wide. With an interactive dashboard, you can store your data in one place, get real-time updates – and most importantly – provide a single source of truth for your entire organization to share. This means each department and its stakeholders will share stakes in the same pool of data, saving time and eliminating confusion.

HUMAN RESOURCES DASHBOARD EXAMPLES

An HR dashboard is an advanced analytics tool that displays important HR metrics using interactive data visualizations. It helps the HR department to improve recruiting processes, optimize the workplace management as well as to enhance the overall employee performance.

Just like so many of today's business departments, human resources is slowly but surely evolving into a data-driven function. Filled with numerous HR KPIs, the purpose is to go from simple reporting to smarter use of analytics, enabling companies and managers to track and predict employees' performance, make better-informed talent decisions, and have the opportunity to operate advanced workforce planning with the help of modern HR analytics software. Turning to a professional online dashboard, HR professionals can keep a close eye on employee performance, recruiting, and talent management processes.

Here we present and analyze the top 4 HR dashboard examples for various application areas in the human resources industry or department:

Employee Performance Dashboard - Recruiting Dashboard - Talent Management Dashboard - Workforce Dashboard

EMPLOYEE PERFORMANCE DASHBOARD

Absenteeism

7,7 days
Avg Yearly Absenteeism

Avg Absenteeism Rate

Target < 3.8%

3,4%

Absenteeism Over The Last 5 Years

8.6 8.0 7.9 7.8 7.3 6.6

4.1 % 3.8 % 3.4 % 3.6 % 3 % 2.7 %

2012 2013 2014 2015 2016 2017

■ Absenteeism Rate   ■ Absenteeism In Days
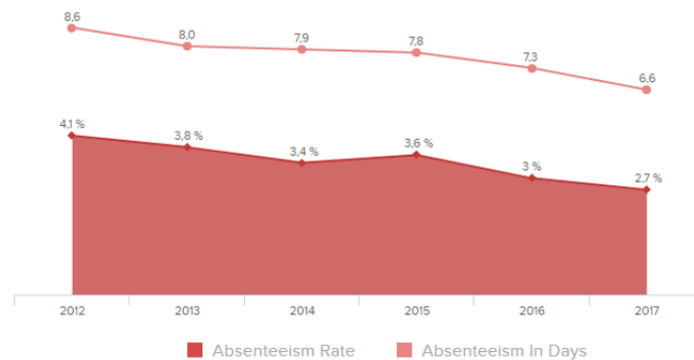
Overall Labor Effectiveness (OLE)

OLE Over The Last 5 Years

84 %
82 %
80 %
78 %
76 %
74 %

2012 2013 2014 2015 2016 2017

OLE By Department

82 % 78 % 75 % 72 % 71 %

HR Sales Marketing IT Customer Service
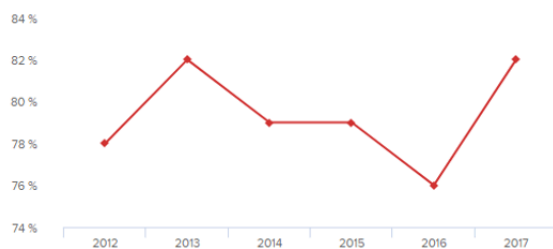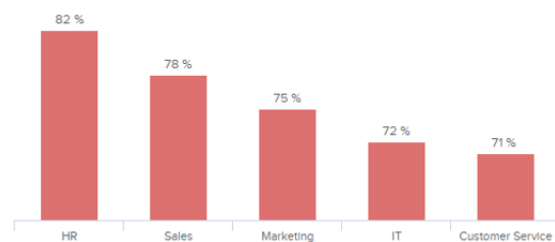
This first human resources dashboard focuses on the employees' behavior and performance. It provides an overview for managers of their workforce and how they work: the first part on top of this HR dashboard informs us of absenteeism, the average yearly absenteeism in days, the average rate and their evolution over the last five years. This is an important indicator as it illustrates the workers' engagement and motivation. Indeed, low-motivated employees are more likely to call in sick or skip workdays, and their overall productivity is naturally impacted. This is a metric to keep under your watch because a high absenteeism rate will really harm your finances and your business in general, so digging into the potential causes and reasons for absenteeism is a must-do.

The second part of this HR dashboard looks at the Overall Labor Effectiveness (OLE), ie. employee productivity. It helps to measure the workforce efficiency over time according to specific criteria that your business sets. The 'traditional' approach to work such as the 9-to-5 workday is changing as flexibility becomes the main requirement for new generations of workers. So, the traditional way of measuring performance by watching who is showing up and for how long is more and more obsolete – what matters is what people have actually achieved. This is why setting up an employee productivity index is important, and even if it is traditionally measured dividing the total sales by the number of employees, the standards

change from one organization to another, from function to function, and have to be tailored to your business specificities.

Another metric that you can track on your HR dashboard template and that is linked to the previous ones is the average overtime hours worked by your employees. Tracking the overtime hours is a good thing to see if your employees are understaffed, or may lack a bit of training in certain areas, which will impact their productivity. It might also indicate a sudden rise in activity and business growth. But it shouldn't become the norm, because a constant high pressure and work fatigue will inevitably lead to demotivated and unsatisfied employees that will then tend to not show up or call sick. A simple way for you to fix abnormally high overtime hours is to hire and train new workers. That might impact your finances and momentarily increase your training costs, but it is always a certain risk to take and when the hiring is made correctly, the return on such investment always pays off.

RECRUITING DASHBOARD

Another important aspect of human resources is the recruiting of new talents. This is where HR analytics can play a significant role, as these insights give the opportunity to link business directly to new talent strategies. The human resources dashboard you build will advance the simple metrics measurements, by linking them to one another and visualizing them as a whole. They hold the power to witness the contribution your employees are making to your business outcomes in a wide variety of ways.

Our Recruiting dashboard provided above focuses on recruitment metrics for HR professionals as well as recruited people. Evaluating your recruiting funnel is the main task to do in order to have an idea of the number of applications your company has to review, how many of these actually pass the first round and get an interview, and how many of these interviews lead to assessment and then hire. The same applies to your recruiters' conversion rates: more than measuring their capacity to hire a lot of people, they rather measure the efficiency of certain

recruiting methods comparatively to another. The goal is of course to find the right recruitment approach, the one that gives you the best candidates at the lowest cost; and the next step will be to invest in that recruiting source.

To find out what is the best way to recruit, you also have to compare it to other KPIs like the employee retention after 90 days, or the employee turnover. The employee turnover is an important metric you can find on every HR dashboard example because it tells a lot about what is happening inside a business. It indeed measures how many of your employees leave voluntarily or not, and is a good indicator on whether your company is good at retaining talent. As we know, people leave their managers or the company atmosphere rather than their job, so a high turnover rate indicates a problematic situation. You should focus some efforts on finding the why and how of such a situation so as to fix it, or it will keep on costing your business a lot of money – hiring, training, and general benefits to invest all over again when replacing someone who left.

Finally, our HR dashboard template displays some money matters. As we previously said, training has a cost, and so does hiring: you need to mobilize professionals to receive and review the applications, conduct interviews, assessments, and be in touch with applicants and then future employees. It is a lot of time and money investment, that is increasing with the seniority level: experts and top-responsibility positions need a longer recruitment time, as the assessment is more complex – but the training might be slightly lower.

TALENT MANAGEMENT DASHBOARD

TALENT MANAGEMENT — Q1 2020

EMPLOYEES	MONTHLY SALARY	VACANCIES
1,122	$3,638,250	48

HIRING STATS

TIME TO FILL	NEW HIRES
48 days	27

NET TRAINING COSTS	COSTS PER HIRE
$2,006.70	$4,334.37

TALENT SATISFACTION (NPS)
by employement period

6 MONTHS

1 YEAR	75
2 YEARS	55
5 YEARS	80

-100   100

TALENT TURNOVER RATE
by department

Finance 5% / 12%, HR 3% / 4%, Marketing 4% / 9%, IT 8% / 6%

■ Involuntary   ■ Voluntary

FIRED TALENTS
by employement period

6 months 7,8 % | 1 year 12 % | 2 years 6,8 % | 5 years 4,8 %

TALENT RATING
by employement period and category

6 MONTHS — Communication, Delivery, Effectiveness, Knowledge, Skill set

1 YEAR | 2 YEARS | 5 YEARS

Obtaining the best possible talent as well as keeping it for longer periods of time has become one of the challenges that modern companies need to properly address in order to stay competitive. An employee dashboard that is focused on modern talent management helps in analyzing and monitoring costs, hiring stats, turnover and satisfaction rates, among other critical metrics. Our rundown of the best HR dashboards continues with talent management, one of the key components of attracting, keeping, and improving the talent lifecycle.

The dashboard starts with a quick overview of the number of employees, monthly salary, and vacancies for the first quarter of the year, followed by hiring stats (time to fill, new hires, net training costs, and costs per hire). The talent turnover rate is represented by different departments while the percentage of laid-off people is depicted through periods of 6 months, 1, 2, and 5 years. Here we can see that the involuntary or unwanted turnover is particularly high in the IT department while, on the other hand, you can see that most talents are laid off during the first year. These findings can help you in adjusting your human resources strategies and digging deeper to find out why.

The talent satisfaction in this HR analytics dashboard is measured through the net promoter score (NPS) and analyzed through the different lengths of time with the company. In this case, it's evident that satisfaction is highest after 5 years, although the first year was positive as well. The talent rating is represented through 5 main criteria so you can immediately spot that most talents have a good rating. Here you can also brainstorm ideas on how to increase the ratings and improve your relations with employees. An additional visual that covers the rating through a 3-month period can tell you that the lowest rating was in February but March improved so you might want to keep an eye of this metric in the future to find out why some months have underperformed.

The final part of the KPI dashboard on the right measures the trends by category where you can see how well employees develop their skills, knowledge, effectiveness, communication, and delivery. In the last 6 months, the team had the highest rating in the delivery category but lacking the same in the skill set. We can see that after 5 years the skill set still has the lowest value so it might make sense to include additional educational opportunities so that the skills correspond with other categories on a closer level.

As you could see, with the help of our HR metrics dashboard we have identified some points that could need improvement and additional adjustments in your HR strategy. Keep in mind that you need to focus on retaining the right talent and keeping the workforce satisfied to avoid high turnover rates and, subsequently, costs.

WORKFORCE DASHBOARD

AVIDUS ACADEMY OF MANAGEMENT

Workforce Dashboard

Part-Time vs Full-Time Employees
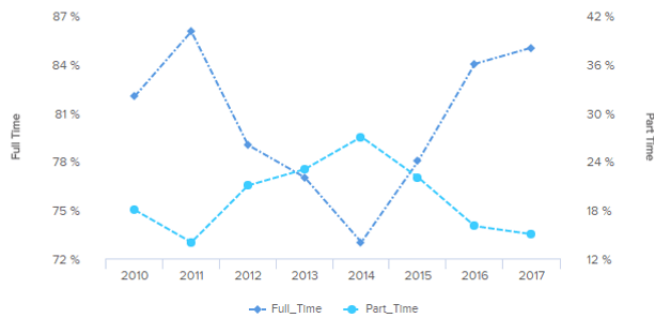
Female To Male Ratio
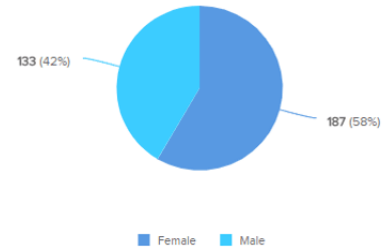
Time To Quit The Job
(Employees are most likely to leave their job around their one-year work anniversary.)
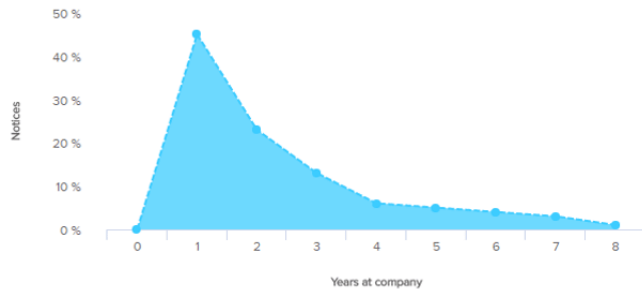
Notices During First Year By Age Group
(Employees under the age of 25 most likely quit their job during their first year of employement.)
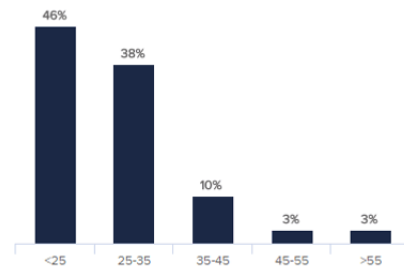
We know it already, but will say it again: companies that are successful at leveraging their HR analytics will be positioned to outperform their peers when it comes to talent strategies. It is hence crucial to be aware of who is working in your company and how.

Our final human resources dashboard example will look at general workforce metrics. The evolution of the part of full-time vs. part-time employees is a good KPI to start with: on our example above, we can see that the number of full-timers decreased importantly while the part-timers grew significantly. Many reasons might explain this shift, the main one being obvious financial difficulties, or a decrease in activity that needed fewer people working 40 hours a week. Looking at the employees' behavior during their first employment year, what jumps out is the tendency to leave a position after around year. This is not an isolated case and today's businesses are changing so swiftly that the one-year anniversary can often be a turning point. And this is a tendency that we can observe mainly in young workers under 25, for whom 46% are likely to leave after their first year.

This HR dashboard also addresses the diversity issue: often enough, the female to male ratio is unbalanced, namely in top-management positions with responsibility, power, and money. For a balanced,

innovative and better working business where employees are generally more satisfied and performant, countless studies have shown the importance of diversity – gender-wise, nationality-wise, curriculum-wise and age-wise. Monitoring this KPI is important for the well-being of your company and its future success.

Finally, you can push your analysis a bit further and look at how your internal network is functioning. Often, by going through your own talent pool of employees – people who already know the company, the sector, the products or services, and how things are working – you will find a wealth of profiles matching the job you wish to fill, and these profiles can also be willing to move forward in their career and grow within the company. It is a gain of time and money, once again, and what you have not spent hiring externally can be smartly reinvested in providing extra training to the employee moving internally, because it is always needed and welcomed.

Allowing your employees to evolve within the structure is a competitive advantage as they will be more committed to their work and will globally have a greater motivation to move forward. It also shows that your company recognizes and appreciates the good work of its employees. But this metric should, however, remain reasonable: recruiting outside also means getting an external point of view, a fresh vision on the business, its operations and processes, and friction always increases the chances of innovation and thinking outside of the box.

https://www.datapine.com/dashboard-examples-and-templates/human-resources#workforce-dashboard

Employee Performance:

RELEVANT KPIS AND METRICS

- Absenteeism Rate
- Overtime Hours
- Training Costs
- Employee Productivity

HUMAN RESOURCES KEY PERFORMANCE INDICATORS AND METRICS

An HR key performance indicator or metric is a measurable value that helps in tracking pre-defined organizational goals of human resources management. HR departments use KPIs to optimize recruiting processes, employee engagement, turnover rates, training costs, etc.

Expectations for HR professionals are continuously increasing and, in this article, we will take a look at the most important KPIs for HR in order to develop modern and effective management processes. Professional HR analytics software will provide you with all the necessary tools to extract valuable insights from existing HR data, and gain new, invaluable information. This includes a dynamic, interactive HR dashboard that consolidates all relevant metrics in a central location, without the necessity for advanced technical knowledge. Besides, you can automate each KPI and utilize modern online reporting tools such as datapine in order to share up-to-date and relevant HR data throughout your team.

Here is the complete list of the top 15 human resources KPIs and metrics that every HR professional and manager should know:

Absenteeism Rate*: Evaluate the engagement of your employees*

Overtime Hours*: Monitor your employees' workload in detail*

Training Costs*: Analyze the investments in your employees*

Employee Productivity*: Track the overall effectiveness of your workforce*

Talent Satisfaction*: Ensure your employees are satisfied in the long run*

Cost per Hire*: Analyze what it takes to find the perfect fit*

Recruiting Conversion Rate*: Find the best recruitment method*

Time to Fill*: Monitor how long you need to find a new employee*

Talent Rating*: Assess the quality of your employees*

Employee Turnover Rate*: See how your retention efforts work*

Talent Turnover Rate*: Evaluate how many talents you continually change*

Dismissal Rate*: Find out if you're recruiting the right employees*

Female to Male Ratio*: Understand the gender diversity in your company*

Part-Time Employees*: Watch the evolution of part-time workers over time*

Average Time Stay*: See how long your employees stay in your company*

ABSENTEEISM RATE

How engaged are your employees?

The first of our HR metrics measures the average absenteeism rate as a percentage of the total working days among all employees. It is a highly important employee engagement KPI as it illustrates the employee's motivation and engagement in his work and more generally in the company. Studies have shown in the past that workers with a low motivation and engagement are much more likely to call in sick or skip some days of work. It is important to watch this metric over time and to reduce it, because it will inevitably impact your business: be it the company atmosphere or the overall productivity, in the end your finances and the general well-being of the business will be at risk.

Performance Indicators

If your find your absenteeism rate of the past month(s) higher than the historical rate,

investigate and find the reasons: is it specific to one department or a company-wide issue? Why? Then implement appropriate measures to remediate the situation.

Avg Absenteeism Rate

Target < 3.8%

3,4%

Absenteeism Rate Over Last 5 Years

4,1 %	3,8 %	3,4 %	3,6 %	3 %	2,7 %
2012	2013	2014	2015	2016	2017
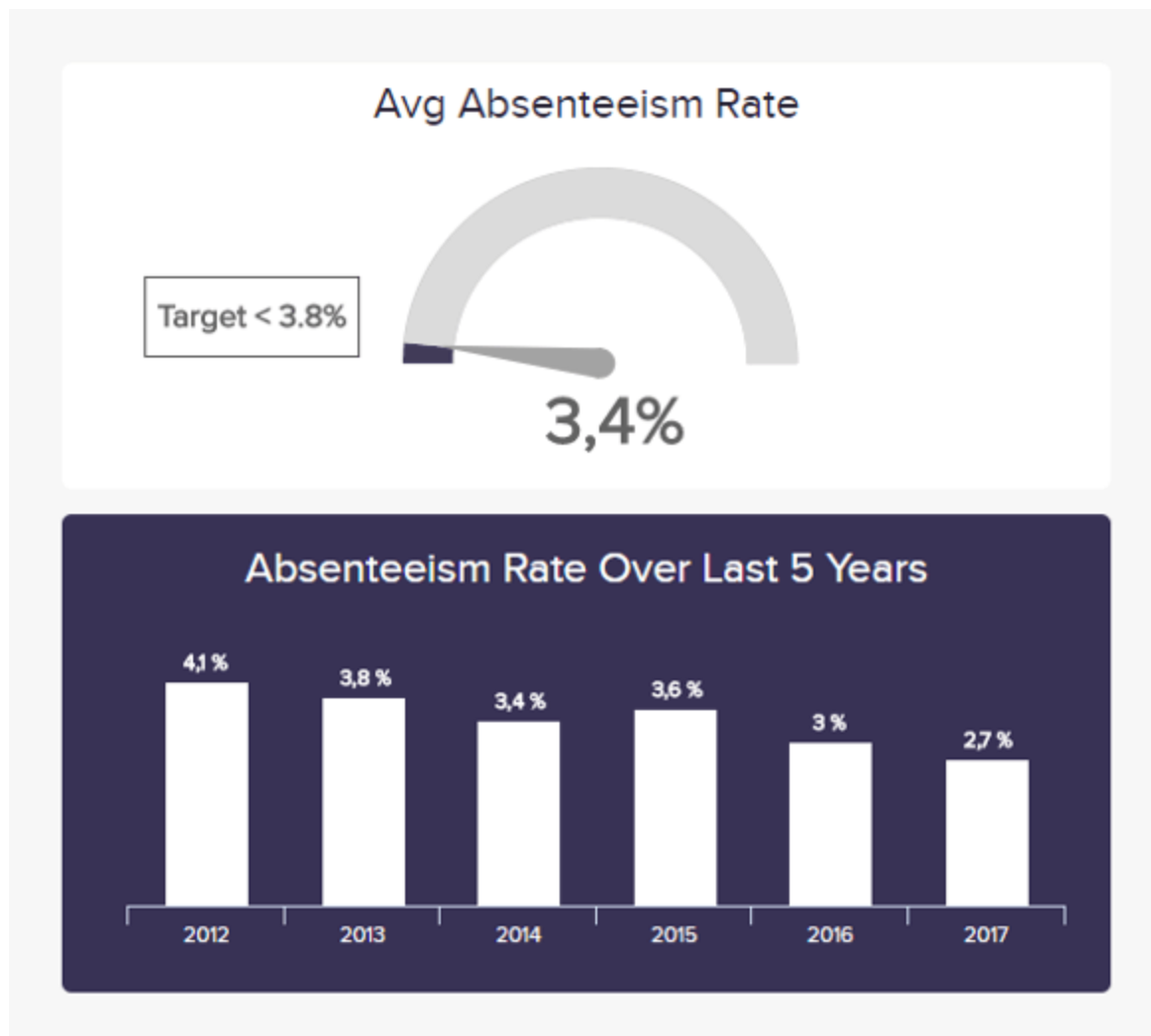
OVERTIME HOURS

How do you monitor your employees' workload?

Overtime hours are a great indicator on many levels, but have to be interpreted differently depending on the context. A sudden rise in overtime hours might translate a temporary higher volume of orders, or an economic growth. They can show the dedication of employees as well as flaws in work processes, or maybe an understaffed workforce that has to deal with a high pressure. This will directly impact another of the HR metrics we have seen previously: the absenteeism rate. Indeed, if people do not mind working overtime every now and then, an amount of overtime hours that goes through the roof and a permanent high workload will decrease both motivation and employees' satisfaction, which maybe will result in an absenteeism rate increasing.

Performance Indicators

The reasons for a permanent high overtime should be investigated, as it also can confine the potential growth of a company when it results in missing orders or projects.

1,5 hrs
Avg Overtime Per Week

12%
More Overtime This Year

Avg Overtime Hours By Age Group

Age Group	<25	26-35	36-45	46-54	>55
hours	1,9	2,3	1,6	1,0	0,8
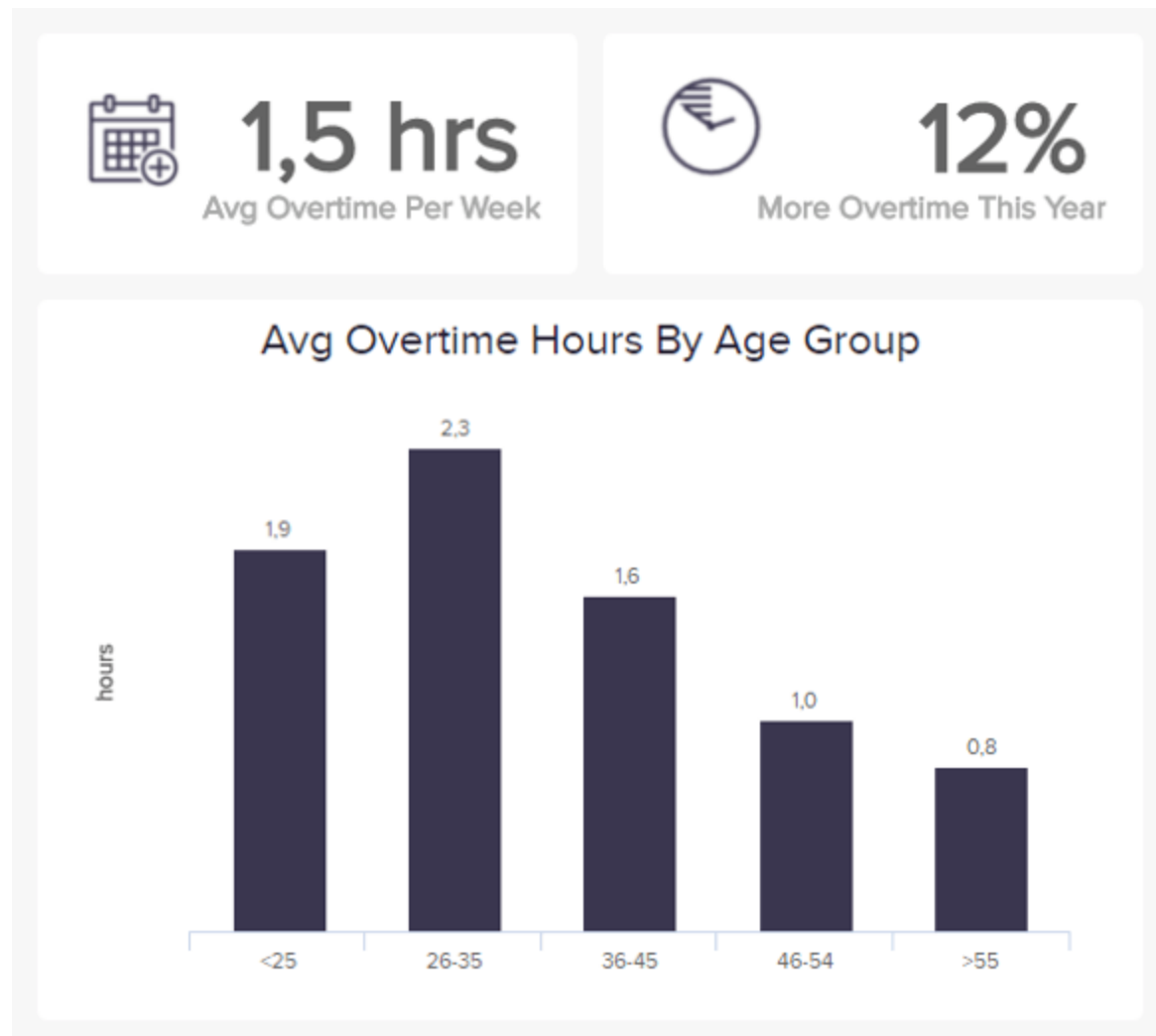
TRAININGS COSTS

Do you invest in your employees?

Here is a Human Resources KPI example used when you want to measure how much you have invested onboarding new hires and upgrading one's education. It is a helpful metric to track employees' development costs, and make smarter decisions when it comes to developing their skills set after they have been hired. However, training costs should not be limited to new hires – more and more workers today wish they had a better job development and wish for a continuous learning in their position. Investing in an employee for him/her to develop his/her already acquired skills, or new ones, is an option often too little considered by HR management. Often enough, the return on training costs is greater than the initial investment.

Performance Indicators

Implementing a little knowledge test and evaluating the scores of employees can help you see if the training provided was effective.

EMPLOYEE PRODUCTIVITY

Do you measure the effectiveness of employees?

The Overall Labor Effectiveness is a very interesting and complete HR KPI, that takes several dimensions into accounts when measured thoroughly. It is usually calculated by dividing the total sales by the number of employees. But for a deeper analysis, it is good to consider the components that have effect on the productive output: the availability, ie. the amount of time where employees are actually working; the performance, or the amount of product delivered; and finally the quality, or the number of perfect / saleable products produced during that time. It is more of a manufacturing-oriented approach that can nonetheless

be applied to other sectors. Beyond reviewing employees' performance, productivity measurements can help them understand how much they have done and how well they did it, and adjust their ways of working when needed.

Performance Indicators

The higher this ratio, the better it is for the company. Measuring productivity accurately can ensure greater profit but also increased employee motivation and recognition.

TALENT SATISFACTION

How satisfied are your employees?

This is one of our HR KPI examples that shouldn't be neglected in times of shortage of skilled workers and the associated "war for talents." Especially for young professionals, not only financial aspects play a vital

role in employment choice, but also a good work-life balance, flexible working time models, occasional work in the home office and a sustainable and social corporate culture. You should meet these requirements, especially in order to retain highly sought-after specialists in the long term. In order to quantitatively evaluate your measures in this regard, you should regularly conduct employee satisfaction surveys. For example, you could use the net promoter score (NPS), which we have illustrated on the left.

Performance Indicators

Use this metric to evaluate the quality of your recruitment and employee retention measures. It makes sense to look at employees or specialists according to the length of employment and departments/teams.

Talent Satisfaction (NPS)

By Employment Period

80	55	75
5 Years	2 Years	1 Year

6 Month

68

-100   100
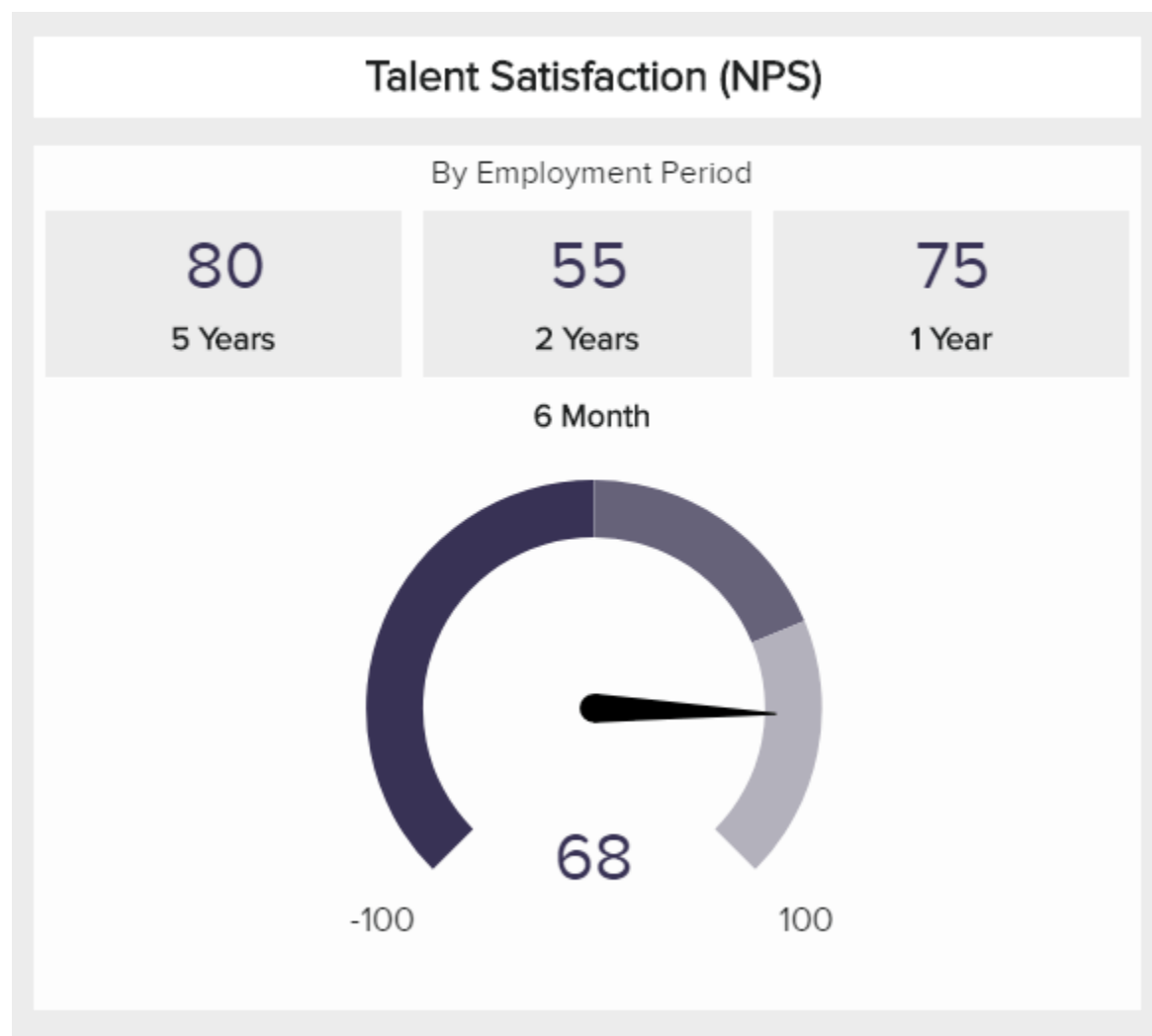
COST PER HIRE

What does it take to find the perfect fit?

Here we have a pretty straightforward HR KPI, that measures the amount of resources you invest for each new employee you need. It covers all the costs from recruiting (advertisement / marketing, referral incentives, time cost of recruiter reviewing and selecting CVs, then conducting interviews) to training (time cost of manager / instructor, materials, and time cost of a new employee). These costs pile up rather quickly and heavily on a company's budget, this is why hiring shouldn't be taken lightly – but without employees, work cannot be done and business cannot be run. And this is in the end, the bottom line of every business: investing in talents that will bring even more value back. So even if the investment might make the finance department frown, the potential of talent acquisition is always worth it.

Performance Indicators

Measure the cost per hire according to the recruitment source, and see which is the most or least expensive. This shouldn't be a unique reason to decide whether the source is a good one or not, as the turnover rate (how long people stay in the company) is important, too.

Avg Cost Of Hiring By Seniority Level

$ 3,152 (25%)
$ 5,345 (43%)
$ 4,043 (32%)

- Junior
- Mid-Level
- Senior

$ 4,180
Avg Hiring Costs This Year

RECRUITING CONVERSION RATE

How do you find the best recruitment method?

The Recruiter Conversion rate is more of an HR performance metric, as it focuses on the Human Resources executives more than on the regular employees. This KPI measures the ratio of the total number of applicants, that are actually turned into hired employees at the end of the process. There is no particular already-set ratio for an efficient recruitment, it depends on your company, region, and sector. But this is a metric you can use to take a closer look at all involved steps and compare different recruitment methods you have implemented in order to choose which the most efficient one, while still taking other indicators into account (like the retention rate 90 days after hiring). The main goal is to find the source that gives the best candidates at the lowest cost.

Performance Indicators

Compare the different methods' ratios to one another alongside the cost per hire. Then, choose the one you think fits the best your company style and budget.

Anna F. — Recruitment Conversion Rate — 12%

Jakob L. — Recruitment Conversion Rate — 10%

Theresa T. — Recruitment Conversion Rate — 8%
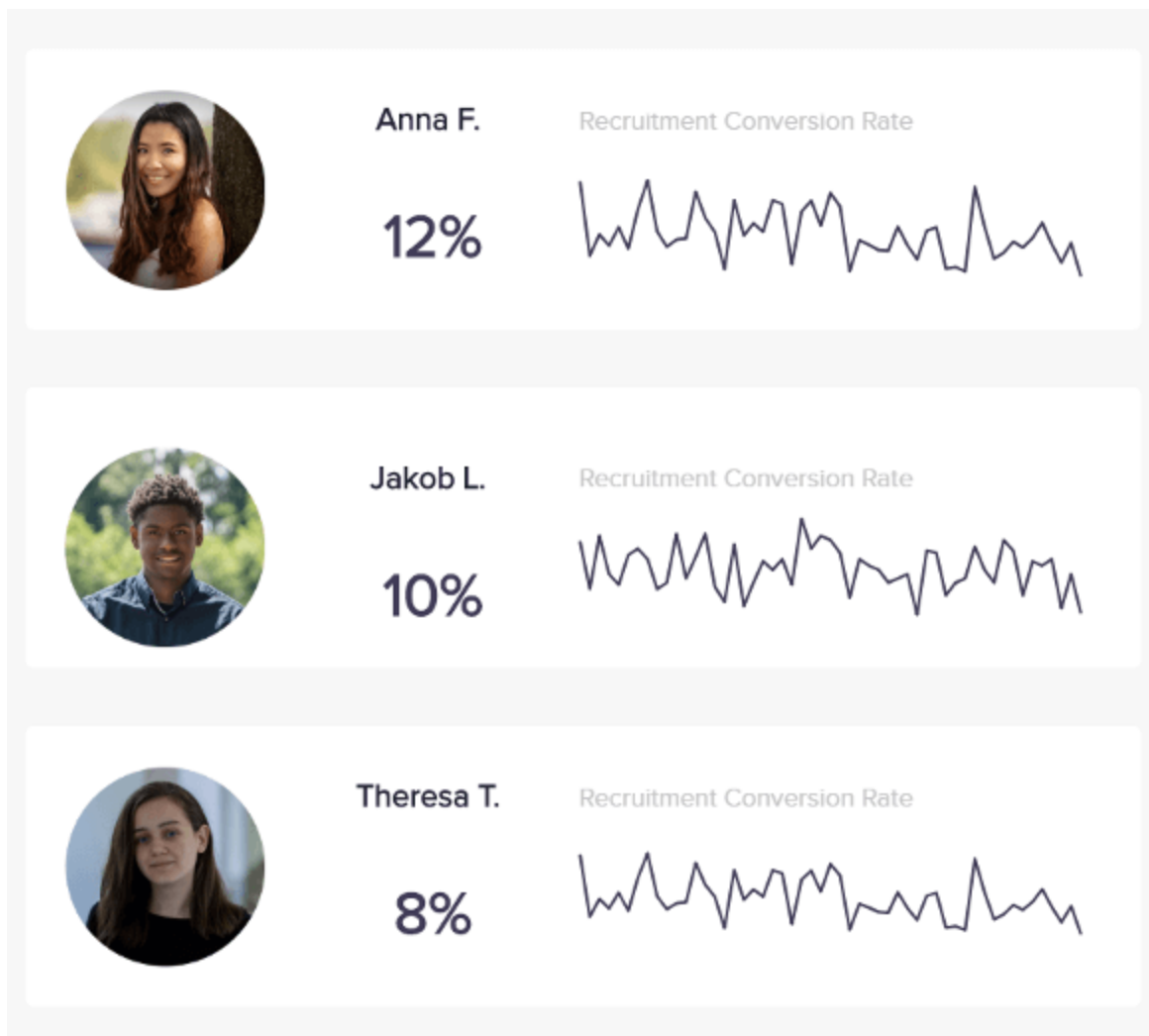
TIME TO FILL

How long do you need to find a new employee?

Another easily understandable HR performance metric as the definition lies in its name. This metric simply measures the time elapsed between the moment a job offer has been posted and the moment a new employee has been hired for that specific position. Just like the Recruiting Conversion Rate, it tracks how efficient the hiring process is in terms of time resources spent to fill a vacancy. It also informs to do realistic business planning, as lay-off or someone quitting has to be handled and anticipated when possible. A low figure is always better; however, it shouldn't be the main criteria. Investing time is important to find the best fit and a good hire might cost in the beginning but the benefits will always better greater afterwards.

Performance Indicators

To work this metric right, keep in mind that it is a process evaluation more than an objective to reach by lowering the numbers at all costs. The objective of recruitment remains the outcome, ie. an employee fitting the position well.

TALENT RATING

How do you assess the quality of your employees?

The relevance of regular, constructive employee and feedback meetings is undisputed and is taken for granted in most companies today. However, the human resources department needs to measure the quality of its employees in order to be able to evaluate its recruitment measures. For example, it could be determined that employee assessments in the IT department are unsatisfactory, which could be caused by incorrect evaluation criteria during the recruitment process, or missing and irrelevant tests focusing on the wrong topics. To be able to identify such deficiencies and have an adequate overview of the quality of your

employees at all times, you should develop an individual employee evaluation system (talent scoring). We have illustrated this for you using five selected scoring criteria as examples.

Performance Indicators

The more individual and better your employee evaluation system, the greater the potential benefit of this KPI for HR managers.
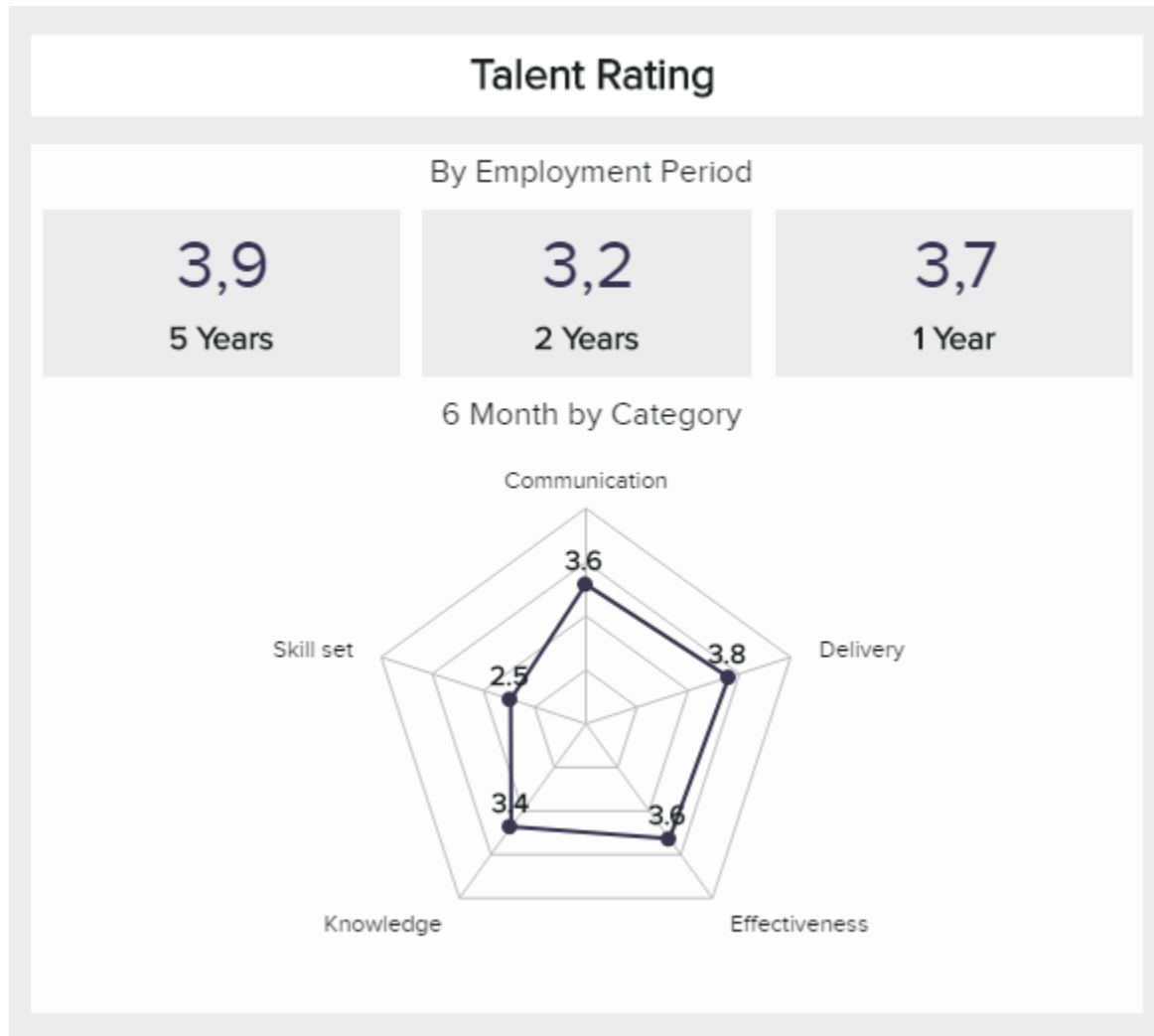
EMPLOYEE TURNOVER RATE

How well your retention efforts work?

Another example of human resources metrics, the employee turnover, measures how many of your employees leave, voluntarily or not. It indicates the success of your company in terms of retention efforts, and just like the time to fill, is a good help to plan for talent replacement. Preferably, people who do not fit

in the company leave – and it is not a bad thing for both parties. However, when your talents leave, turnover becomes a problem, because turnover is final: people never come back, or very seldom. And usually, people quit their managers, not their job. This is why you should track the root causes if you have a high turnover rate and identify potentially problematic areas that need to be fixed.

Performance Indicators

A low turnover rate is always better for a satisfactory performance in the long run and lower recruitment costs in total.
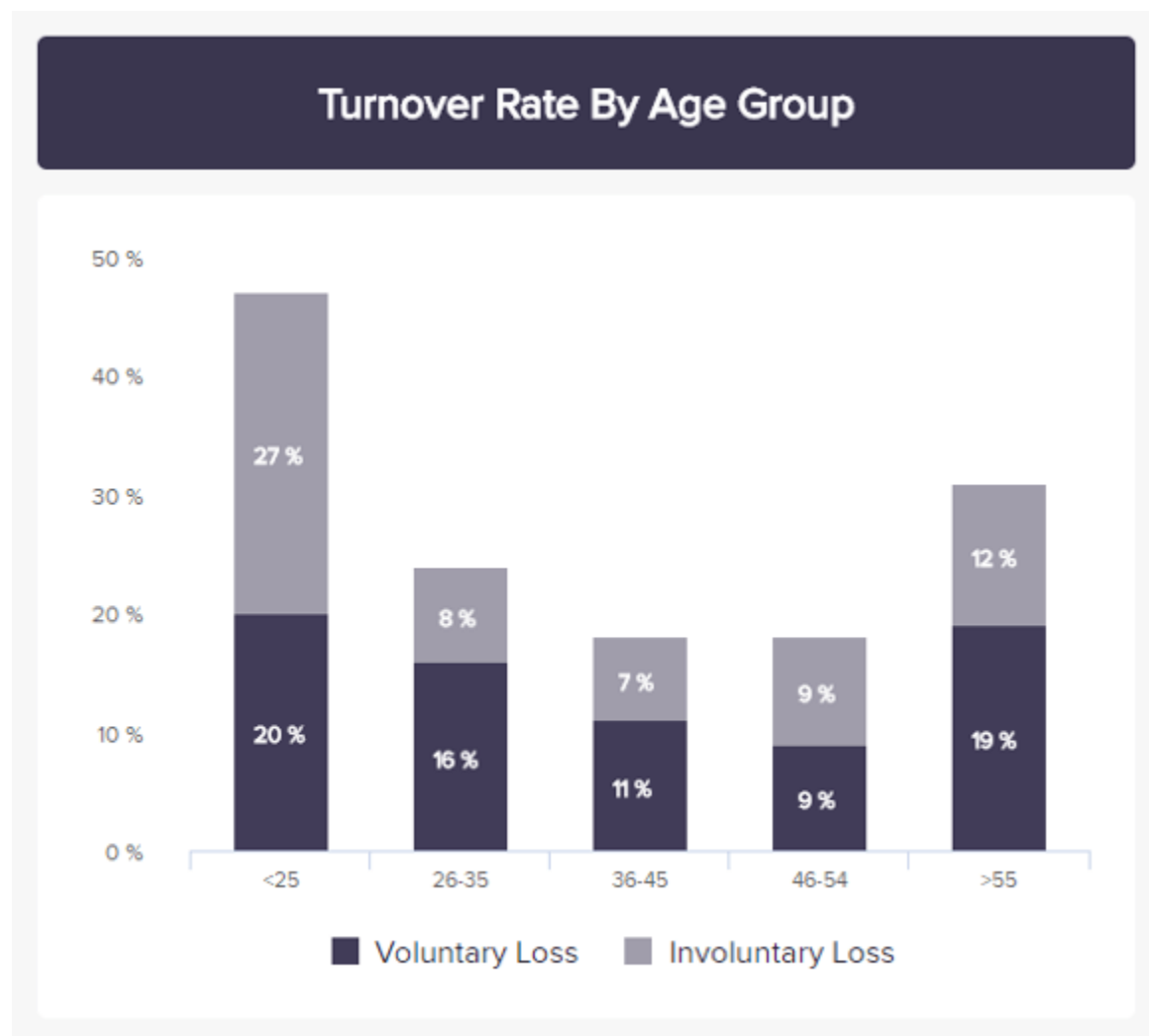
TALENT TURNOVER RATE

How many employees do you need to change?

A high turnover rate is particularly problematic for positions that are difficult to fill. This is where talent (junior specialists) and generally highly qualified specialists (professionals) are usually in demand. On the one hand, from a financial point of view, the high expenditure means high recruitment costs, and on the other hand, these are usually key positions within the company that would benefit from a longer-term employment relationship. Therefore, it makes sense to take a closer look at these segments with the help of data analysis software like datapine. We have illustrated this in one of our human resources KPIs for professionals in different departments of a company.

Performance Indicators

You should try to keep the talent turnover rate as low as possible, especially for your junior staff, as they will be your most valuable human resources in the future.
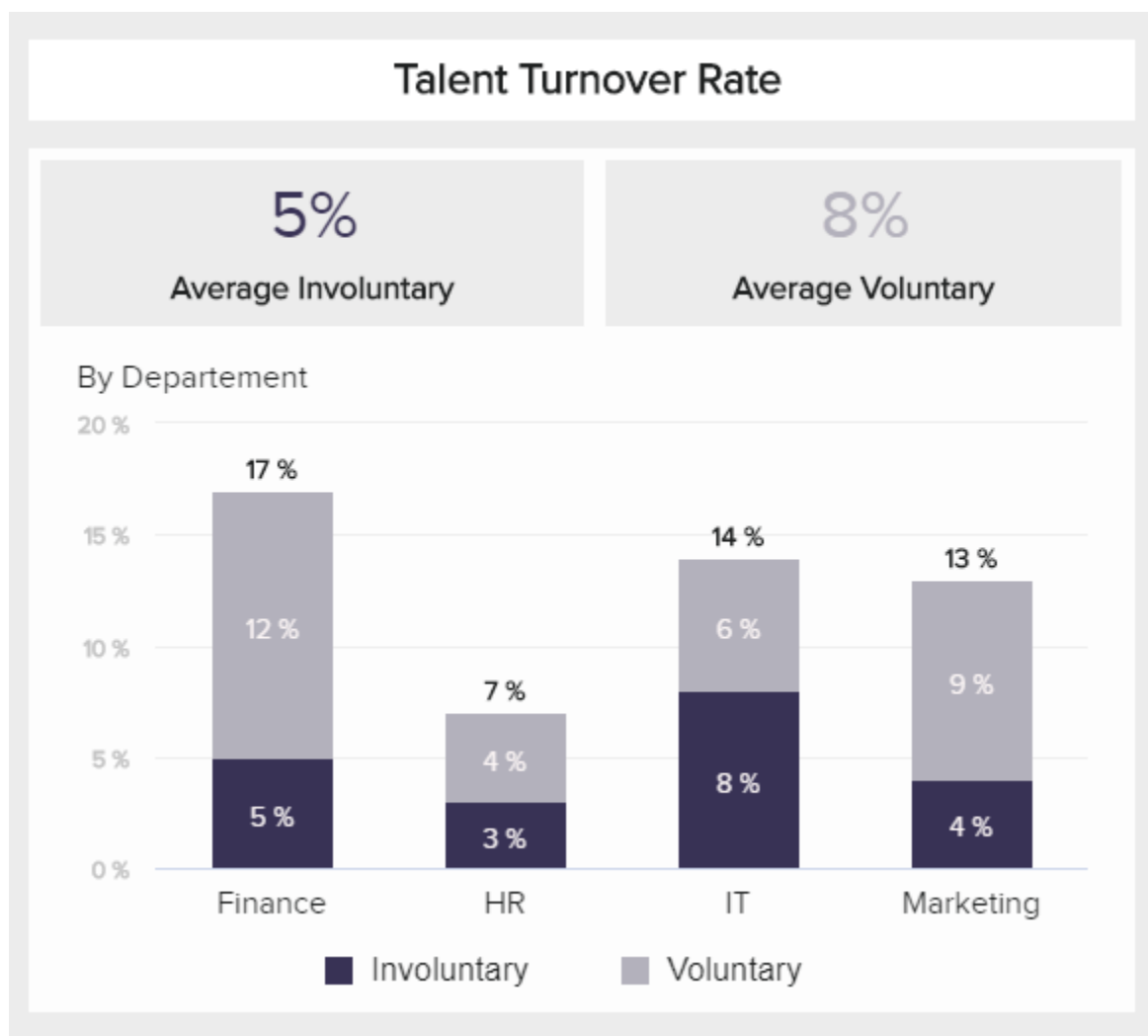
DISMISSAL RATE

Are you recruiting the right employees?

The turnover rate is influenced by 2 main factors: terminations by the employee or employer. Additionally, there are other influencing factors, such as the expiration of employment contracts, retirements, resignations due to incapacity to work, etc. In order to monitor the quality of your recruiting measures in a transparent and comprehensible way, you can use the dismissal rate, one of the critical KPIs for human resources that focus on lost talent. Look at it from different angles, for example, according to the length of employment, teams, departments, or separately for your junior specialists, as shown in our template.

Performance Indicators

You should try to keep the talent turnover rate as low as possible, especially for your junior staff, as they will be your most valuable resource in the future.

Dismissal Rate

By Employment Period

Employment Period	Dismissal Rate
6 months	7,8 %
1 year	12 %
2 years	6,8 %
5 years	4,8 %
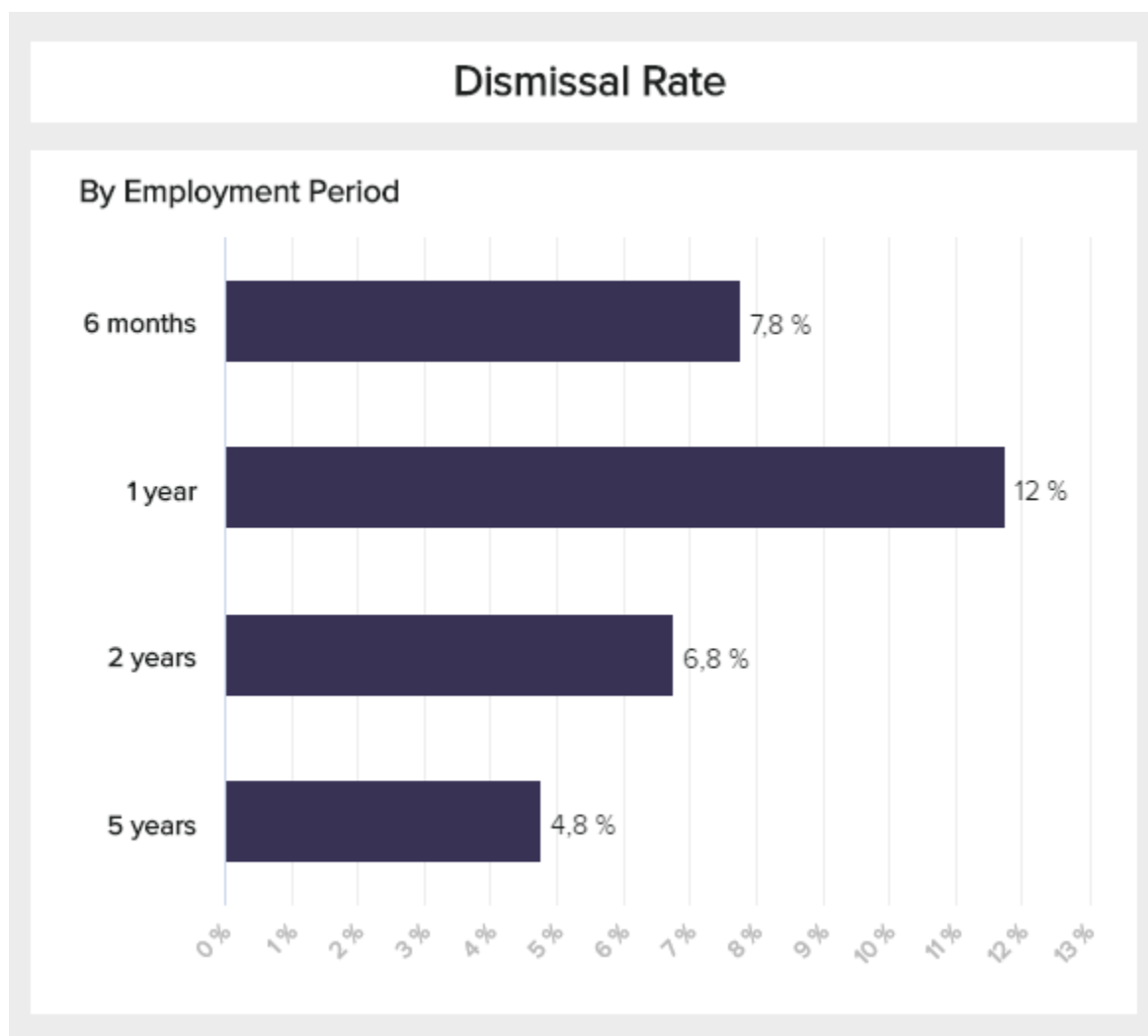
FEMALE TO MALE RATIO

Is gender diversity present in your company?

This HR metric is not often used and remains a bit of a taboo in many companies. Measuring the ratio of female to male workers, especially in top-management positions, can tell a lot about a company. Some industries are very gender-biased (IT and engineering are overcrowded with men, while caring and nursing tend to be in majority female). This has a historical and societal explanation, but as our societies evolve it is important to be aware about and encourage diversity – be it gender diversity, but also nationality-wise and curriculum-wise. The more horizons you gather, the broader the view and the more diverse the approaches and innovation possibilities you will have. That is an incredible competitive asset in our globalized economies.

Performance Indicators

There is no target rate in particular as it also depends on the availability of the candidates at a certain time. But countless studies prove that a balanced environment – especially in boards of direction – are much more successful than any other in the long run.

Female To Male Ratio

2012 - 2017

Female   Male

This Year

133 (42%)

187 (58%)
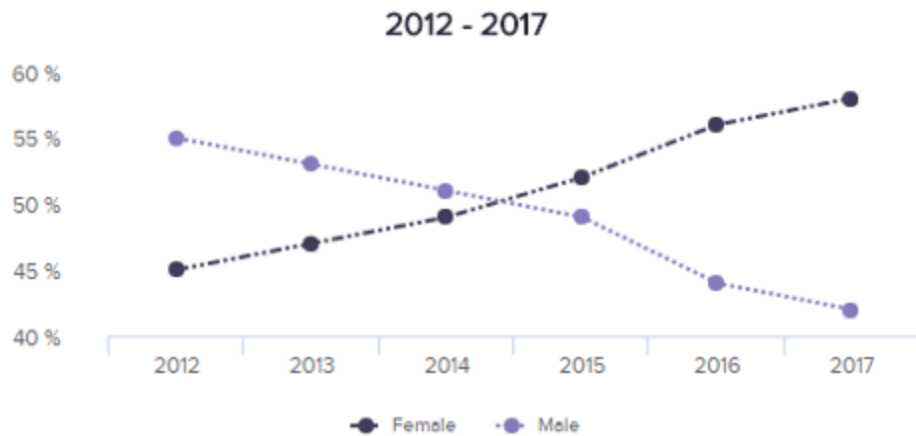
PART-TIME EMPLOYEES

Do you take into account part-time workers?

Part-time employees work fewer hours in a day or a week than full-time ones, who are usually employed around 40 hours per week. There are several advantages to have part-time workers, especially when you start your company and cannot take too much risk, or when a position is needed but does not require someone to dedicate 40 full hours on it. Many different people can look for part-time jobs as these are fitting better their needs and schedules. But CEOs should keep in mind that cumulating several part-time employees to avoid the benefits and costs a full-time position would require is poor strategic choice, as part-time workers may take longer to learn the job, the company culture, and can hardly be retained if they want a full-time job that never materializes.

Performance Indicators

Track the evolution of part-time contracts over time and parallelize it with other metrics like company performance and results, or employee satisfaction and engagement.

Part-Time vs Full-Time Employees

AVERAGE TIME STAY

How long your employees stay in your company?

The last of our Human Resources KPI example is good indicator on the attrition of your company, and lets you know if you are good at retaining talent. This HR metric tracks the average number of weeks, months or years an employee stays within a company. It is efficient to measure both retention and employee satisfaction with his position, his team and/or managers. You already know how much hiring and training a new employee costs – so the longest the time he or she stays, the better! That way, you can earn greater return on your investments. This metric is even more powerful if measured alongside other KPIs like the Employee Turnover: a short time stay combined with a high turnover does not announce anything good and the reasons for that should be assessed as soon as possible.

Performance Indicators

The longer, the better for your company's return on hiring and training investments.

Time To Quit Job

Employees are most likely to leave their job around their one-year work anniversary.

Module 3

Control, Services and Decisions: The Evolution and Impact of the HR Value Propositions

Does HR drive more effectiveness and organizational performance by improving traditional HR value propositions, such as compliance and services, or by improving decisions?

Beyond HR, which was published ten years ago, advocated a "decision science" to advance HR, talent management, work, and organization design. A notable analogy in the book is based on Finance's history of three fundamental value propositions:

Control: Adding value by ensuring compliance with rules, laws, and guidelines.

Services: Adding value by delivering high-quality professional practices and services.

Decisions: Adding value by improving decisions inside and outside the function.

Finance and HR both evolved an initial exclusive focus on control, then added services, and then strategic decision improvement. Finance has great impact in guiding leader decisions, but it also maintains balance with the other value propositions. All accountants need not become financial analysts and CFO's.

One strong suggestion in *Beyond HR* is that, like Finance, HR should evolve from an exclusive focus on control or services, and also increase decision support to achieve more balance.

But is that happening?

We explore this using surveys of HR leaders in over 100 U.S. organizations in the years 2010 and 2016 by the Center for Effective Organizations (the full report is in our forthcoming book, *Human Resource Excellence: Assessing Global Strategies and Trends*, that will be published by Stanford University Press in 2018).

Have the Value Propositions Improved Over Time?

The table below shows average ratings of each value proposition in 2010 and 2016. The three value propositions are rated virtually the same.

The Unchanging Level of HR Value Propositions	2010	2016
HR adds value by ensuring compliance with rules, laws, and guidelines.	3.4	3.6
HR adds value by delivering high-quality professional practices and services.	3.6	3.7
HR adds value by improving talent decisions inside and outside the HR function.	3.5	3.7

Response scale: 1 = little or no extent; 2 = some extent; 3 = moderate extent; 4 = great extent; 5 = very great extent.

However, the *level* of value does not indicate their impact. Perhaps they have not improved because they have little association with important outcomes.

So, next we examine their impact, by looking at how strongly they associate with HR effectiveness and organizational performance.

How We Measured HR Effectiveness and Organizational Performance

HR effectiveness is measured by the average of the 12 items below, rated on a scale of 1 to 10, where 1 = "not meeting needs," and 10 = "all needs met":

1. Providing HR services

2. Being an employee advocate

3. Analyzing HR and business metrics

4. Preparing talent for the future

5. Managing outsourcing

6. Operating HR centers of excellence

7. Operating HR shared service units

8. Working with the corporate board

9. Providing change consulting services

10. Being a business partner

11. Helping to develop business strategies

12. Improving decisions about human capital

The average of this index was 6.8 in 2016.

Organizational performance was measured using this question (rated on a scale of: 1= "much below average" to 5= "much above average"):

"How would you gauge your company's performance, relative to its competitors on …

1. Societal and environmental sustainability performance

2. HR function performance

3. Overall company performance"

Do the HR Value Propositions Drive HR Effectiveness?

The table below shows the correlations with HR effectiveness in the years 2010 and 2016.

HR Value Proposition Correlations With HR Effectiveness		
	HR Effectiveness[a]	
	2010	**2016**
HR adds value by ensuring compliance with rules, laws, and guidelines.	.34***	.31**
HR adds value by delivering high-quality professional practices and services.	.72***	.70***
HR adds value by improving talent decisions inside and outside the HR function.	.64***	.64***

[a]Based on total score for all twelve effectiveness items.

HR services and decision support show the strongest associations, while Compliance shows an association only half as strong. This suggests an evolution toward services and decision support.

What HR Value Propositions Drive Organization Performance?

The table below shows the correlations with organizational performance in 2010 and 2016.
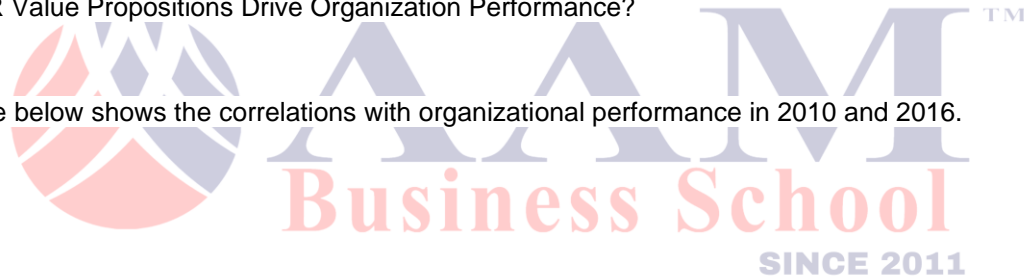
Read:

IMPACT OF SUSTAINABLE HUMAN RESOURCE PRACTICES ON ORGANIZATIONAL PERFORMANCE 1 JACOB CHERIAN, 2 SHERINE FAROUK 1,2College of Business Administration, Abu Dhabi University, Abu Dhabi, UAE

HR Value Proposition Correlations With Organizational Performance		
	Organizational Performance[a]	
HR Value Propositions	**2010**	**2016**
HR adds value by ensuring compliance with rules, laws, and guidelines.	.27**	.22*
HR adds value by delivering high-quality professional practices and services.	.30***	.16
HR adds value by improving talent decisions inside and outside the HR function.	.29**	.21*

[a] Based on the total score of three items.
Significance level: *$p \le .05$, ** $p \le .01$, *** $p \le .001$.

The pattern for organization performance is different from the one for HR effectiveness. In 2016, organizational performance associates most strongly and consistently with compliance and decision support, not services, and the association with services has decreased over time.

Opportunities and Pitfalls

Improving decision support is the clearest win-win proposition because it associates strongly and consistently with *both* HR effectiveness and organizational performance.

Research has shown that CHRO's from non-HR backgrounds are successful in the CHRO role because they

focus on business results and not just people outcomes. They achieve influence and confidence in HR and the rest of the business through a combination of factors: Analytics, Iteration and Curiosity.

Improving compliance is a more moderate win-win. It also associates positively with both HR effectiveness and organizational performance, but its contribution to HR effectiveness is smallest. Compliance may be seen as "table stakes" for the HR function, but it does impact organizational effectiveness. HR leaders may need to help constituents more clearly see its impact on organizational performance.

Improving HR services presents a dilemma because it associates most strongly with HR effectiveness, but least strongly with organizational performance.

Why?

The effects of compliance and decisions often occur outside the HR function, but directly affect tangible outcomes (avoiding lawsuits, enhancing innovation, etc.). HR services are tangible "products" of the HR function, but they impact organizational value less directly, through employee attitudes, engagement, job performance, etc.

HR leaders must avoid only enhancing HR functional effectiveness with improved HR services, since that may not drive organizational performance. Focus workforce analytics on true organizational priorities – not just on traditional measures of HR functional outcomes.

For over 10 years these value propositions have offered untapped opportunities to enhance HR impact. All three did not change from 2010 to 2016, yet, each has strong associations with HR effectiveness and organizational performance. It is time to accelerate HR's progress.

About the Authors:

John Boudreau is professor and research director at the University of Southern California's Marshall School of Business and Center for Effective Organizations, and author of the forthcoming books, "Lead the Work" with Ravin Jesuthasan and David Creelman and "Global Trends in Human Resource Management" with Edward E. Lawler III.

Edward E. Lawler III is Director of the Center for Effective Organizations and Distinguished Professor at the University of Southern California. He is the author of over 400 articles and 51 books. His forthcoming book *Reinventing Talent Management: Principles and Practices for the New World of Work* (2017) is be out this spring. For more information, visit his website and Center for Effective Organizations site.

What can HR and People teams do to drive sustainability?

HR and People teams play an important role in recruiting, training and rewarding individuals to succeed in this context, the report argues.

Employees at all levels need to be equipped with the skills to not only nurture innovation and manage risk, but to transform the economic systems within which they operate, and to deliver on broader societal goals, the report authors argue.

However, what does that mean in practice? Here's 9 ways that HR and People teams can drive the sustainability agenda.

1. Define your company's social purpose

Work alongside your leadership team to define what your company's social purpose is, and how employees together can achieve it. For example, Unilever's purpose is to make sustainable living commonplace.

Once you have refined yours, create your company's code of conduct around this.

Note that having a purpose doesn't mean that you can ignore all your other sustainable goals, it just means that you have a focus.

Looking for inspiration? Try the UN's global sustainable development goals.

2. Review your workplace practices

As a first step, you should review all your processes and work practices to ensure that they are in line with your sustainability goals.

Any areas that are not up to scratch need to be addressed and a code of ethics needs to be developed and communicated to the entire workforce.

Remember to update the goals continually and assess them against the societal issues that they are solving.

3. Make sustainability a vital part of your recruitment and onboarding

Ensure that your sustainability goals are a key factor in your recruitment process and onboarding. For example, your sustainability goals should be discussed during the interview process.

This is also an important factor in finding the right cultural fit for your organization.

Your goals and mission should also be a key part of your onboarding process, explaining to each new recruit the importance of them for your company.

4. Provide training

Many sustainability measures require specialized knowledge such as talking to suppliers about sustainable sourcing or fair wages.

Clearly set out how your company's sustainability goals have a real societal and environmental impact and how each individual can play their part in achieving those goals, providing training where needed.

5. Look at the easy wins

Provide the tools to help your employees be more sustainable. For example, eliminating all paper from your talent acquisition process, including pamphlets, brochures, forms, company information, reports, to make the hiring process entirely electronic.

IBM, Marks and Spencer, and Nestlé have all invested heavily in systems and processes that enable sustainability decisions to be made at a large scale.

At Sage, we provide mid-sized multinational organizations with a global cloud HR and People system which automates processes, whilst designing better workforce experiences for your people. Not only does it often remove the need for physical paperwork, but it gives your workforce more ownership of their employee data through self-service.

6. Incentivize

Your sustainability goals should be incorporated into performance reviews and included as an objective for employees with clear incentives attached to them.

Offering a reward programme will not only deliver tangible and measurable business gains but will send out the message that your sustainability goals are just as important as any other KPI.

7. Nurture ownership

Unite your entire workforce behind sustainability as a cause you can all work together on.

At the top, the CEO and their leadership team are key to embedding a sustainable business model, but that's not enough.

All your employees should be sustainability champions across all levels and geographies. For example, Marks and Spencer has sustainability 'champions' in every store and Unilever has sustainability 'ambassadors' throughout the organization.

As a result, 76% of Unilever's 170,000 employees feel their role at work enables them to contribute to delivering the sustainability agenda, and about half of all new employees entering the company from university cite Unilever's ethical and sustainability policies as the primary reason for wanting to join the company.

8. Provide volunteering opportunities

Allow employees to join company volunteer schemes, to take time off to support charities, and to nominate charities or causes your company should support. For example, UPS staff worldwide take part in the global volunteer month each year, when the company allows employees to volunteer for causes they are passionate

about.

9. Promote employee ideas

Enable employees from every level to contribute ideas to the company by sending ideas to their managers or to a dedicated email address. For example, Marks & Spencer implemented clothes recycling boxes in its stores on the suggestion of an employee.

Business benefits

Taking a more sustainable view of your business can help drive employee engagement and retention, as well as create a culture of innovation and a brand that employees, potential recruits and customers can identify with.

Ultimately, candidates and customers alike are attracted to organizations that consider how to meet the needs of people today without compromising the ability of future generations to meet their own needs tomorrow. It comes down to developing the leadership we need today to create the future we want tomorrow.

HR and People leaders can carve a space themselves here, setting themselves up as trailblazers of sustainable businesses that put environmental and societal considerations up there alongside growth and profit.

How are you stepping up?

Is sustainability on the minds of HR and People leaders? We spoke to 500+ HR leaders to discover what's keeping them awake at night. Download the research today.

HR ANALYTICS and HR VALUE PROPOSITION

The HR value proposition means that HR practices, departments, and professionals produce positive outcomes for key stakeholders, employees, line managers, customers, and investors. Value becomes the bellwether for HR.

The Role Of HR Analytics In Workforce Planning

An unprecedented increase in job openings shows that the demand for talent is forcing companies to plan better and recruit better. Workforce planning and HR analytics have become a key focus point for HR professionals around the world, as they confront new challenges in finding and retaining the right employees.

The most recent JOLTS, or Job Openings and Labor Turnover Survey published by the US Bureau of Labor Statistics, puts the the latest job openings level registered in November 2015 at 5,431,000(p).

> *"Companies cannot hire fast enough to keep up with their workforce demands."*

VisierAnalytics

As technology advancements in HR system are bringing in more data and key insights into the dynamic of workplaces, workforce planning is becoming an essential business process for companies of all sizes.

The challenge of workforce planning

Many companies struggle with this process, as it involves aligning talent management with business objectives, so that a company can meet its regulatory, service and production requirements. Workforce planning is a finance-led process for a great majority of companies, focused primarily on managing headcount to budget to ensure there are no cost overruns. The standard procedure is that average cost-per-headcount allocations are made, and hiring is closely monitored. But is this approach still viable in today's workplaces?

The latest data shows that it's not. A recent survey by Harvard Business Review Analytic Services found that for the vast majority of respondents, inadequate workforce planning has prevented them from meeting business goals. In fact, the majority of leaders surveyed (73 percent) have experienced talent gaps leading to missed business objectives as a result of poor workforce planning.

Deloitte's 2015 "Global Human Capital Trends" Report confirms this, with only 5 percent of HR professionals believing that their workforce planning process is "excellent," while one-third say it's "adequate" and nearly 60 percent call it "weak." Moreover, in a recent SilkRoad survey, 36% of the HR managers interviewed said that not having access to analytics that allow them to have a clear picture of their workforce is a major concern.

But while company leaders recognize the necessity of a carefully mapped-out workforce planning, they are not taking action to improve the situation.

> *"These results don't surprise me. (…) Only a small percentage of organizations do anything more than headcount planning."*

Karen O'Leonard, director of global client solutions at consultancy Towers Watson and former vice president of analytics at Bersin by Deloitte via

Workforce planning tools and strategies

Some companies have managed to stay ahead of the curve and acknowledge this challenge early on, which has allowed them to develop the tools and strategies to surpass it. By combining financial forecasts with headcount management and their talent acquisition pipeline, these companies have created their own models for workforce planning. Download our white paper on improving the employee experience using people analytics and see how you can leverage data to improve workforce planning.

California energy utility Pacific Gas & Electric Co., or PG&E, is one such example – they've successfully created workforce-planning platform that can help them predict any disruptions to the industry and minimize any negative impact on their business operations, in terms of talent management. Using the Human Capital Institute's strategic workforce planning certification program as a model, they created an eight modules software solution, designed to walk business-unit leaders through a workforce forecasting process (via TalentManagement).

Other companies have also started from a simple framework of questions and have continued to build on them until they got a viable tool or strategy. Data collection is the first step and it's usually a lengthy one. After collecting enough data regarding employment, attrition, necessary skills and performance metrics, most companies proceed to benchmarking them against ideal metrics and industry standards. Linking these metrics to specific behaviors and processes then enables them

to predict future trends and minimize financial losses.

Who owns the workforce planning process?

Throughout this process, there are several stakeholders involved, each with their specific role. While the HR function is primarily responsible for designing and implementing a workforce planning strategy, there's no doubt that executive leadership, finance, as well as line and functional managers are essential players.

Executive leadership is responsible for involving the entire C-Suite in setting business directions which will become a key part of the workforce planning process, just as the finance function should offer key insights into the financial implications of a company's talent management operations.

Functional, line and program managers, on the other hand, can offer valuable workforce insights such as required skills, experience and performance that both current and future talent acquisitions should meet.

Leveraging HR Analytics

Julia Howes at Mercer Workforce Analytics & Planning recommends that strategic workforce planning start with gaining strategic insights on organisation imperatives and talent implications for your company. This

analysis needs to be followed-up with a measurement of talent gap risks, meaning talent demand, workforce gaps and risks, and talent supply.

As you dive into modelling your talent management plan, you need to consider quantity, quality and location. Mercer's workforce analytics and planning model takes into account a talent development, talent acquisition, contingent workforce talent deployment and retention strategy, while also taking into account a possible change in business strategy triggered by the previous steps. Once this planning is done, you need to decide on the people practice and programmes to ensure talent attraction, retention, engagement, career development, performance management, rewards and recognition, leadership development and workforce mobility.

Sylvia Vorhauser-Smith, a global talent management consultant and Forbes contributor also advises on a series of key actions to help you run human capital and talent management strategies parallel to your business goals:

- "Make workforce planning and strategic business planning parallel processes.
- Ensure your leadership values data-driven decision-making and promotes a culture of objective transparency.
- Invest in a sophisticated data engine with analytical tools to generate meaningful workforce information.
- Combine internal, external, structured and social data to produce deep insights into talent availability and shortfalls.
- Hire HR specialists who are adept at data modelling, interpretation and forecasting."

via Forbes

All in all, it's important to keep in mind that while this is a long-term planning and implementation process, it's also prone to changes that can happen from one day to another. Workforce planning is a continuous process that is highly susceptible to changes in the market or in the talent pool, requiring CHROs to stay flexible in their decision making process. That can only happen if they have access to real-time data and analytics, which can guide them into taking the right decisions for both short-term success and long term growth.

PREDICTIVE ANALYSIS:

Predictive analytics is the use of data, statistical algorithms and machine learning techniques to identify the likelihood of future outcomes based on historical data. The goal is to go beyond knowing what has happened to providing a best assessment of what will happen in the future.

Predictive Analytics History & Current Advances

Though predictive analytics has been around for decades, it's a technology whose time has come. More and more organizations are turning to predictive analytics to increase their bottom line and competitive advantage. Why now?

Growing volumes and types of data, and more interest in using data to produce valuable insights.
Faster, cheaper computers.
Easier-to-use software.
Tougher economic conditions and a need for competitive differentiation.

With interactive and easy-to-use software becoming more prevalent, predictive analytics is no longer just the domain of mathematicians and statisticians. Business analysts and line-of-business experts are using these technologies as well.

Predictive Analytics in Today's World

With predictive analytics, you can go beyond learning what happened and why to discovering insights about the future. Learn how predictive analytics shapes the world we live in.

Putting predictive analytics to good use

This Harvard Business Review Insight Center Reportfeatures

25 articles focusing on how to use predictive analytics in decision making and planning.

How can predictive analytics add validity to your marketing efforts?

Learn how marketing attribution adds the science and removes the sorcery from your marketing efforts by replacing assumptions and arbitrary models with data and analytics.

Best practices for better predictive modeling results

Managing and coordinating all steps in the analytical process can be complex. Learn how to go step-by-step and achieve better, more reliable results.
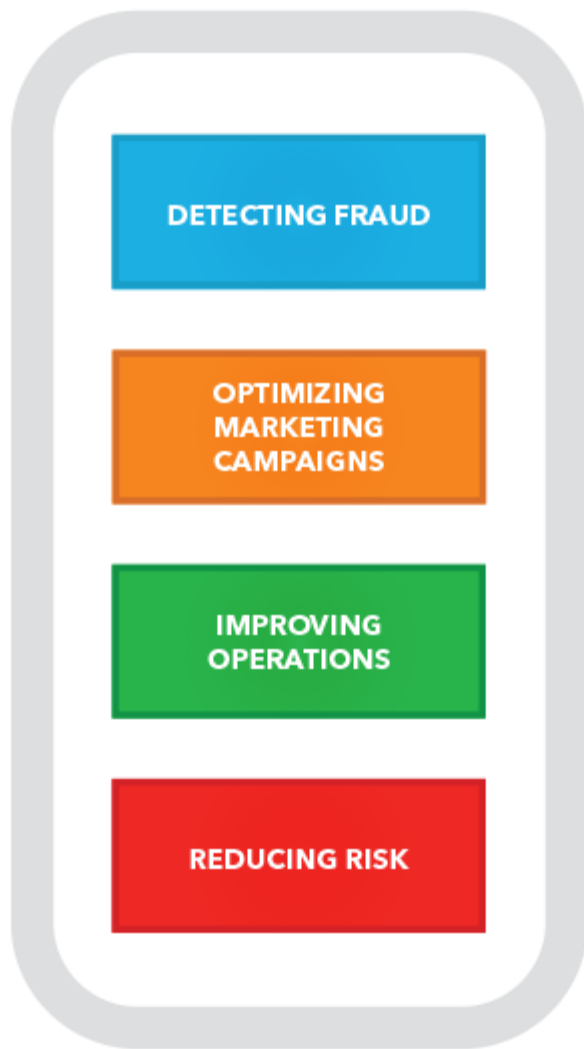
Why is predictive analytics important?

Organizations are turning to predictive analytics to help solve difficult problems and uncover new opportunities. Common uses include:

Detecting fraud. Combining multiple analytics methods can improve pattern detection and prevent criminal behavior. As cybersecurity becomes a growing concern, high-performance behavioral analytics examines all actions on a network in real time to spot abnormalities that may indicate fraud, zero-day vulnerabilities and advanced persistent threats.

Optimizing marketing campaigns. Predictive analytics are used to determine customer responses or purchases, as well as promote cross-sell opportunities. Predictive models help businesses attract, retain and grow their most profitable customers.

Improving operations. Many companies use predictive models to forecast inventory and manage resources. Airlines use predictive analytics to set ticket prices. Hotels try to predict the number of guests for any given night to maximize occupancy and increase revenue. Predictive analytics enables organizations to function more efficiently.

Reducing risk. Credit scores are used to assess a buyer's likelihood of default for purchases and are a well-known example of predictive analytics. A credit score is a number generated by a predictive model that incorporates all data relevant to a person's creditworthiness. Other risk-related uses include insurance claims and collections.

Who's using it?

Any industry can use predictive analytics to reduce risks, optimize operations and increase revenue. Here are a few examples.

Banking & Financial Services

The financial industry, with huge amounts of data and money at stake, has long embraced predictive analytics to detect and reduce fraud, measure credit risk, maximize cross-sell/up-sell opportunities and retain valuable customers. Commonwealth Bank uses analytics to predict the likelihood of fraud activity for any given transaction before it is authorized – within 40 milliseconds of the transaction initiation.

Retail

Since the now infamous study that showed men who buy diapers often buy beer at the same time, retailers everywhere are using predictive analytics for merchandise planning and price optimization, to analyze the effectiveness of promotional events and to determine which offers are most appropriate for consumers. Staples gained customer insight by analyzing behavior, providing a complete picture of their customers, and realizing a 137 percent ROI.

Oil, Gas & Utilities

Whether it is predicting equipment failures and future resource needs, mitigating safety and reliability risks, or improving overall performance, the energy industry has embraced predictive analytics with vigor. Salt River Project is the second-largest public power utility in the US and one of Arizona's largest water suppliers. Analyses of machine sensor data predicts when power-generating turbines need maintenance.

Governments & the Public Sector

Governments have been key players in the advancement of computer technologies. The US Census Bureau has been analyzing data to understand population trends for decades. Governments now use predictive analytics like many other industries – to improve service and performance; detect and prevent fraud; and better understand consumer behavior. They also use predictive analytics to enhance cybersecurity.

Health Insurance

In addition to detecting claims fraud, the health insurance industry is taking steps to identify patients most at risk of chronic disease and find what interventions are best. Express Scripts, a large pharmacy benefits company, uses analytics to identify those not adhering to prescribed treatments, resulting in a savings of $1,500 to $9,000 per patient.

Manufacturing

For manufacturers it's very important to identify factors leading to reduced quality and production failures, as well as to optimize parts, service resources and distribution. Lenovo is just one manufacturer that has used predictive analytics to better understand warranty claims – an initiative that led to a 10 to 15 percent reduction in warranty costs.

How It Works

Predictive models use known results to develop (or train) a model that can be used to predict values for different or new data. Modeling provides results in the form of predictions that represent a probability of the target variable (for example, revenue) based on estimated significance from a set of input variables.

This is different from descriptive models that help you understand what happened, or diagnostic models that help you understand key relationships and determine why something happened. Entire books are devoted to analytical methods and techniques. Complete college curriculums delve deeply into this subject. But for starters, here are a few basics.

There are two types of predictive models. Classification models predict class membership. For instance, you try to classify whether someone is likely to leave, whether he will respond to a solicitation, whether he's a good or bad credit risk, etc. Usually, the model results are in the form of 0 or 1, with 1 being the event you are targeting. Regression models predict a number – for example, how much revenue a customer will generate over the next year or the number of months before a component will fail on a machine.

Three of the most widely used predictive modeling techniques are decision trees, regression and neural networks.

Regression (linear and logistic) is one of the most popular method in statistics. Regression analysis estimates relationships among variables. Intended for continuous data that can be assumed to follow a normal distribution, it finds key patterns in large data sets and is often used to determine how much specific factors, such as the price, influence the movement of an asset. With regression analysis, we want to predict a number, called the response or Y variable. With linear regression, one independent variable is used to explain and/or predict the outcome of Y. Multiple regression uses two or more independent variables to predict the outcome. With logistic regression, unknown variables of a discrete variable are predicted based on known value of other variables. The response variable is categorical, meaning it can assume only a limited number of values. With binary logistic regression, a response variable has only two values such as 0 or 1. In multiple logistic regression, a response variable can have several levels, such as low, medium and high, or 1, 2 and 3.
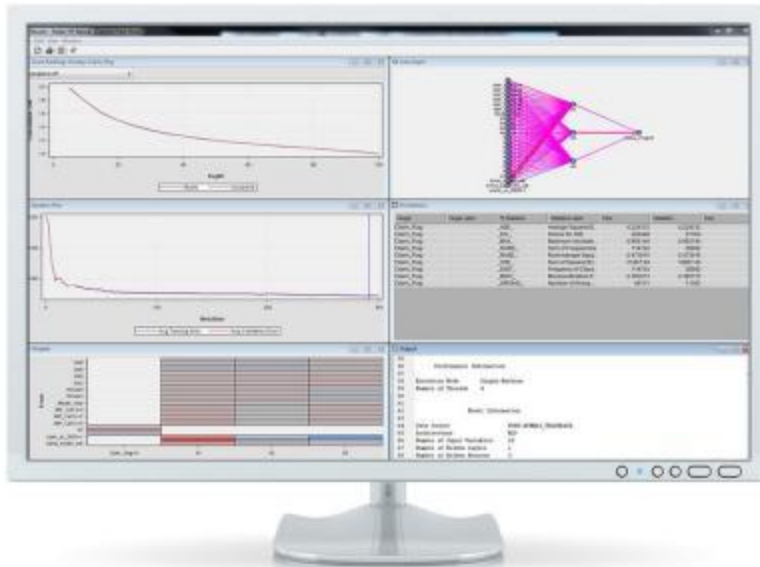
Decision trees are classification models that partition data into subsets based on categories of input variables. This helps you understand someone's path of decisions. A decision tree looks like a tree with each branch representing a choice between a number of alternatives, and each leaf representing a classification or decision. This model looks at the data and tries to find the one variable that splits the data into logical groups that are the most different. Decision trees are popular because they are easy to understand and interpret. They also handle missing values well and are useful for preliminary variable selection. So, if you have a lot of missing values or want a quick and easily interpretable answer, you can start with a tree.
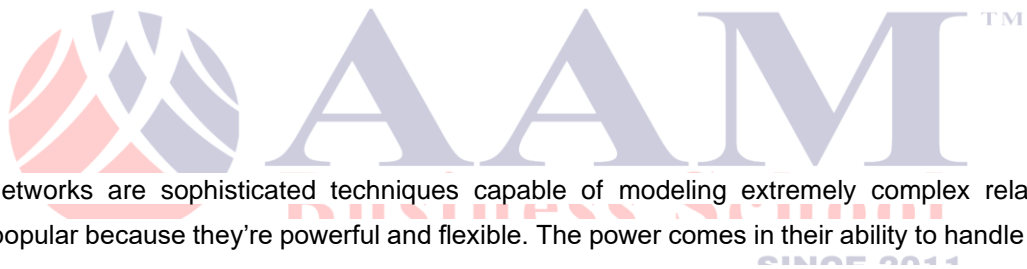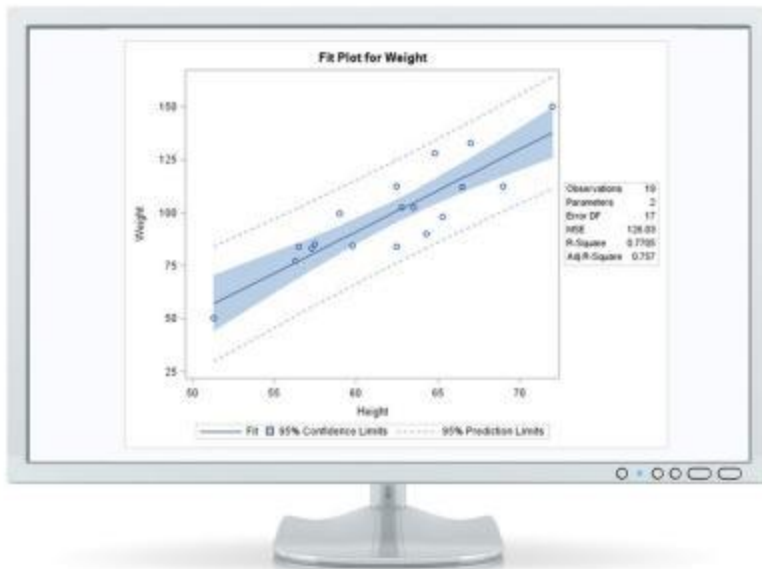
Neural networks are sophisticated techniques capable of modeling extremely complex relationships. They're popular because they're powerful and flexible. The power comes in their ability to handle nonlinear relationships in data, which is increasingly common as we collect more data. They are often used to confirm findings from simple techniques like regression and decision trees. Neural networks are based on pattern recognition and some AI processes that graphically "model" parameters. They work well when no mathematical formula is known that relates inputs to outputs, prediction is more important than explanation or there is a lot of training data. Artificial neural networks were originally developed by researchers who were trying to mimic the neurophysiology of the human brain.

Other Popular Techniques You May Hear About

Bayesian analysis. Bayesian methods treat parameters as random variables and define probability as "degrees of belief" (that is, the probability of an event is the degree to which you believe the event is true). When performing a Bayesian analysis, you begin with a prior belief regarding the probability distribution of an unknown parameter. After learning information from data you have, you change or update your belief about the unknown parameter.

Ensemble models. Ensemble models are produced by training several similar models and combining their results to improve accuracy, reduce bias, reduce variance and identify the best model to use with new data.

Gradient boosting. This is a boosting approach that resamples your data set several times to generate results that form a weighted average of the resampled data set. Like decision trees, boosting makes no assumptions about the distribution of the data. Boosting is less prone to overfitting the data than a single decision tree, and if a decision tree fits the data fairly well, then boosting often improves the fit. (Overfitting data means you are using too many variables and the model is too complex. Underfitting means the opposite – not enough variables and the model is too simple. Both reduce prediction accuracy.)

Incremental response (also called net lift or uplift models). These model the change in probability caused by an action. They are widely used to reduce churn and to discover the effects of different marketing programs.

K-nearest neighbor (knn). This is a nonparametric method for classification and regression that predicts an object's values or class memberships based on the k-closest training examples.

Memory-based reasoning. Memory-based reasoning is a k-nearest neighbor technique for categorizing or predicting observations.

Partial least squares. This flexible statistical technique can be applied to data of any shape. It models relationships between inputs and outputs even when the inputs are correlated and noisy, there are multiple outputs or there are more inputs than observations. The method of partial least squares looks for factors that explain both response and predictor variations.

Principal component analysis. The purpose of principal component analysis is to derive a small number of independent linear combinations (principal components) of a set of variables that retain as much of the information in the original variables as possible.

Support vector machine. This supervised machine learning technique uses associated learning algorithms to analyze data and recognize patterns. It can be used for both classification and regression.

Time series data mining. Time series data is time-stamped and collected over time at a particular interval (sales in a month, calls per day, web visits per hour, etc.). Time series data mining combines traditional data mining and forecasting techniques. Data mining techniques such as sampling, clustering and decision trees are applied to data collected over time with the goal of improving predictions.

What do you need to get started using predictive analytics?

Learn more about making the analytical life cycle work for you

The first thing you need to get started using predictive analytics is a problem to solve. What do you want to know about the future based on the past? What do you want to understand and predict? You'll also want to consider what will be done with the predictions. What decisions will be driven by the insights? What actions will be taken?

Second, you'll need data. In today's world, that means data from a lot of places. Transactional systems, data collected by sensors, third-party information, call center notes, web logs, etc. You'll need a data wrangler, or someone with data management experience, to help you cleanse and prep the data for analysis. To prepare the data for a predictive modeling exercise also requires someone who understands both the data and the business problem. How you define your target is essential to how you can interpret the outcome. (Data preparation is considered one of the most time-consuming aspects of the analysis process. So be prepared for that.)

step

3

After that, the predictive model building begins. Increasingly easy-to-use software means more people can build analytical models. But you'll still likely need some sort of data analyst who can help you refine your models and come up with the best performer. And then you might need someone in IT who can help deploy your models. That means putting the models to work on your chosen data – and that's where you get your results.

step

4

Predictive modeling requires a team approach. You need people who understand the business problem to be solved. Someone who knows how to prepare data for analysis. Someone who can build and refine the models. Someone in IT to ensure that you have the right analytics infrastructure for model building and deployment. And an executive sponsor can help make your analytic hopes a reality.

MODULE 4

Big data

What is big data?

Big data is traditionally characterized by four elements, also called the four V's.

1. Volume: Big Data needs to be big. And we mean really big. We're not talking about gigabytes, we are talking about terabytes and petabytes. The 'big' in big data represents millions and millions of cells in your Excel sheet. In fact, it's often so large that it wouldn't even fit in Excel in the first place.
2. Velocity: Big data is not static, it has a certain momentum. It is constantly collecting new data. Take twitter data as an example: large amounts of data represent hundreds of tweets and retweets a second.
3. Variety: Big data has a certain variety. We are not only talking about nicely structured data (data that's ordered in neat columns and rows). We are also talking about unstructured data (like the data in your average email).
4. Veracity: Big data is messy and can't always be trusted. Quality and accuracy are not always present in a large data. Data cleaning is part of the process of analyzing big data. However, because of the large quantity of data some of these little errors can be nullified. The large quantity of data thus makes up for the decrease in reliability of individual data points.

Bernard Marr adds a fifth V: Value. Having access to big data is no good unless you can turn it into value!

How big data applies to HR

There are different opinions about whether big data really applies to HR. The simple answer is: it does.

However, the more nuanced answer is: it depends. There's a reason why HR professionals are not really data-savvy: the amount of data they work with is limited. Let's see what HR data looks like when taking McKinsey's and Marr's five V's for big data into account:

1. HR has access to a large variety of data. Systems containing employee data, pay information, engagement scores etc. are all examples of structured data. Things like performance reviews and email content can contain interesting information for analysis – and they are oftentimes unstructured.

2. In terms of veracity, HR data is often quite messy and unreliable. Data like someone's career history within the organization is often missing: the old date is simply over written. In addition, numerous reorganizations and restructuring efforts make it hard to keep track of how long someone stayed in a function. An example: How do you know that someone has kept the same responsibilities when his job's function title has changed two times in the last 3 years?

3. Overall, the volume of data in HR is quite low. I haven't seen a large database with employee records exceed a few gigabytes. This is not necessarily a bad thing but it makes HR data the exception. Usually big data is… bigger. However, for the average HR professional, a few gigabytes of data is already quite something!

4. The velocity of data in HR is also quite low. HR data is generally quite static. Records are only changed when someone switches functions or when different departments are shuffled. Other than that, the data remains mostly static.

5. HR data most definitely holds value. When leveraged the right way it can be used to uncover workforce risks, make better people decisions and help in building a competitive advantage for the firm.

Does big data apply to HR?

Again, I think it does. HR analytics is a way to generate valuable insights into the workforce. This can be done through the use of datasets that are larger than most HR professionals have ever worked with. That is the essence of big data in HR.

BIG DATA

Data treatment and transformation

Examples of big data in HR

Let's take Natural Language Processing and combine this with HR. Most HR departments are sitting on large piles of unanalyzed, written performance reviews. You can use Natural Language Processing to analyze these reviews to create employee competency profiles or automatically generate performance scores for both employees and managers.

You can also use this to, for example, do a sentiment analysis in email traffic. Can you measure engagement through analysis of email messages? This is tricky to do but could yield very interesting people insights.

Keencorp is an example of an organization that has been doing this for the past few years. They claim to be able to predict employee's engagement and attitudes in different groups by scanning email data.

Relationship of big data with HR analytics

Whenever we talk about predicting employee turnover or the number of HR self-service tickets to optimize handling time we are working with large quantities of data that help us generate new workforce insights. This means that big (HR) data is the input for HR analytics.

Business intelligence

What is business intelligence?

According to Gartner, business intelligence is an umbrella term that includes the application, infrastructure and tools, and best practices that enable access to and analysis of information to improve and optimize decisions and performance.

Organizational data is often stored in different, separate systems. These systems do not communicate with each other. This means that your sales data is not normally combined with your inventory data or your site visitors.

Tools combining this data can show you which customers actually bought something (combining site data with sales data), or what items sell best (combining inventory with sales data). These are great examples of business intelligence tools.

How business intelligence applies to HR

Similar to our sales example, business intelligence can also be used for HR data. Your Applicant Tracking System and your performance management system are usually not combined. This prevents you from analyzing which hires perform best.

Business intelligence (BI) tools (see the example below) can help you combine this data. After combining this data, it will be much easier to do three things.

1. Aggregating data: Most HR reporting consists of ad-hoc reporting. Different extracts are manually combined. BI tools help in the aggregation of data and enable automated reporting.
2. Visualizing data: Most HR systems are transactional systems that generate transactional data. Transaction data describe an event using a time dimension and a value which refers to one or more objects. See the example below: the candidate is hired on a certain date and the employee's contract is terminated on a certain date. Both actions are recorded as separate entries (transactions) in the system.

Date	Employee_ID	Action
01/01/2017 09:56:12 AM	57	Employee profile created
01/06/2017 17:32:51 AM	57	Employee status: Terminated

1. These systems are build to keep records, not to report or visualize data. BI tools are really good at aggregating data from multiple systems and visualizing it.
2. Analyze data: The final step is data analytics. BI tools are much better at analyzing data than your average HR-system. Examples are Power BI and SAS. They enable you to statistically analyze large quantities of data.

In short, BI tools are made to aggregate, visualize, analyze, and report data. In the clip below, you will find a brief explanation of the difference between BI and people analytics.

Examples of Business intelligence tools

A few of the best known BI tools in HR are Qlik, Visier, Tableau, and Power BI.

- Visier brands itself as a workforce analytics solution with a similar application. It aggregates data from various systems and helps in the analysis of this data.
- Qlik and Tableau both brand themselves as data visualization tools that serves as connectors to all your information systems.
- Microsoft's Power BI will feel more natural to analysts who are used to working in Excel. Power BI is particularly useful when a lot of your reporting happens in Excel. We included Power BI in our HR analyst course as it is easy to use. Check out the course if you haven't already!

CHALLENGERS		LEADERS

Tableau
Qlik
Microsoft

Birst
SAS · Alteryx
SAP
MicroStrategy

Domo
GoodData
Salesforce
Board International
Sisense
Pyramid Analytics
Information Builders

Logi Analytics · IBM
ClearStory Data
Pentaho
TIBCO Software

Yellowfin
Platfora
Datawatch

BeyondCore

ABILITY TO EXECUTE

NICHE PLAYERS · VISIONARIES

COMPLETENESS OF VISION

As of February 2016

Relationship of big data with HR analytics

A lot of the business intelligence tools do what most people refer to as HR analytics. However, in reality, this is slightly more complicated.

BI tools in HR are very good at connecting different systems, visualizing data and assisting in reporting on this data.

However, these tools are not so good in doing actual data analytics (the real HR analytics). Software packages that specialize in doing these analytics, like SPSS and R do this much better. If you're interested to read more about these and other tools, check our overview of the 5 top HR analytics tools.
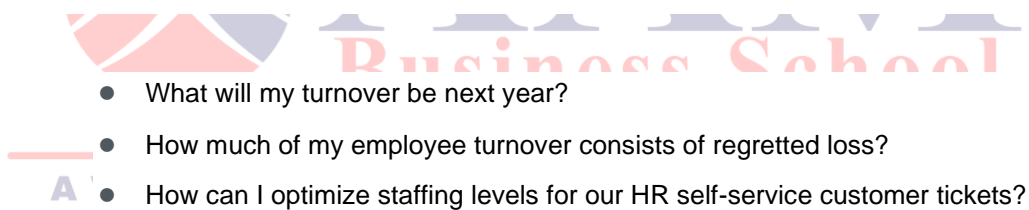
Technically, these tools could fit into the 'business intelligence' category. They are, however, usually seen as stand-alone tools.

This is because the analytics process requires a well-defined research question that is specific to the organization's context, culture and data quirks. This is very hard to automate in a BI system – and that's why the real analyses in HR are done manually by data experts.

What is HR analytics?

HR analytics is the systematic identification and quantification of people drivers of business outcomes. In other words, it is a data-driven approach towards Human Resource Management.

HR analytics enables us to give an answer to questions like:

- What will my turnover be next year?
- How much of my employee turnover consists of regretted loss?
- How can I optimize staffing levels for our HR self-service customer tickets?
- What factors drive employee turnover?
- What are my biggest workforce risks?
- Et cetera

I can go on and on about HR analytics but for more details, you are better off reading our blog What is HR analytics?

How it is applied in HR

Examples of HR analytics include Keencorp and predictive employee turnover analytics. A great

overview of applications of predictive analytics in HR can be found here.

How HR analytics relates to big data and business intelligence

As you understand now, big data and business intelligence are generic business terms. Applied to HR, they form the basics of HR data analytics.

There is some discussion about whether the slice-and-dice kind of analyses that characterize a lot of business intelligence applications falls into the HR analytics category. Some experts claim that the term HR analytics should only be used when we talk about advanced analytics, like the more complicated predictive analytics.

Others, including myself, have a broader definition of HR analytics: HR analytics is data-driven people management. I think BI applications are a fundamental part of HR analytics as it will help to connect data sources and generates insights for HR professionals through integrated reporting on HR data.

Conclusion

This review on how big data and business intelligence relate to HR analytics turned out longer than expected. But that's no problem, it's important to know the difference between the different terms.

Even though these terms are oftentimes used as buzz words, you can now define how they can add value to your organization. Big data, business intelligence, and HR analytics are all part of one big family: a more data-driven approach to Human Resource Management!

What Big Data Is and How It Relates to HR Analytics

In a way that is easy to remember, Big Data is something that can be best described by "the 4 Vs": Volume, Velocity, Variety, and Veracity.

Even though in terms of volume and velocity, HR data score relatively low, HR does have access to a large variety of both structured – for example employee data, pay information, and engagement scores and unstructured data, such as performance reviews and email content. Likewise, in terms of veracity, HR data can be quite messy and rather unreliable. Most importantly, however, HR data most definitely holds value, which, when leveraged appropriately, it can uncover workforce risks, make better people decisions and help in building a competitive advantage for the firm.

More specifically, however, the point of intersection between Big Data and HR analytics is marked by whenever we talk about predicting employee turnover or the number of HR self-service tickets to optimize handling time we are working with large quantities of data that help us generate new workforce insights. This means that Big (HR) Data is the input for HR analytics.

TRANSFORMING HR DATA INTO INFORMATION

Big Data in HR

With the growing amounts of employee, customer, and transactions, Human Resources are compelled to divert themselves towards the newer technologies to aid faster decision-making amid a volatile business environment. A huge amount of talent or people-related data ranging from skills to performance ratings, age, tenure, safety record, sales performance, educational background, manager, prior roles, and so forth! Understanding these aspects can assist in knowing the current composition, performance, and risk to improve the development of employees, products, and services. With such a huge bunch of data resources, HR professionals can evaluate and enhance practices including recruitment, training and development, performance, compensation, and overall business performance.

Now when it's about converting data into useful information: all you require doing is follow these three steps procedure

1. Predictive analysis- As the name implies, it is the clear attempt to forecast what could happen in the future based on past data.
2. Analysis and monitoring- Gathering data related to why events have happened and what is happening now
3. Reporting- Outlining what has happened in a clear way that can be used for comparison in the future.

Some of the standard HR metrics include recruitment, compensation and benefits, training, workforce, organization effectiveness, retention, performance/ career management and so forth. Further below I would like to mention a few pointers stating how big data impacts Human Resource Management.

#1 Hiring process streamlined- Salaries, the value of sales data, and benefits packages and such data are quite easy to collect. With the emergence of big data in the field of HR, gathering and examining data after, during, and before the process of hiring becomes relatively easy. As a result, organizations are able to make smarter hiring decisions and develop a more efficient workforce. Have you heard about the Talent acquisition software- it allows teams to collect and store information of the relevant candidates with an

attractive benefits package that is tailored perfectly for their needs. In addition to this, one can also monitor and track the efficiency of recruitment efforts. This allows HR teams to come up with highly efficient recruitment strategies that yield top-tier candidates. Being a functional business unit, it is always advisable to do more with less; shortening the power to recruitment costs by making the hiring process effective and appealing.

#2 Enhancing Employee Motivation and Engagement- It may quite interest you to know that by tracking the activity of employees, HR can locate and reward the top performers. In case of ineffective behavior and violations of policies or expected standards, activities that always impact the growth of a company in some way- these stats can aid professionals in taking prompt action at the right time.

Data analysis can also disclose if any employee is facing performance issues. For example- extra training can be implemented to boost that candidate in particular. After all, every employee requires job satisfaction and creating a win-win situation you can leverage their talent and skills in such a way that benefits them as well as business.

#3 Appropriate Resource Utilization- Currently looking at the present scenario, human capital management seems into big focus. Those who make effective use of their resources can attain much more than their competitors. For instance, if someone lacks in scheduling, other professionals might face hardships by not arriving within the scheduled service window.

Big data allows HR to leverage data for better resource utilization and workforce management. Starting from the tools that enable data-driven scheduling to dispatching to the ones that help balance the tasks as well as generate adequate revenue. It is all about improving efficiency in the modern enterprise.

#4 Increased Employee Retention- Satisfying employees means you are directly experiencing high employee turnover. Being an HR, one can easily locate patterns and trends, implement data-driven programs; this will eventually lead to improvement in loyalty and won't allow employees to leave the organization.

Overall, big data isn't just a tool – it is a strategic opportunity that is highly valuable. People happen to be driving force in any business- make the most of it, and big data enables you to achieve this.

#5 Futurecasting- Last but certainly not the least, Futurecasting from global to political views can change the fate of your business. Try using predictive analytics and use that information to make sound and insightful recommendations. So, it's time to improve HR solutions- time to invest in big data technology!

PROCESS OF DATA COLLECTION IN HR ANALYTICS

A question we commonly hear is "what are data sources that can be used for analytics?" In this article, we will list a number of common data sources in HR and the broader business that will be helpful in your people analytics efforts.

HR data sources can be categorized into three groups.

- HRIS data. Data from the company's Human Resources Information System, or HRIS, includes most of the company's data about its employees. Common examples of HRIS systems include Workday, Oracle, and SAP.
- Other HR data. Some HR data is essential for data-driven decision making but is not included in the HRIS. This data is often acquired through surveys or other measurement techniques.
- Business data. Although it is impossible to cover business data exhaustively, it plays an increasingly important role in people analytics. We will touch on the most essential business data used for people analytics.

This is not an exhaustive list. If you feel we've missed some, please add them in the comments and we will update the article accordingly!

HR DATA SOURCES

HRIS data			
Recruiting	Demographic data	Performance management	CRM data
Learning management	Job architecture	Compensation & benefits	Financial data
Succession planning	Talent development	Exit interview	Production management data
Learning	Travel	Mentoring	Sales data
Employee survey data	Wellbeing and wellness	Absence data	Other sources

HRIS data — **Other HR data** — **Business data**

HRIS Data Sources

The company's HRIS contains data on the most common HR functions including recruitment, performance management, and talent management. Although the modules in the HRIS differ from company to company, there is often a common group of modules that contain data useful for people analytics.

Recruiting. Recruiting data gathered from the Applicant Tracking System (ATS) is the first common data source in the HRIS. This includes the number of candidates who applied, their CVs and other characteristics, as well as data about the recruitment funnel, recruitment sources, selection, and so on. This system is the most common input for recruiting metrics.

Demographic data. Another key data source is HRIS employee records. This includes the employee ID, name, gender, date of birth, residence, position, department, cost center specifications, termination date, and so on. These demographic data are often included in an analysis as control variables. Also, when data is combined manually, this is often the database that is enriched with data from other systems by matching the employee's ID as a unique identifier.

Performance management. The performance management system (PMS) is part of the HRIS and contains information about performance management. This includes employee reviews and performance ratings. For more information, check our full guide on performance management.

Learning management. The learning management system (LMS) is another source of HR information. The LMS contains a course offering and registers employee's progress through different programs. Not all learning data is stored in the LMS. Often finance holds the information of expenditure on external courses while learning impact and effectiveness is often measured using surveys. For more information, check our full guide on learning & development.

Job architecture. Job architecture, also referred to as global grading or job leveling, is a framework that serves as a foundation for remuneration. Different roles are put into salary scales that have bands and grades with maximum reward levels. Different roles apply to different salary scale levels. The example below shows the salary scales as displayed in the collective labor agreement for Dutch universities. Function scale H2 and H1 are reserved for full university professors meaning that their salaries range from €5582 – €9812. Commercial companies often have these salary scales and job architecture as part of their HRIS.

GRADE	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	H2	H1	P	SA	TOIO
0	1.681	1.716	1.750	1.791	1.858	1.992	2.261	2.579	2.835	2.709	3.637	4.406	5.039	5.294	5.740	6.218	6.738	7.401	5.582	6.218	2.325	0	1.913
1	1.750	1.791	1.791	1.825	1.939	2.049	2.325	2.709	2.972	2.835	3.773	4.534	5.170	5.421	5.898	6.385	6.953	7.635	5.740	6.385	2.709	0	
2	1.825	1.858	1.858	1.899	2.049	2.194	2.452	2.835	3.123	2.972	3.895	4.660	5.294	5.582	6.056	6.559	7.175	7.877	5.898	6.559	2.835	2.049	
3	1.858	1.939	1.939	1.992	2.194	2.325	2.579	2.972	3.255	3.123	4.018	4.790	5.421	5.740	6.218	6.738	7.401	8.127	6.056	6.738	2.972	2.194	
4	1.899	1.992	2.049	2.122	2.261	2.390	2.644	3.052	3.389	3.255	4.138	4.911	5.582	5.898	6.385	6.953	7.635	8.389	6.218	6.953		2.390	
5	1.939	2.049	2.122	2.194	2.325	2.452	2.709	3.123	3.514	3.389	4.274	5.039	5.740	6.056	6.559	7.175	7.877	8.652	6.385	7.175			
6	1.992	2.122	2.194	2.261	2.390	2.516	2.770	3.187	3.637	3.514	4.406	5.170	5.898	6.218	6.738	7.401	8.127	8.929	6.559	7.401			
7		2.194	2.261	2.325	2.452	2.579	2.835	3.255	3.773	3.637	4.534	5.294	6.056	6.385	6.953	7.635	8.389	9.215	6.738	7.635			
8			2.325	2.390	2.516	2.644	2.902	3.327	3.895	3.773	4.660	5.421	6.133	6.559	7.175	7.877	8.652	9.508	6.953	7.877			
9			2.390	2.452	2.579	2.709	2.972	3.389		3.895	4.790	5.582		6.738	7.401	8.127	8.929	9.812	7.175	8.127			
10				2.516	2.644	2.770	3.052	3.445		4.018	4.911	5.656							7.401	8.389			
11										4.138	4.978								7.635	8.652			
12										4.274									7.877	8.929			
13																			8.127	9.215			
14																				9.508			
15																				9.812			

SALARY SCALES AS FROM 01-02-2019 — FUNCTION SCALES

Compensation & benefits. To keep employees engaged, they are compensated. Compensation and benefits data are also stored in the HRIS. These include remuneration details but also secondary benefits. For more information, check our full guide on compensation and benefits.

Succession planning. Succession planning schemes are also part of the HRIS. The amount of data depends on the maturity of the organization's succession planning practices. Example data includes leadership development data, managerial bench strength, and data about which people are next in line for positions.

Talent development. Talent development data is a bit of a weird one out. Talent programs often consist of courses and workshops that are often included in the learning management system. However, the broader approach to developing talent is another key piece of information that can be retrieved from the HRIS.

Exit interview. Depending on the organization, exit interview information may also be stored in the HRIS. This provides information on the reasons why employees have left the organization. This data can be used for analyses aimed at reducing employee turnover.

Other HR data

In our categorization, other HR data sources are HR data that are not commonly stored in the HRIS. This is often because data is hard to collect using regular methods.

Learning. Our first example is learning data. Data on learning effectiveness and learning program evaluation is often stored separately from the LMS and is managed by the learning department. Often, this data is stored in excel spreadsheets and survey collection tools. Integrating this data into a broader HR reporting and insights database is an early priority for organizations that are starting to work on learning analytics or try to advance their reporting.

Travel. Travel data is another source of important data. The number of times someone travels internationally is a potential predictor of employee turnover. However, this kind of data is not stored in the traditional HRIS.

Mentoring. Mentoring is a key practice for high potentials and often forms part of talent and leadership development programs. Mentorship can make mentees more effective, stay longer, and more eligible to advance to a more senior role.

Employee survey data. This is more of a category in itself. A big part of HR data is collected through surveys. This can range from a poll on the quality of food in the cafeteria, a survey by the CEO about his popularity, and the traditional engagement survey. Most companies send out surveys in a decentralized way, leading to survey data being scattered in the organization and survey fatigue. Collecting all this data in one place helps to provide better insight into employee survey data.

Engagement survey. The engagement survey is sometimes part of the employee survey data bank we mentioned before. However, often engagement surveys are collected by a third party to guarantee anonymity. Although this greatly reduces your data capturing potential, it does mean that the engagement survey is a separate data source. For more information, check our full guide on <u>measuring employee engagement</u>.

Absence data. Recorded absence data is another key HR data category. Sick days are usually tracked by managers and recorded in a system. Some organizations also record absence reasons.

Similarly, holidays, maternity leave, and lateness data are also captured.

Wellbeing and wellness. Depending on the organization, there may be records available around (participation in) <u>employee wellness programs</u>. This serves as another data source that is not captured in the HRIS.

Social network data. Data on organization social networks also referred to as organizational network analysis (ONA) can be another great source of information. Potential data sources for this are network surveys, email accounts, phone records, or any other system that reports network data.
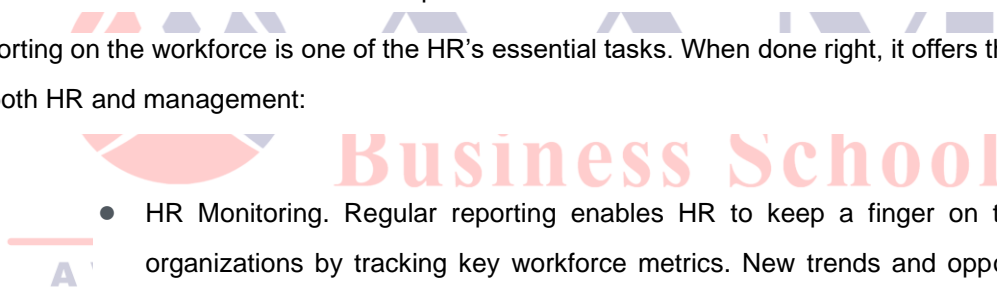
What is HR reporting and analytics?

A human resources report is a document with metrics and insights for the performance of an HR department. Common metrics include churn rate and cost-per-hire. The report helps organizations track progress and identify opportunities to improve the human resource function.

The Human Resource dashboard and HR report are an important part of managing Human Resources. Both tools are part of HR reporting and for the basics of informed decision making. Why? Because it is hard to make informed decisions when HR business partners and other stakeholders lack insight into their own organization. Never fear, HR reporting can solve this! How? Well, that's what this article is all about.

Here, we'll explore the advantages of an HR report as well as the data and metrics which could be included therein. I'll also include an interactive report and a few HR dashboard templates to provide you with some practical insights in how to get yourself started.

3 Functions of an Human Resources Report

Reporting on the workforce is one of the HR's essential tasks. When done right, it offers three key benefits for both HR and management:

- HR Monitoring. Regular reporting enables HR to keep a finger on the pulse of the organizations by tracking key workforce metrics. New trends and opportunities can be spotted early on and emerging problems can be addressed before they significantly impact the business.
- Management information. An HR report can also help managers in doing their job better. An HR report can inform managers about relevant developments in their teams and
- department. When, for example, the marketing department struggles with high turnover and a high time-to-hire, managers will be more likely to put emphasis on retaining employees and will be aware of risks like longer replacement times when someone is about to leave.
- Track problem areas. HR reporting also offers a great way to track key problem areas in a transparent way. Transparency in turnover rates per manager will encourage them to pay closer attention to retaining employees because their own reputation is on the line! By tracking problem areas, HR can leverage its position to drive improvements.

How to create an Human Resource Report

Before you start to create your HR report, there are a few considerations to be made about the 'how' and 'when'.

Automated vs. manual

A lot of organizations still work with ad-hoc data reports. For example, when a manager or director

wants to know something about the organization's workforce, they ask HR to send them a report. After this request, the HR data department will work overtime to produce this report. This is an example of (inefficient and) reactive reporting. HR reports should be deployed (pro)actively and should, therefore, be automated.

Static vs. dashboard

In line with the previous point, there's still a fair amount of organizations that work with manual/paper reports. This isn't necessarily bad: When the information isn't prone to change, paper reports can be quite effective.

In addition, an email containing a report might be more likely to be seen than an infrequent update on an HR dashboard. This is simply because people won't use dashboards that don't constantly add value, like David Creelman described in his blog on Why you produce HR dashboards no one will use.

An HR dashboard, however, offers the possibility to drill down. Turnover may be an interesting metric, but how much of this turnover consists of regretted loss? You wouldn't bat an eye when a bad performer leaves, but it's like shooting yourself in the foot when the one who leaves is a high performer and potentially senior management material. Interactive dashboards enable you to drill down into your data and make these observations. You can either give everyone access to this dashboard or provide the relevant drill downs for everyone to see.

Where the previous dashboards offer simple drill-downs, more advanced dashboards enable you to predict the future through the predictive power of machine learning algorithms. This gives insights into how

employees will behave, for example, which employees are at risk of quitting. This information could potentially be of great strategic value.

Note: in this case, the dashboard is merely the means of displaying the information. The predictions are made using specialized analytics tools.
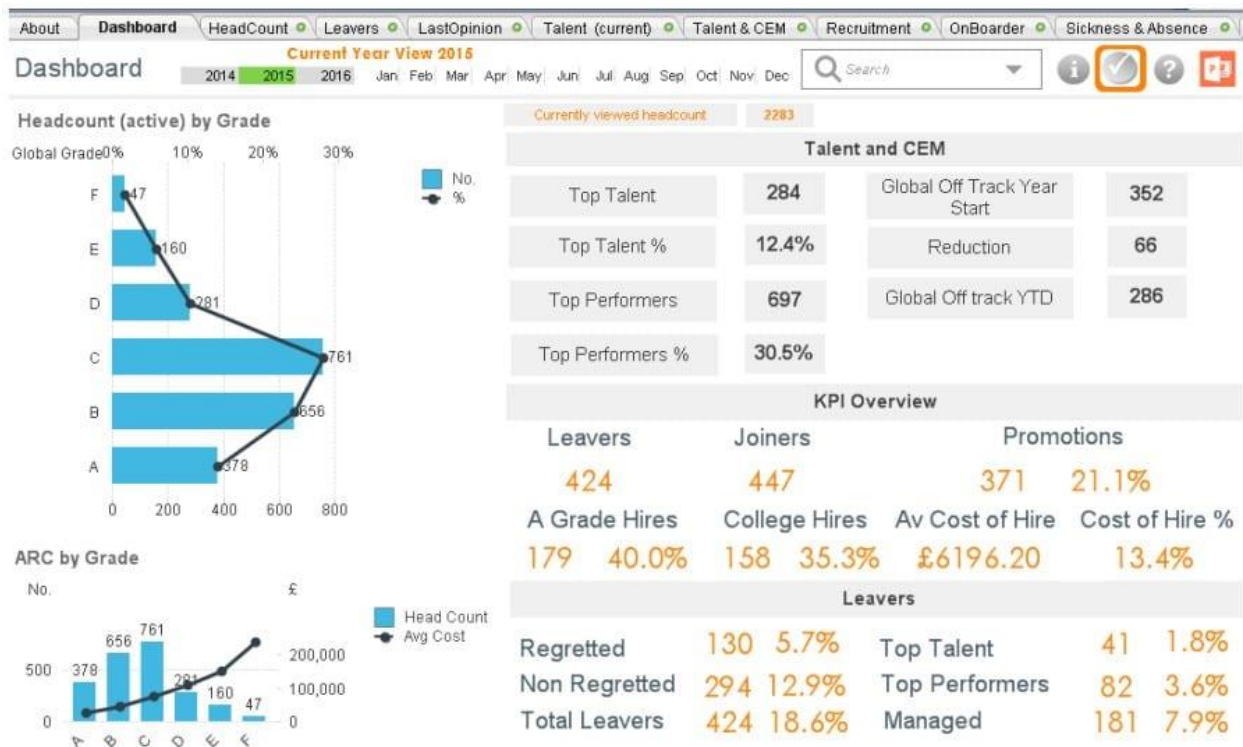
An example of a Human Resource dashboard with headcount. Click to enlarge.

For more examples, check the end of the article

Hygiene factor

A final note before I show you an example of the HR report: HR reporting is often seen as a hygiene factor. This means that, like hygiene, solid reporting is not appreciated. However, when someone has bad hygiene (i.e. when mistakes slip into the reporting) people will notice and complain.

This emphasizes the importance of solid reporting. Accurate reporting is not a nice to have; it's a must-have. Without it, HR will quickly lose its credibility.

Luk Smeyer, founder of iNostix, wrote about this about HR reporting a few years ago. I think it captures this sentiment quite well.

Of course, every HR department should be (extremely) good at this 'classical' reporting level. No discussion. No debate. Just do it. This level should be the fully automated, highly effective, super-fast, slicing-and-dicing, easy to read, well-structured, 'just-click-on-the-button' functionality in every organization.

Not every organization is at the *'highly effective and super-fast'* bit yet. However, every organization should be extremely good at doing HR reporting.

Metrics in an HR report

There are several important metrics that need to be included in an HR report. Note that most of them are high-level metrics as they provide an organizational overview. We've published multiple <u>lists of HR Metrics</u>, including <u>recruitment metrics</u> and <u>performance metrics</u> on this platform. These can be used for specialized dashboards. The most common HR metrics that are being reported on, include:

- *Seniority*
- *Sex*: Common distinction often used for diversity purposes (see the example HR dashboard below)
- *Age*: Age is becoming increasingly important in today's aging workforce. Age is often a key focus point for organizations that want to innovate and reorganize.
- Education level: Educational level should only be included when available and when relevant for the overarching goals of the organization. Otherwise, it runs the risk of being a 'vanity metric' in the HR report.
- Function type: A metric like function type or function clusters might help to distinguish
- different groups within the company. An example could be top management, middle management, production personnel, and support staff.

- FTE: A Full-Time Equivalent is the hours worked by one employee on a full-time basis. The number of FTE is often lower than the number of total employees. This holds especially true if there are a lot of part-time workers present in the organization. FTE provides an accurate measure of the total workload in the organization. In addition, people who work less than 1 FTE can be considered part-time workers.
- *Employees Active*: This metrics represents the number of employees working at the organization.
- *Turnover*: This metric represents the number and/or percentage of employees who left in the previous period. Read here how to calculate employee turnover.
- *New hires*: This metric represents the number and/or percentage of new employees who joined the organization within the last year.
- *Absence*: This metric represents the percentage of time that employees were absent in the previous period on average. Another representation of this number is the total days of absence per employee.
- *Cost of absence*: This metric is not a standard metric but it can make the previously
- mentioned absence rate more tangible by attaching it to a financial number.
- *Cost of labor*: Labor cost is the total amount of money that an organization pays to its workforce. This number includes employee benefits and payroll taxes. The cost of labor can be split up into direct or indirect costs. Direct costs are the labor costs associated with people who contribute to the primary process (an assembly line worker). Indirect costs cannot be traced to a specific level of production (a security person guarding the factory).
- Training cost: Training cost represents the total amount that a company spends on training new hires and the existing workforce.
- Recruitment cost: The total cost of recruitment efforts, often includes the costs of external agencies, advertisement and, sometimes, lost productivity. Entire books have been written on how to calculate this number. Read for more information here.
- *Time to fill*: We've already touched upon time to fill. It's the number of days between a position opening up and a candidate accepting that position. This metric will vary significantly between job types: software developers, big data analysts, and highly qualified salespeople are much harder to find than entry-level marketers for example.

This is by no means an exhaustive list. Other metrics that can be included are:

Analyisis Area	Examples of Indicative Metrics
Headcount	• Number of FTEs, flexible and part time labour • Cost of employment: Average Remuneration Cost by grade • Gender split (M/F)
Talent	• Population by talent grades (performance and potential) • % talent against total headcount
Leavers	• Regretted and non-regretted leavers • Managed leavers - cost and savings • Top Talent leavers • Reasons for leaving – using survey data • Leavers by length of service
Recruitment	• Number of FTEs, flexible and part time labour • Cost of employment: Average Remuneration Cost by grade • Gender split (M/F)
Sickness & absence	• Number of FTEs, flexible and part time labour • Cost of employment: Average Remuneration Cost by grade • Gender split (M/F)
Learning & Development	• Number of FTEs, flexible and part time labour • Cost of employment: Average Remuneration Cost by grade • Gender split (M/F)

Personnel flow matrix

Simply capturing the number of people who join the organization and who leave the organization is often insufficient as it doesn't provide you with the full picture. A solution could be a personnel flow matrix. Such a matrix offers a great way of representing how many people joined, were promoted and left the company, and also how these numbers stack up.

Employees per 1-1-2018	Employees per 1-1-2019					
	A	B	C	D	Turnover	Total
Category A (Top management)	28	2	0	0	15 (33%)	45
Category B (Middle management)	10	80	6	0	19 (17%)	115
Category C (Production staff)	0	3	860	2	35 (4%)	900
Category D (Support staff)	0	0	3	40	7 (14%)	50
New hires 2018	12	25	136	12		185
Total employees (% grow) per 1-1-2019	50 (10%)	110 (-4%)	945 (5%)	54 (8%)		

This somewhat complex-looking table is a perfect example of a personnel flow matrix. The rows represent the four personnel categories (A, B, C, and D) and the changes between 2018 and 2019. For example, during the year 2018, 10 people went from a middle management position to a top management position.

The total employees on 1-1-2019 are displayed in the bottom row, while the total employees on 1-1-2018 are displayed in the rightmost column. The total turnover of 2018 is represented in the turnover column, and the promotions/demotions are represented in the matrix.

This overview helps to visualize organizational growth, turnover (this organization has low turnover in its production staff department, but all other departments struggle with turnover levels of well over 10%). It also visualizes its personnel development (note the 10% increase in top management, from 45 in 2018 to 50 in 2019).

On one hand, a table like this provides a great overview, on the other hand, it helps to identify some key organizational problem areas.

Human Resource dashboard and HR report templates

In trying to find some sample HR reports, I came across the Valuing Your Talent initiative. They provide some great resources, including a case study on Capgemini. This case study was developed with Capgemini's own people analytics team and their report contained some excellent examples of human resources dashboards that they've created (all data is, of course, fictitious).

HR Top Dashboard

Year Analysis (Last 12 Mths)   Month Analysis - Feb

Lost Time %	Days/Total HeadCount	Cost of Absences	Cost of Sickness - MST	Cost of Sickness - LTS
1.0%	2.6	£1,141,019	£771,860	£369,159

Rolling 12 M... | Total Absen... | Rolling 12 M... | Absence Ho... | No of Absen... | Absence Det... | Average abs...

Total Absence Days for Absence Description selected Divided by All Permanent HeadCount
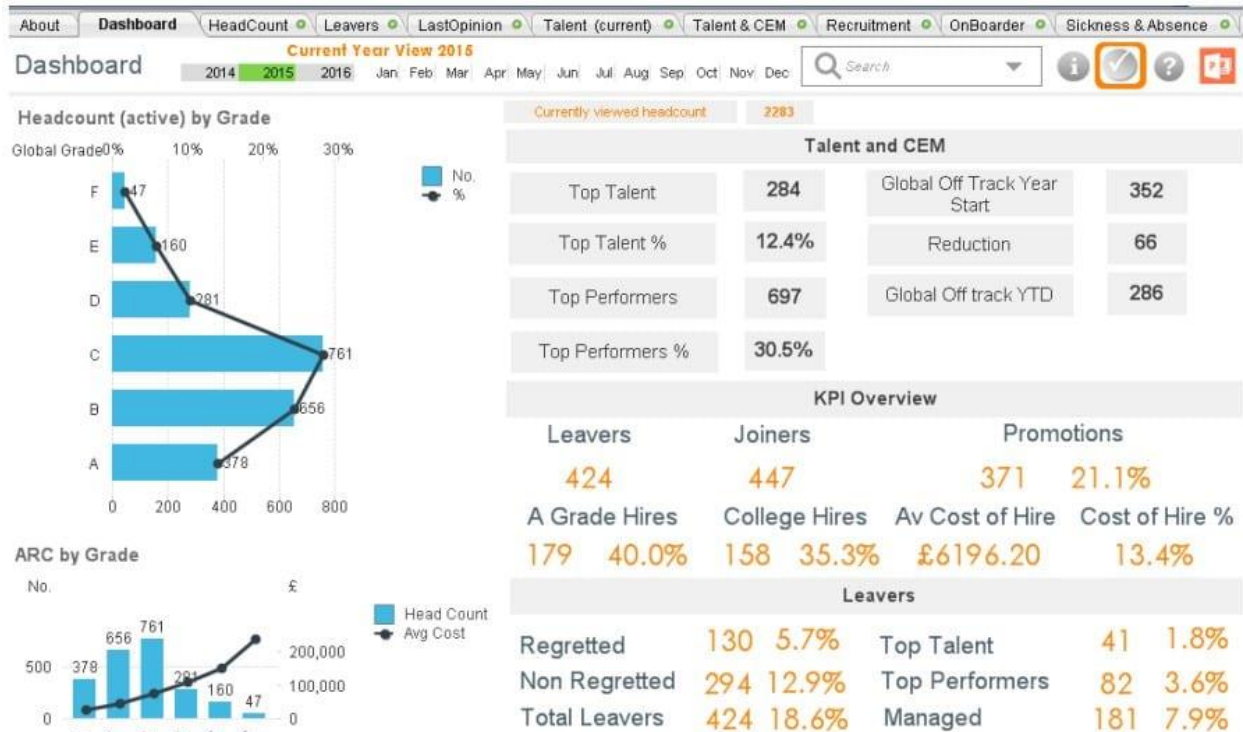
HR dashboard: Talent 9 box grid

New Talent Matrix | Talent Detail | CEM Progress

		HL	**HM**	**HH**
High	**Exceeds Expectations** Average APR 1 during the last 3 years, Can include once a 2 **Above Expectations** Average APR 2 during the last 3 years, Can include once a 3	11 0.1%	348 4.4%	700 8.8%
		ML	**MM**	**MH**
Medium	**Meets Expectations** Average APR 3 during the last 3 years Can include once a 2 or a 4	475 6.0%	1971 24.8%	1266 16.0%
		LL	**LM**	**LH**
Low	**Below Expectations** Average APR 4 or 5 during the last 3 years, can include once a 3	139 1.8%	210 2.6%	51 0.64%
		Limited capacity, motivation or willingness to grow or ambition not demonstrated	Motivation and willingness to grow, capacity needs to be developed	Motivation, willingness and capacity to grow
		D (Low)	**C (Medium)**	**A, B (High)**

HR dashboard: Diversity

General HRIS dashboard

HR reporting pitfalls

There are several pitfalls in regards to HR reporting. It's important to address these as they will prevent you from getting trapped in a never-ending reporting cycle.

- Automate your HR reporting: Don't try to generate every report manually. This is highly inefficient and will drain the capacity of your HR data department. All reports described in this article can easily be automated and auto-generated.

- Provide relevant information: Don't try to make everyone happy. If you can make 80% of the people happy with 20% of the information, that may well be the best solution. Making

an overly complicated dashboard and reporting on irrelevant data may lead to low engagement with the reports or dashboards and thus lower the impact.

- Fix mistakes: HR data is dirty, and there will be mistakes in your HR report. Fix those mistakes in the source systems and make sure to help to create procedures that are beneficial in the accurate input of data.

HR reporting and HR dashboards are often a stepping stone for organizations that want to move towards HR analytics – and that's why this subject is so important. Depending on the company that you work for, different data will be relevant. Good luck with creating your HR report!

FAQ

What is an HR dashboard?

An HR dashboard is a dynamic overview of the most important HR metrics in one place. The HR dashboard provides a slice-and-dice overview of the workforce, their performance, absence, and turnover. It is key for strategic decision making in HR.

How to make an HR dashboard in Excel?

It is fairly easy to make a basic HR dashboard in Excel. Create a Table ('Insert', 'Table') with the relevant HR data. Open a new worksheet and add slicers ('Insert', 'Slicer') for the HR metrics you want in your dashboard. Arrange the slicers to create your dashboard.

hat is Root Cause Analysis?

A root cause is that most basic reason for an undesirable condition or problem, which, if eliminated or corrected, would have prevented it from existing or occurring in the first place. Â Therefore, root cause analysis is a method, and a philosophy, of looking beyond the immediate cause of-and solution to-a problem and instead, searching for the least common organizational, personal, or activity denominator that prompted the original problem.

For example, a refinery might have a problem with contaminated product. Â The obvious cause could be a clogged filter and the obvious solution is to replace the filter. Â However, a root cause analysis would look for deeper causes along these lines:

ø Â Â Â Â Â Why was the filter clogged? Â Because of corrosion in the pipes.

ø Â Â Â Â Â Why are the pipes corroded? Because they are old.

ø Â Â Â Â Â Why are the pipes old? Because there are no preventative maintenance processes around pipe replacement.

Root cause analysis is all about asking "why?" until it is not productive to go any further. Â The goal of root cause analysis is not to deal with an immediate problem but rather to improve a process and ensure that the problem never re-occurs.

Quality management literature has advocated root cause analysis for over twenty years and root cause analysis is a fundamental part of ISO-9000 certification, Six Sigma, and any other process improvement approach to the production and delivery of quality products and services.

How Difficult is Root Cause Analysis?

The simple example cited understates the complexity of root cause analysis. Â There are often many different factors that contribute to a problem and, at times, the causal sequence of events is difficult to determine.

Specific tools and techniques can help flesh out the causal factors of most business problems. Â Process maps, flow charts, and run charts can help isolate areas of concern. But the fundamental tool used in root cause analysis is the Cause and Effect Diagram (sometimes called the Fishbone Diagram or Ishikawa Diagram, after its inventor- see sample). Â The diagram normally begins with an analysis of four key areas: personnel, procedures, material, and equipment. Â Normally, the root cause of most problems lies within one of these areas.

There is enough depth to the subject that training courses in root cause analysis can run for several days. Â Furthermore, the skill in doing the analysis well only comes with experience.

A thorough root cause analysis often requires meeting with all the people who own or operate processes that precede the failed process (the problem) being analyzed. Â This can take a lot of management time and hence can be expensive, although by forever eliminating the problem, root cause analysis can save money in the long run.

What HR Needs to Know

ø Â Â Â Â Â Root cause analysis is a core tool of not only quality management, but can be used anywhere a long term solution to a process problem is needed

ø Â Â Â Â Â It involves digging deeply to find and correct underlying causes

ø Â Â Â Â Â It can be expensive to do and requires skill.

ø Â Â Â Â Â HR managers, particularly ones operating in a manufacturing environment, would do well to learn about root cause analysis by taking a course, or (far better) participating in the process with experienced facilitators.

ø Â Â Â Â Â Root cause analysis is a valuable technique because it can be used in manufacturing or accounts payable, in packaging or customer service - any place where a documented operational process is failing or under performing.

•

DATAFICATION OF HR

HR departments capture enormous amounts of data, but these typically stagnate in various systems and are rarely used for strategic purposes. It's not that companies haven't tried, with HR data warehouses and "HR analytics" teams that run reports. But the returns have been frustrating—until recently.

Capturing and analyzing data about people is a hot topic. Articles about big data and the *"Moneyball effect"* appear in nearly every Sunday *New York Times*. We know that Facebook, Google, LinkedIn, and Twitter monitor and store much of our daily web activity and have just found out that the National Security Agency and telecommunications companies monitor call details, including location and history.

And data scientists are now learning how to perform sentiment analysis on our emails,[1] deliver pinpointed advertisements to our mobile phones, and even assess and find job candidates through their social activities. It's not a surprise that data science, a relatively new profession, is now considered "The sexiest job in the 21st century."[2]

ALL this noise has created tremendous changes in Human Resources. LinkedIn, for example, has become a large provider of recruiting solutions, largely driven by its database of global professionals. There are now dozens of start-up companies building tools to use social data, HR data, and testing data to assess and source people better. A new company called Identified is collecting much of the data available on LinkedIn, Facebook, Yahoo, and Twitter to create a next-generation candidate search engine that offers recruiters a pool of more than 500 million workers. A company called Smarterer is offering skills-based assessments for contract workers. A company called Evolve, which analyzes the performance of call center employees to understand turnover, learned, among other things, that ex-convicts are often more effective call center workers than high-end college graduates.

The rich history of HR data science ...

Many suggest that HR professionals don't understand data. Yet there is a rich history of data science related to the HR profession. In the late 1800s Fredrick Taylor,3 a mechanical engineer, analyzed the job performance of steel workers and laid the foundation for an industry of industrial psychologists who measure what we do on the job. He found, for example, that a worker who lifted 50-pound "pigs" was far more productive than one who lifted the then-typical 75-pound "pigs" because he had more time to rest. This time and motion study caused a whole reengineering of the steel manufacturing process.

Human Resource departments capture enormous amounts of data about people: turnover, engagement, hours of training, compensation, job mobility, performance ratings, as well as where we went to school, our college degrees, and nearly 200 other items.4 But such data typically sit around stagnant in various HR systems and are rarely used for strategic purposes.

It's not that companies haven't tried. Companies have been building HR data warehouses for 25 years, and many HR departments have an analytics team that runs reports. But until recently, these investments don't seem to have paid off much.

Reporting molasses

Our recently completed two-year study of this topic indicates a major shift is taking place.5 While organizations invest more than $14 billion in HR software,6 today fewer than 4 percent can perform predictive analysis on their people and only 14 percent perform statistical analysis at all. HR managers tell us that they want to be more "data driven,"7 but most have not yet been able to build a solid set of talent analytics systems and capabilities.

There is evidence that proficiency in talent analytics is associated with strong performers. We looked at the financial performance of companies in the top 14 percent in our research (levels 3 and 4, as defined in the talent analytics maturity model shown in figure 1—those actually able to correlate HR data and business data to predict and improve outcomes), and we found them to be the highest-performing companies in terms of shareholder value. Organizations that operate at these levels outperformed the S&P 500 by 30 percent over the last three years and reported a fourfold better ability to make data-driven decisions about people, including whom to hire, promote, and let go of, and how much to pay.8 A similar study by the Massachusetts Institute of Technology (MIT) and University of Pennsylvania found that companies with mature analytics functions in general produce 5–6 percent higher financial returns.9

Figure 1. Talent analytics maturity model

Level 4: Predictive analytics
Development of predictable models, scenario planning
Risk analysis and mitigation, integration with
strategic planning — **4%**

Level 3: Strategic analytics
Segmentation, statistical analysis, development of "people models"
Analysis of dimensions to understand cause and delivery of
actionable solutions — **10%**

Level 2: Proactive—Advanced reporting
Operational reporting for benchmarking and decision making
Multidimensional analysis and dashboards — **30%**

Level 1: Reactive—Operational reporting
Ad hoc operational reporting
Reactive to business demands, data in isolation and difficult to analyze — **56%**

Source: Bersin by Deloitte

Graphic: Deloitte University Press | DUPress.com

Breakthrough solutions are possible

Our research suggest that more than 60 percent of all companies are now engaged in this area, 10 yet there is a chasm between the "haves" and the "have nots." The 14 percent at the top of our maturity curve have invested in people-related analytics, moved up the learning curve, and are now engaged in some impressive problem solving.

Understanding the high performance salesperson in financial services

A large financial services company saw dramatic variations in sales performance and retention among its hundreds of sales representatives. The team hypothesized that there were hidden factors that might be causing these patterns, so they built a model to try to predict sales representative performance and retention. Traditionally this company sourced its sales team from top universities and recruited candidates with excellent grade point averages.

The analytics team pulled together demographic, job experience, recruiting, and environmental data on the entire sales organization and compared the high performers against the average. After significant statistical analysis, the team found that the company's assumptions were wrong: The high performers were not those from the top schools, nor did they have the highest grades.

As figure 2 shows, the high performers in this particular company could be identified by far less academic criteria, making high-performance recruiting much easier.

This example illustrates an important point: One of the greatest benefits of talent analytics is the debunking of typical management myths. In this case, by shifting to a new way of assessing sales candidates, the company generated more than $4 million of new revenue in the first six months.

Figure 2. Characteristics of high-performing sales candidates

What didn't matter

College degree or reputation of college

Grade point average

Quality of references

What did matter

Lack of typos or misspellings in resumes

Successful experience selling related products (autos and real estate)

Successful experience completing some academic degree
(which one did not matter)

Graphic: Deloitte University Press | DUPress.com

Reducing theft and loss in banking

A large Canadian bank suffering from theft and embezzlement in its branches spent many years investing in training and monitoring tools to reduce fraud. Despite these ongoing programs, theft continued—and seemed particularly high in smaller branches.

The operations team, partnering with HR, embarked on a talent analytics project to correlate patterns of loss against such factors as employee tenure, age, experience, training, educational background, management demographics, and geography. After many months of effort, the company found that the factor

most correlated to theft was *the number of miles from the branch office to the district manager*. People in this particular role who felt unsupervised were more likely to act unethically.

After years of largely ineffective investment in training and compliance programs, the bank reorganized its district managers to bring them closer to the branches, and the loss rate dropped dramatically.

Understanding the reason for client defection in food service

A US-based food service company found highly inconsistent renewal rates among its large clients. Some remained loyal clients for many years, and others seemed to drop their relationships abruptly.

The company hypothesized that there were team characteristics that must be creating these losses, so they assembled an analytics team (operations staff in partnership with HR) to look at data. After analyzing more than two years' worth of account, team, management, and organizational data, the team uncovered a surprising, but in hindsight obvious, factor. The biggest factor that correlated to client loss was a pattern of Occupational Safety and Health Administration safety regulation violations in the team's food service operations.

It turns out that safety, which was considered a "compliance program" for many years, had a very large impact on client perception and service satisfaction. These safety-related accidents reflected poorly on the company and gave customers an incentive to rapidly change suppliers.

While safety had long been a priority, the company had always considered safety training a compliance program, implemented to reduce insurance costs. After this analysis, the company reprioritized safety and safety training as top priority in its service delivery operations strategy.

This finding helped the company improve client retention as well as institutionalize new operational practices for sales management. The company now includes safety training and compliance at the top of every monthly account review to make sure that all field employees take safety and safety education seriously.

Keeping high performers: The relationship between pay and performance

A global technology company suffered from the loss of many high performers to competition. To understand the causes of this turnover the HR organization hired a team of statisticians to look at a large number of people-related variables (more than 100) to understand what may be causing the problem.

After months of analysis the statisticians found a direct relationship between high performer turnover and compensation. The problem was not simply paying people more, but paying them differently.

The team found that midlevel performers, who greatly enjoyed working at the company, would not leave even if their raises were as low as 90 percent of industry average. But high performers (those in the top 10 percent) were far more sensitive, and would very likely quit if their annual raises were not at least 115 percent of the industry average.

What management had been doing was "keeping everyone happy" by trying to distribute raises through a normal distribution curve. What this research showed, which we have seen in other situations, is that high performers in service and intellectual property–related companies are not just somewhat better than midlevel performers; they are often orders of magnitude better. This warrants a much more unequal distribution of compensation, which makes some managers very uneasy.

After months of socialization and training, the company found this change was far more difficult than they realized—so they had to formally rebalance salary budgets and develop new tools for compensation review that reward hyperperformers with compensation increases much higher than average. (We recently talked with another software engineering firm that told us they found the same effect and now pays high performers as much as three times the salary of midlevel performers.)

Changing traditional management belief systems

Companies that implement talent analytics often question their long-held beliefs and revise their management decision process. Rather than rely on gut feel, they let the data inform people decisions.

A vice president of HR for a financial firm told us: "The biggest challenge we had with our analytics findings was convincing our top executives that their gut feel was wrong. It took us many months, but over time they realized that data could make them even smarter in their decisions about who to hire and promote."

A success model for talent analytics

Each of these companies invested in an analytics strategy over a number of years, and, while the specifics of each implementation varied, they all went through the same four stages shown in figure 1.

The companies we studied started by focusing on building scale, quality, and experience in all areas of operational reporting. They then patiently, steadily, and continuously moved up the maturity curve to build predictive models. In many cases, it took these companies five to seven years to reach level 3 or 4.

Without a strong reporting infrastructure, clean and credible data, and a detailed understanding of what data you have and where it came from, analytics projects simply do not scale.

A pioneer in this market told us that the worst thing his company ever did with regard to analytics was to analyze retail store turnover without multiple years of validated data. As soon as they presented their work to management, one of the executives asked: "Have you looked at the seasonality of the data?" Oops. They went back to the drawing board and built a multiyear analysis. This company now has an advanced analytics team with more than 12 people who study multiyear talent trends, and the team has become critical to business and organizational planning at a senior level. But it took several years of maturity to reach this point.

Unfortunately, building a clean and integrated set of HR data is not easy. We estimate that 75 percent or more of the effort in talent analytics is invested in reaching levels 1 and 2. This is where companies have to find all their HR data sources, rationalize the definitions of various data elements, find ways to clean the

data, and aggregate it into some usable system. This work takes several years of cleanup, a partnership with IT, and the skills to implement a scalable reporting infrastructure.

Why are companies stuck here? Usually it's because the CHRO has not been willing to make the investment needed to build a true analytics function and thus has not taken the time to build the business case for an integrated analytics team.

The patchwork quilt of HR data

Despite the huge consolidations in HR software providers, people-related data are nearly always present in many systems. One of the critical steps in putting HR on a more analytical path is to bring together the disparate data sources needed to build a data dictionary.

The challenge is more complex than it seems. First, HR has often not built an adequate business case, so it lacks support from IT. Second, there are few and perhaps no broadly accepted standards for HR-related

data,11 so information in different systems must be rationalized and defined in a consistent way, which can be time-intensive and controversial. Third, HR data are often seasonal and regional, so what one business unit calls "turnover" is not the same as another, and the analytics team has to standardize all these measures. In one example from our research, a company did an extensive turnover analysis of its workforce and then went to the head of the Brazilian operation to present the dismal results. The Brazilian business leader dismissed the analysis as invalid: "We run our operation with a high percentage of contractors. So of course the turnover is higher."

There is a significant amount of effort required in the rationalization of data—and while this isn't the sexiest part of HR, it may be one of the most important.

Building an interdisciplinary team

Much has been written recently about the lack of data scientists in business, so one might ask where HR will get the skills. Often the problem is not finding statisticians and math talent but rather building an interdisciplinary team.

In the early stages of analytics, the team requires technical staff who work with IT to bring data together, build the data dictionary, and put a reporting process in place.

But as the process advances, the team can become increasingly multidisciplinary and work closely with other analytics teams in the company, as well as with external data providers and the executive team. It will often expand to include business analysts, a math or statistics specialist, and people who know how to visualize and present data in an understandable form. As described by Tom Davenport, the resulting communication barrier can undermine the impact of otherwise very well-constituted teams.12

Tools alone are not enough

Despite the generally high quality of the HR analytics tools purchased from their enterprise resource planner or other vendor, many companies still found themselves stuck in reporting molasses. While good tools are important, the biggest hurdles companies face at levels 1 and 2 are often insufficient patience, process, skills, and organization:13

- Do you have someone with experience in data analysis as well as the vision and leadership to drive the analytics team?
- Does your team include analysts with data management, statistics, visualization, and organizational design skills? All should come together to apply data to solving a clear business problem.
- Do you have IT's support in selecting the right tools and integrating the HR data infrastructure with other data sources in the company?
- Does your team have a business leader who can push toward business-oriented solutions and not focus only on measurements of internal HR?

Despite the huge consolidations in HR software providers, people-related data are nearly always in many systems. One of the critical steps in putting HR on a more analytical path is to bring together the disparate data sources needed to build a data dictionary.

One of our clients is a well-known health care provider with deep experience in health industry analytics. This company has a history of measuring patient outcomes and drives much of its business success by constantly looking at the organizational factors that result in healthier patients. The HR analytics team in this company (which is operating at level 4) had spent more than six years building its internal data warehouse and is now examining the impact of "source of hire" on nursing quality. The leader of this team is a senior IT professional who has worked in the company for more than 15 years and has extensive experience doing performance consulting with many departments throughout the company. It is his deep understanding of the data and the business, coupled with support from leadership and IT, that has made them a big success.

The need for a business case

If you talk with the companies at levels 1 and 2, you often hear comments like "we aren't investing enough in analytics" or "we don't have an integrated team yet."
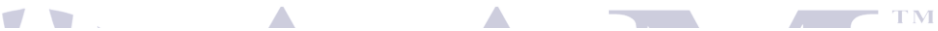
In order to succeed in this fast-growing area, companies need to make an investment. The talent analytics team should be considered a new center of excellence within HR, as important as recruiting, compensation, and training.

And the business case should focus on more than reporting. Many analytics projects start by developing reports that look at the efficiency and effectiveness of all HR programs: What is our "time to hire" and "cost to hire?" Which candidate sources are producing the highest-performing staff? How much training are we delivering, and how satisfied are our learners? What are our compa ratios, and how well are performance scores being distributed?

While these are interesting and important questions to answer, they will likely not drive enough value to justify a major new analytics team.

A solid business case focuses on business-critical operational problems. For example, if turnover is high in a manufacturing plant, it would be useful to know the level of workers' tenure, training, compensation, engagement, background, education, and other factors that may be causing this turnover. Health care providers suffer tremendous financial expense from nurse turnover and high levels of infection in various parts of the service chain. A talent analytics plan focused on solving these problems would be the foundation of a strong business case.14

Datafication is a new way of thinking

In the early 1900s we electrified the world—literally. Businesses realized they could rely on a steady stream of electricity to run manufacturing plants at night, invest in motors and robots to improve productivity, and eventually invest in computers and other tools to change the way they did business.

As Einstein noted, "Science is the refinement of everyday thinking."15 Just as electricity changed the way we manufacture and deliver products, so can data change the way we think about managing people. Far too many important people decisions are still made on the basis of gut feel or anecdotal experience.

While only 14 percent of companies in the study have reached high levels of maturity in talent analytics, we see tremendous growth in this market over the next few years. This type of analysis may well become table stakes to attract and retain talent and will likely also expand into new areas as well. Consider the following three major trends: more data, more tools, and more techniques.

More data

There are many sources of people-related data we have yet to collect: employee location, social activity, professional networks and network connections, psychographic data, project results, and more. Once

companies have an infrastructure for analytics in place, we can bring more and more information together for analysis.

One of the more interesting areas of analysis is learning how to measure performance by looking at how people collaborate, the projects they've worked on, their peers and associates (their internal corporate "social data"), and their innovations and successes. One of our clients mentioned, for example, that their analysis shows that engineers who have friendships and regular meetings with other top engineers are far more productive than those who work in more isolated groups. Another client found that manufacturing teams that work in diverse environments outperform those who work in less diverse groups.

Think about all the possibilities to unlock the secrets of high performance.

More tools

The tools to collect, analyze, and visualize data are rapidly evolving. New tools like Tableau and Qlikview make visualization much easier, and a whole industry of start-ups is bringing managed analytics services to market.

There are three major categories of new tools: visualization and analysis tools (desktop tools that let users analyze data and create reports); middleware and database tools (tools that collect, clean, store, and query data—including tools that use Hadoop16); and managed analytics services (companies that provide integrated services to collect and make sense of your data). With this market growing so rapidly, it's important for the analytics team to keep abreast of advances in the tools market.

While it still takes time and experience to make sense of data, the tools market is burgeoning, and we expect to see more and more third-party analytics suppliers do the analysis for their clients. Just as managed analytics companies analyze credit card fraud, market basket information, and customer relationship management data, there soon may be managed analytics firms that help us understand our people data.

More techniques

Finally, data scientists and statisticians are inventing new ways of analyzing data every day. The University of California at Berkeley recently introduced a master's program in data science, and many other educational institutions and for-profit training companies are teaching new statistical techniques. A new technique called structural equation modeling, which is based on social science, provides new techniques for finding cause from correlation. And new companies such as Kaggle (an international community of data scientists) bring math and statistics specialists together to let them bid on interesting projects, share ideas, and test and improve their analytic skills.17

I recently read a PhD thesis from an MIT student who called himself a "social data scientist." He studied the statistical inferences and human characteristics of Twitter streams and found, for example, that young people use the smiley face differently from older people: Younger people use :), while older people use :-). What is the relevance of this? Probably not much right now, but what it tells us is that the techniques and tools for big data are expanding, and one day we will be able to measure people performance in real time (similar to a call center) and immediately point out when a management error or performance problem is likely to occur.

This "datafication of HR" is part of a broader trend affecting nearly every business function. Data about our people are often the most powerful data we have. Companies that learn how to harness the data hidden in their HR systems will likely find tremendous opportunities to drive improved performance, customer service, and business growth.

MODULE V

1. What Does the "Datafication of HR" Mean to You? More Important, What Should It Mean to HR Leaders Today?

Stacey Harris: HR Loves to Look Outside, But It Ought to Dig Deeper Inside

Simply put, the datafication of HR is investing in analytics that will help improve your organization's policies, practices, and processes, and in turn help HR improve how it functions. But what does that really mean? And what data should HR look at to make those improvements?

HR needs to review both internal and external metrics, but often, one of these gets overlooked.

HR is historically prone to searching outside the organization for data before it examines what's happening inside. In other words, HR is quick to put huge amounts of hours into comparing its organization against norms for its industry or its competitors. But does that data really apply to your organization?

Here's a very basic example: The standard average for the number of HR professionals needed in an organization is one for every 150 employees. But does that take into consideration your organization's approach to how HR is organized and how it functions?

- Do you have a distributed or a centralized HR organization?

- Do you have regional breakouts for HR functions?

- What about your business model and how that impacts the need for more — or fewer — HR professionals?

Here's another example of external data that may not really tell you anything useful in and of itself: The common wisdom today is that to get a measurable impact from your talent management system you need to spend at least $10, and up to $52, per employee on your talent management technology.

Those are great benchmarks. But if they're separated from internal metrics, HR is only seeing half the picture it needs to see when it considers the quantification of HR.

Steve Boese: HR at the Crossroads — We Have the What and Why of Big Data, but Not the How

HR is at a bit of a crossroads in terms of understanding and working with data. Five or six years ago, everyone was telling HR that to be more effective it had to understand business better and be closer to the operations side of the organization — and we sort of bought into that.

A couple of years later, HR really started asking how it's going to do all of that, which morphed into the need for other kinds of data. Today, enterprise organizations have become data repositories, from metrics on the supply chain to metrics about call-center performance to individual employee behavior.

With all of this data about performance, compensation, and promotion — all of this HR stuff — the new question for HR became, "What do we do with it? How do we understand it, make sense of it, and apply it to make better sense of talent management?"

HR is being told to answer strategic business questions. But it's not necessarily being taught how to understand data or use it answer those questions. And HR is being asked to do all of this with nothing else coming off of its plate. In fact, new stuff has been added: ACA compliance, the rise of the global workforce, and more.

The bottom line: HR faces two overarching challenges around using data to better be able to be an effective part of the quantified organization:

1. HR needs to be more open to embracing data-driven practices as part of its ongoing functions. What's required of HR leaders may need to change to meet this demand and to do HR differently.

2. HR needs to figure out how to help the organization through the cultural transformation that's going on in business today — the multigenerational workforce, globalization, and datafication.

The concept of data-driven decision-making isn't new. But until recently, it's been all about *business data*. Now organizations can dig deeper into *people data*. But that's a more challenging proposition than amassing more quantifiable metrics like the kind finance or operations can create.

Robin Schooling: HR's Relationship with Data — No Longer Looking Only in the Rearview Mirror

HR is changing its long-held belief that HR data merely equates to information or records. Datafication of HR means we stop merely storing information in data warehouses and begin using it.

HR has traditionally relied on historical point-in-time data as the primary source for planning.

An Example

With the ability to link HR data to organizational data, HR is able to not only store information, but use it proactively: to improve operational management, better align goals, be agile, and measure it in real time. Meanwhile, if HR sees that it's measuring incorrectly, it can detect this in real time and ditch the measurement tools it's using and adjust accordingly.

Datafication of HR means we can do that across the organization as we move toward evidence-based management — relying less on "gut feel." But to use data to make leading decisions (as opposed to lagging ones), we need to fully incorporate external data, as well as data from all parts of the business. It's no longer just about what has been considered HR data (generally static and historical information: time-to-fill, number of employees trained, turnover, reporting of monthly/quarterly/annual numbers, etc.).

This is a shift in mindset for many HR leaders. But it doesn't eliminate the need for HR practitioners to have solid skills in HRM; experience and judgment will always be critical competencies.

Making the Case for Resources to Support HR Data

Paul Hebert: Does More Data Mean HR Will Help Employees Do Better Work or Make Better Decisions?

Maybe we're talking about the wrong thing here. Maybe the trend shouldn't be about more data for HR. Maybe the discussion should be more about how organizations can help HR help employees make better decisions.

Maybe when it comes to the quantification of organizations and the build-up of HR data, the question should be: Does the data HR is chasing accurately reflect human behavior and motivation?

Especially for the 99.7 percent of U.S. businesses that have fewer than 500 workers, the whole kerfuffle around big data and quantification is moot. It's overkill, and most likely for most businesses, chasing big data is the tail of data wagging the HR dog.

So, for most businesses in America today, datafication in HR should start by asking two key questions:

1. Can you get some true value out of it? It's not a good idea to chase data because you've heard it's great for enterprise businesses or it's being talked about as the next big thing for HR.

2. What, really, is the provable connection between the data you can gather and such "human" concepts as employee engagement? In other words, to borrow the title from a recent article, do you need to have ROI to humanize your workplace?

We are in the business today of automating and creating technology that makes HR's job very efficient. But human beings are the least efficient beings in the world. Shouldn't HR be looking at how to become more effective, rather than more efficient?

In fact, all of the discussion about needing to push technology in HR and piling up more data is the reason we have horrible engagement scores: We try to make employee interactions and our dealings with employees very efficient transactions. So, datafication becomes about removing the variability in HR, which is removing the humanity from HR.

It's time to stop and ask this question: Is all of the datafication in HR actually the problem and not part of the solution?

Lance Haun: The Evolving State of Data's Effect on Talent Management

What the datafication of HR represents is the potential to drive better-supported decisions and results, with impacts across the entire enterprise.

HR's understanding of data as it relates to the business side of the organization is truly in a state of transition. It's evolving. Which means everyone's definition of what it means is also in transition.

Many organizations have just begun the multiyear process of liberating their workforce data from the clenches of closed enterprise systems. Others have already won that victory and are trying to figure out what decisions their newfound data can support. And the few at the front of the curve are applying that data to solve complex issues — truly applying big data and the quantified organization.

For HR leaders, the datafication of HR represents three things:

1. 1. Decision support
2. 2. Scrutiny
3. 3. Opportunity

The datafication of HR will certainly impact larger companies in greater numbers. But don't overlook its benefits for the non-enterprise organization.

A 250-person company may not seem to need these sorts of analytics and information, but the consequences of poor hiring practices, poor learning management, or improper workforce planning could be even more drastic.

Very soon, smaller and midsize companies will have to fully embrace the datafication of HR. Sure, they may not need to correlate their data with currency rate fluctuations in China or an increase in demand in Europe, but they'll still need sound decision-making tools that help them understand what happened yesterday and predict and prepare for the future.

Stacey Harris: Getting Up Close and Personal Right Now — The New HR Technology

Some of the fastest-growing areas of technology in general have also had an impact on getting HR the kind of data to help it make better decisions faster — and help employees do the same.

Embedded analytics

In a nutshell, embedded analytics is the integration of analytic content and capabilities within business process applications. When it's bolted onto HR systems, embedded analytics give HR access to a whole world of data that was previously hidden away in other parts of the organization.

Embedded Analytics Defined

In-memory databases or constantly available data

Real-time data is what's needed if HR hopes to become more proactive and forward-looking. In-memory and constantly available data allows HR to perform the kinds of analyses to understand the root causes of events ranging from drops in sales to tardiness. It puts your data into context.

An in-memory database (IMDB, also known as a main memory database or MMDB) is a database whose data is stored in main memory to facilitate faster response times. Source data is loaded into system memory in a compressed, non-relational format. In-memory databases streamline the work involved in processing queries.

In-memory Databases Defined (IMDB)

Ever-more granular data

Data can be overwhelming. It can feel like we have too much data and too few answers. But it also allows you to connect the dots of data that could matter most. Data as granular as how often someone walks into a room, the sales that are occurring in real time for one discrete location, or actions by workers on the front line of the work process.

Steve Boese: Refining the Old, Making the New More Adaptable

Many of the most common HR technologies that are starting to deliver richer data and better analytics have been around in one form or another for years. Others are newer and are trying to solve HR problems by applying predictability and repeatability.

Assessment tools, for example, have been around for decades, but only in the last five or six years have they been able to apply a scientific method to assessments to help HR make better hiring predictions and project more accurate performance outcomes.

Maybe it's not being done explicitly, but HR technology can start to answer hypotheses that can help you be more forward-thinking. For example, "If we knew the answer to this or that specific question, what would we do? What would we change? How would we roll that knowledge out to the organization?"

Especially in high-volume hiring with repeatable job functions — retail and call centers are two good examples — it's easy with today's assessment tools to see who your best people are and what sets them apart. That kind of information can help HR improve retention and performance, reduce costs, and enhance processes, all based on profiles of employees who do good work, and then trying to match those characteristics and attributes in the recruiting process.

HR technology is also becoming more adaptable. Solutions are able to "learn" over time about an organization's processes or workflow. They can scale and move with an organization's changing needs (if HR needs more complex data or needs to target new data) or to meet changing business goals and strategies. Many HR vendors are working on predictive technology, especially to improve retention as the demand for high performers continues to increase.

Addressing the Demand for Predictable Metrics

That said, it's also important to be able to tweak your model going forward, which isn't as easy as it may sound. Why? Because people are simply not that predictable.

Robin Schooling: Moving From the One to the Many

In a data-enabled, quantified organization, HR is now able to move beyond the individual toward a view of the whole enterprise.

In the past, for example, we may have taken a view of performance-management improvement on a case-by-case basis, which was the premise of performance appraisals. Yet we know that to create something that has a positive impact on the entire organization, we must move beyond that micro or singular-employee view.

To meet demands for improved performance, higher productivity, greater engagement, and more, HR technology has evolved to enable HR to:

1. Increasingly gather data from disparate sources

2. Monitor the effectiveness of processes and programs

3. Tweak or innovate processes and programs in real time

What Can HR Technology Do Today? Take a Look.

As C-suite leaders realize what HR technology can do, it will lead to requests and demands for HR leaders to incorporate data in a more business-aligned manner.

An Example

Paul Hebert: Shouldn't HR Technology Be Pointing to the Road Ahead?

What HR should be demanding from technology today is the ability to get "directional clues" — data that will tell HR where to explore to get to the root causes of events and workforce trends, rather than simply giving HR more decision points.

For example, let's say 38 percent of your people are routinely late in one area of the business. That's great data. What do we do with it? We make it a managerial problem. We say it's the fault of that area manager and we fire him. Then we have the data to prove he was a bad manager (because 38 percent of his people were routinely late).

But what if the roads were all torn up on those days when people were late? What if there were other mitigating circumstances that made it impossible for any manager to have their people show up on time over a certain period?

Sometimes, the way we use data is like the old saying about the way a drunk uses a lamppost: for support, not illumination.

HR technology needs to help HR get to why the data says what it says, not just set HR up to react to the data. The real work is what you do after you get the data. HR needs to *understand data*. Managing it comes first — dashboards and reports. That work's been done. But then you need to get back to the core of the situation.

Until you show somebody why it's important to understand the meaning behind the data they're seeing, they'll default to the statistics at face value. Because that's logical. And humans like things to be logical.

Lance Haun: Does HR Have the Tools It Needs? That's Not the Right Question.

Do we have the tools now to help quantified organizations meet their own internal and external challenges with data? The answer, with absolute, 100 percent certainty, is yes. From the biggest ERP providers, to the vendors of specialized business intelligence tools, to HR-specific analytics technology, the tools have evolved for the organizations that are willing to take them and give them proper measure in their organization.

The real question is: How many of those tools are working to their full potential for HR?

How many data-gathering software solutions are truly helping HR leaders to make better decisions or draw crucial conclusions they wouldn't otherwise be able to draw. How many of these tools are helping HR otherwise fulfill the promise of their — often-audacious — price tags?

Not many. Why? Because we're at the very beginning of a product life cycle for many of these tools for HR.

In the Beginning, HR Wasn't Into Data

HR technology today is in the early stages of an exciting change with some exciting pieces already in market. Organizations are starting to understand that the location of a person might be less important than their level of potential or their skills and competencies.

We're seeing that if HR is going to quantify something about our people, it should be the important parts of what they bring to the organization — not just their financial burden.

That's what we should be looking for over the next five years from every major HR technology provider.

3. What Area of HR Technology Is Most Likely to Have the Most Immediate and Measurable Impact on, or in, the Quantified Organization?

Stacey Harris: Mobile, Trackable, Wearable — The Next Turn in HR Technology

The next generation of technology that can meet HR's data demands will be delivery mechanisms that let HR access data faster and gather it in ways we've never been able to gather it before.

HR will stream data from environmental sensors, GPS trackers, trackable clothing, RFID (radio-frequency identification) sensors, and other devices. The result will be new insight into performance and management — for organizations that are prepared to use the technology.

RFID Defined

An estimated 7 percent of businesses are already using trackable and wearable devices for either geography-related needs (e.g., UPS using GPS devices to track trucks) or for wellness programs (e.g., wearable devices to record physical activity).

Of course, the technology isn't there yet for the types of metrics the quantified HR organization would need. But it starts by gathering what data you can, and maybe you'll get metrics that show a trend in performance or activity where HR could have an impact.

Steve Boese: Better Assessments (the Old) and Smart Technology (the New) for HR Tomorrow

HR can count on assessment solutions to continue to improve at predictive modeling. At the same time, the modern age of smart technology will gradually and then increasingly find its way into HR technology.

HR will be quantifying how people spend their time in a much more specific and detailed way than ever before. Performance management will look at who someone is meeting with, how much time they're spending looking at email, visiting websites, writing documents using Word, and more.

And it won't be only while they're online at work or using the company's software. Personal time will be tracked, too. The goal of all it: Determine how to become more efficient and effective.

An Example

What if you could use wearable biometrics to assess how a person's heart rate and blood pressure changed under different working conditions, in meetings, or with different types of clients?

The answer is that you wouldn't need to learn anecdotally and after the fact why some situations produce better results than others — and you could be more proactive in recommending processes and procedures to ensure success.

An Example — Learning About Behavior the Old-fashioned Way

Robin Schooling: It's All About Retention and "Re-recruitment"

The most immediate next important evolution for HR technology will be software that gathers and collects data that can help boost employee retention, and it's coming none too soon. This may be the year we suffer the double hit when boomers finally retire after the economic downturn and disengaged employees finally exit as the economy continues to at least stabilize.

HR technology that offers predictive modeling can allow HR leaders to get ahead of the game. Think about technology that can track patterns and trends related to work conditions that may lead to turnover — or that may improve employee retention.

Today's HR Case Management: Data to Aid Employee Retention

The big picture here is that the traditional recruitment model will be turned on its head because the folks responsible for talent acquisition will finally gain complete access to the organization's internal applicants — current employees — in a way that they're often locked out of today. Looking at it another way, HR and recruiting will gradually merge, at least where data is concerned.

By creating open access to platforms and data across the HR and talent function — HRIS, LMS, performance management systems, succession planning systems, etc. — recruiters will be more able to "re-recruit" existing employees. Companies have more highly engaged employees and tremendously reduce hiring costs.

Paul Hebert: Wait! Let's Get HR Back Into the People Business.

Everything in HR is about technology today. All of the funding for HR startups is to develop better ways to gather data and present it to the HR folks. Why? That didn't happen because HR had defined problems that it knew it could solve with more or better data. It happened because HR wanted to be more like finance.

The folks in finance have formulas, charts, and ratios. They say, "I can prove this," and they show the numbers that prove their case.

No one's going to get fired if they say, "I can prove this with data."

But HR continues to chase data at the expense of training managers to be better managers. We're stuck in analytics. We need to stop and ask: When does it make sense to invest in people instead of technology.

So, what can HR do to work with technology and people?

1. 1. HR needs to realize HR is a "long game."
2. 2. HR needs to get more people with HR backgrounds into the CEO role.
3. 3. HR needs to stop focusing on greater centralization of its functions.

Lance Haun: Learning — Where HR Technology Will Hopefully Make a Difference Sooner Rather Than Later

The potential for HR and its data to have a positive impact on the entire talent-management stack is there. In fact, you could make a compelling argument that HR data has the potential to have an impact throughout the organization.

But one particular area in which HR datafication will hopefully make a huge impact is learning.

Stated simply, most organizations don't know their own people.

Individual managers may know their people. Co-workers may know who's good at a particular task. But there's very little organizational knowledge. And that's a problem.

Even among longtime employees, people who may have taken courses in a learning management system (LMS), there could be issues. Research from The Starr Conspiracy Intelligence Unit shows, for example, that most large organizations have more than one LMS and they often have poor integration among their other HCM systems.

Here are three ways better learning technology could help drive forward the quantified organization:

1. 1. Deliver smart recommendations.

The skills gap isn't going to disappear tomorrow, and the need for a strong learning and development function in a company is as strong as ever. A better holistic understanding of the learning function is only going to help a quantified organization come into its own.

The logic behind HR predictive analytics

Do you know what your personal credit score, the Oakland Athletics baseball team manager Billy Bean from the movie Moneyball and your Match.com profile have in common? They all combine big data and predictive analytics in order to predict the future.

Predictive data analytics are everywhere. It is in its essence a technology that learns from existing data, and it uses this to forecast individual behavior. This means that predictions are very specific. In the movie Moneyball, predictive analytics were used to predict the potential success of individual baseball players.

In a similar way, your personal credit card score uses historical data from millions of people in the past to predict whether or not you can pay back the loan you want to take out for your new car.

So how do these predictive analytics work? Predictive analytics involves a set of various statistical (data mining) techniques that analyze historical data and outcomes. These techniques then try to create a formula, or algorithm, that best mimics these historical outcomes. This algorithm then uses current data to predict outcomes in the future.

Predictive analytics in practice

Say there is a playground next to your house. For the past two weeks, you wrote down if there were kids playing on the playground or not. You also wrote down if it was sunny, rainy or cloudy, the temperature and the humidity. Based on the data you collected, would you be able to predict if kids will be playing on the playground on a specific day?

Day #	Forecast	Temperature	Humidity	Play outside
Day 1	sunny	hot	high	yes
Day 2	sunny	hot	high	yes
Day 3	cloudy	hot	high	no
Day 4	rainy	mild	high	no
Day 5	rainy	cool	normal	no
Day 6	rainy	cool	normal	no
Day 7	cloudy	cool	normal	yes
Day 8	sunny	mild	high	yes
Day 9	sunny	cool	normal	no
Day 10	rainy	mild	normal	no
Day 11	sunny	mild	normal	yes
Day 12	cloudy	mild	high	no
Day 13	cloudy	hot	normal	yes
Day 14	rainy	mild	high	no

AIHR
BLOG & ACADEMY

This is a tricky question. Obviously, these weather conditions have something to do with whether kids are playing outside or not. If the weather forecast is rainy, it will probably rain, meaning that kids are less likely to play outside. When it is hot, kids probably will play outside. But does your spreadsheet with information of fourteen consecutive days hold sufficient data to make an accurate prediction on whether or not kids will play outside?

Making predictions using a decision tree

A common and rather simple method of creating a predictive model is the decision tree. A decision tree is a tree-like model consisting of decisions and their possible consequences. In the decision tree, every node represents a test on a specific attribute, and each branch represents the possible outcomes of this test.

I made a decision tree on our weather data set by applying some simple data mining techniques. The decision tree was computed using a specific decision tree algorithm, called C4.5. This decision tree model

fits the data well: it is able to predict whether kids will play on the playground with a 71% accuracy. This is much better than guessing, which has a 50% accuracy.

The decision tree is self-explanatory if you take a closer look. I asked our designer to make this a pretty picture – the original output is a much more boring black-and-white version.
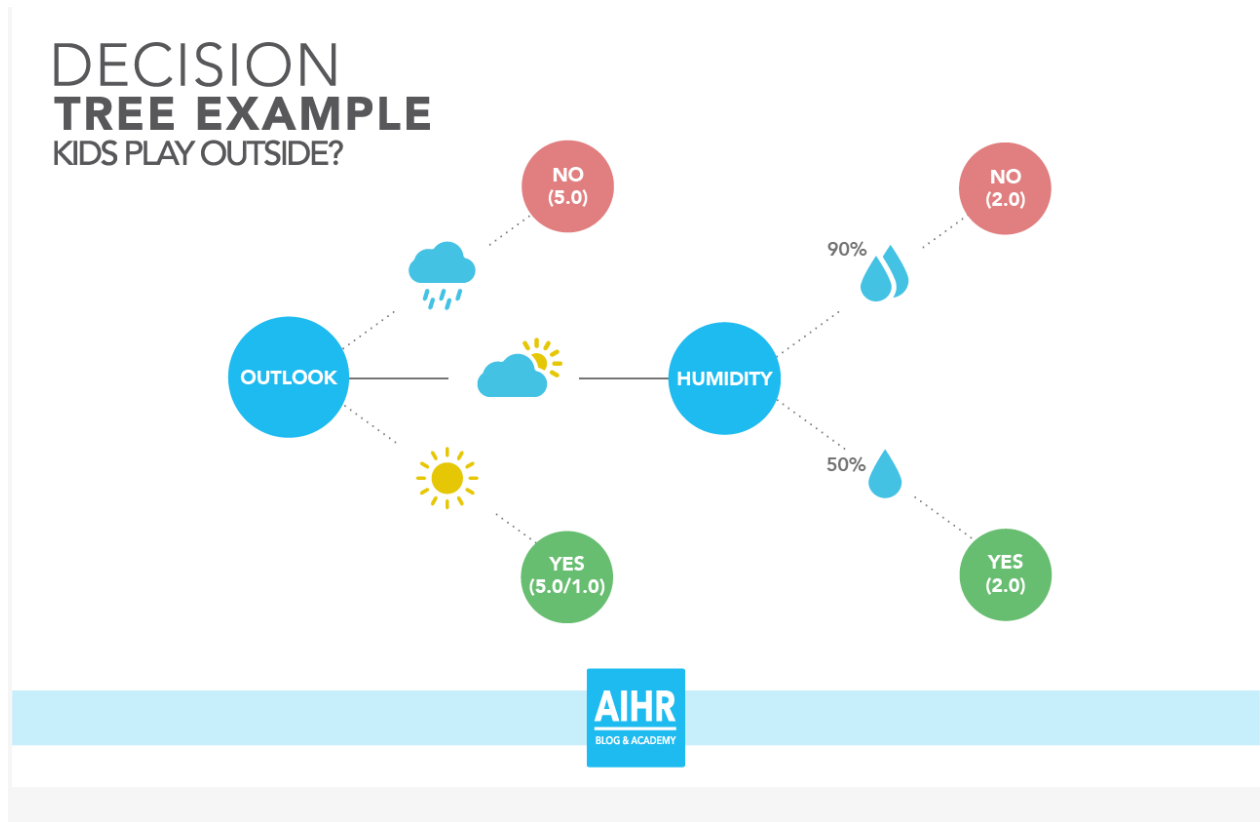
There are two strong predictors in the decision tree. The outlook is the first predictor. Kids will play on the playground 4 out of 5 times when the weather outlook is sunny. When the forecast is rainy, the kids do not play outside. In case the outlook is cloudy, humidity is the second predictor. Kids are not likely to play outside if humidity is high (which it usually is when it rains). However, when humidity is normal, kids are likely to play outside.

In other words: the weather forecast and humidity can be used to predict whether kids will play on the playground outside accurately. Of course, in an organization, you're not interested in predicting these specific outcomes. Rather, you will use HR metrics to predict business outcomes.

This simple example is an excellent showcase of how predictive analytics work. It all boils down to algorithms that learn from existing data to make predictions about the future. Eric Siegel (2013) compares this to a salesperson. Positive and negative interactions teach a salesperson which techniques work and which do not. In a similar way, predictive analytics enable organizations to learn from previous experiences or data.

How HR predictive analytics apply in practice

Now, how do predictive analytics apply to HR? HR possesses large quantities of people data, usually managed in a Human Resources Information System. By applying predictive analysis to this data, HR is able to become a strategic partner that relies on proven and data-driven predictive models, instead of relying on gut feeling and soft science. HR predictive analytics enable HR to forecast the impact of people policies on well-being, happiness, and bottom-line performance. An example is the role it can play in preventing expensive employee turnover.

However, only a few organizations are capable of producing predictive models for HR. According to Deloitte's 2018 People Analytics Maturity Model, only 17% of organizations worldwide had accessible and utilized HR data. This is up from 8% in 2015, and 4% in 2014.

Of this 17% in 2018, only 2% qualified as having business-integrated data, meaning they use real-time, advanced AI-aided tools to collect, integrate, and analyze data. The other 15% is able to do predictive analytics on an ad-hoc basis.
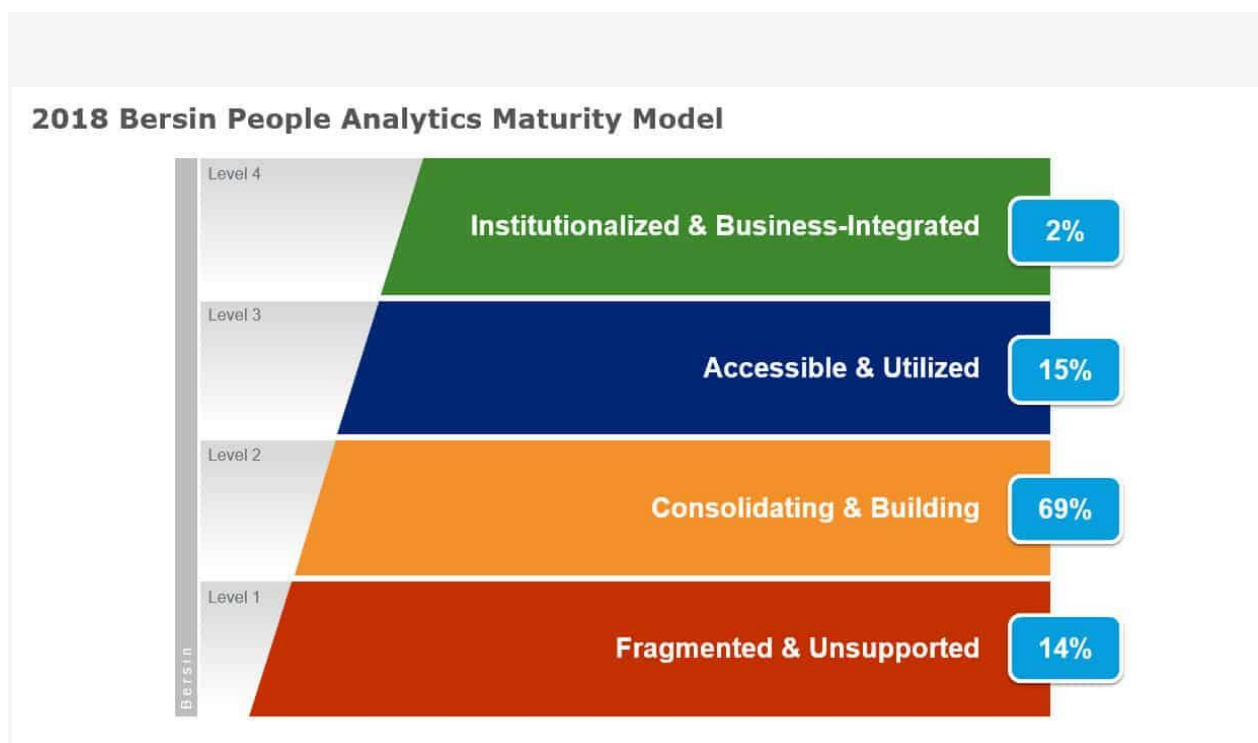
Real-life examples of predictive analytics in HR

1. Predicting and preventing turnover at HP

Hewlett-Packard (HP) is a company with over 300,000 employees and has always been a leader in the HR predictive analytics field. HP's management experienced a high level of employee turnover. Turnover rates of 20% were not uncommon in some of its sales divisions. This meant that people stayed on average between 4-5 years.

High turnover generally leads to high recruitment costs and lost revenue due to productivity loss and onboarding. Additionally, departing employees take their knowledge, network, and sometimes even customers with them. It is estimated that the cost of replacing mid-level employees is upwards of 150% of their annual salary. This can cost a company like HP millions of dollars.

Two scientists decided to try and solve this problem. They combined data of the previous two years and attempted to predict who would leave the organization. By using predictive models, they generated what they called a "Flight Risk" score. This score predicted the likelihood of leaving of each of HP's 300,000 plus employees.

Their findings were groundbreaking. Based on the data, they could see why employees would leave HP. Higher pay, promotions, and better performance ratings where, for instance, negatively related to flight risk. However, there turned out to be intricate relationships between those findings. For instance, when someone received a promotion but did not get a substantial raise, this person would still be much more likely to quit.

As you can imagine, there were a number of practical and privacy-related problems with this Flight Risk score. This is why access to this data is only granted to a select group of high-level managers.

These managers could only see the scores of their subordinates. They also received training in interpreting Flight Risk scores so they would understand the potential ramifications and confidentiality issues that come with this data.

Additionally, the system informs these managers what the key risk factors of employee attrition are. This way, the system exerts pressure on managers to develop strategies to retain their staff. This helps to reduce costs and maintain business continuity.

HR Metrics & Dashboarding

Certificate Program

Learn to turn HR data into visually compelling reports that drive decision-making

Considering all the different factors a company could take into account when doing predictive analytics, it's easy to get lost in details. It could, therefore, be of great value to create a dashboard with an overview of the most important metrics.

In the end, Flight Risk scores acted as an early warning system. It prompted well-trained managers to intervene before it is too late. Or, when the loss of an employee was unavoidable, to react accordingly. According to Siegel (2013), HP was able to save an estimated $300 million by applying predictive analytics to calculate this flight risk.

2. Predicting hire success at Google

In his book [Work Rules!](#), Laszlo Bock, Senior Vice President of People Operations (HRM) at Google, writes that the most important instrument of Google's People Operations is statistics. The questions interviewees get asked in Google's hiring process are all fully automated, computer-generated, and fine-tuned in order to find the best candidate.

On top of that, Google estimates the probability of people leaving the company by applying HR predictive analysis. One of Google's findings is that new salespeople, who do not get a promotion within four years, are much more likely to leave the company.

There are a lot of other relevant [metrics in recruiting](#) that you should keep track of to see whether you're hiring the right people. These include advanced metrics like time to productivity and cost of getting to optimum productivity level.

3. Predicting revenue using engagement numbers

Employee engagement is often seen as the holy grail of HR. Employees who are engaged work harder, deliver better quality, are less absent and less likely to quit.

Best Buy, an electronics retailer, wanted to know how engagement impacted the sales in their stores. They analyzed their data and found that a 0.1 percentage point increase in engagement leads to a $100,000 increase in revenue per store.

After finding this astonishing impact, Best Buy decided to measure engagement multiple times a year. This also enabled them to measure the drivers of engagement. This helped to come up with HR interventions that would increase engagement and, in turn, store revenue.

4. Wikipedia

Wikipedia editors, or Wikipedians, create and edit articles to keep the world's largest encyclopedia up-to-date. Each day, over 800 new pages are created, and 3,000 edits are made on the English Wikipedia alone (>3 per second worldwide). Wikipedia is able to predict who of its 750,000 editors is most likely to stop contributing.

I am not sure how Wikipedia acts on this information, but a kind 'thank you for your contribution' email could do wonders in appreciating and re-engaging these Wikipedians.

5. Making better hiring decisions using Facebook

Do your recruiters check the Facebook pages of applicants? Maybe they should. A study revealed that it is possible to predict someone's personality and future work performance based on their Facebook profile (Kluemper, Rosen & Mossholder, 2012). In this study, a number of participants gave hirability ratings based on Facebook profiles. These ratings predicted 8% of manager-rated job performance for these people.

8% may not sound like much. For instance, a standard personality test has a higher predictive value for performance compared to looking at someone's Facebook profile. However, the literature shows time and time again that the best predictive models for future job performance combine various predictors, such as IQ tests, structured interviews, and personality tests together. Looking through a Facebook profile could be an additional instrument to scan candidates.

6. Predicting impact at Nielsen

Nielsen, a data analytics firm, had a similar problem to HP. After talking to one of the presidents of one of the businesses, the SVP of People Analytics, learned that retention was a problem that needed to be worked on.

After doing a financial impact analyses, the People Analytics team learned that every one percentage point decrease in attrition resulted in a $5 million reduction of business cost.

The People Analytics team was then able to identify 120 key individuals who work at risk of leaving. Through lateral moves for 40% of the group, the team was able to reduce the attrition rate to zero for the first six months after implementation.

Through different initiatives aimed at reducing turnover, the team was able to reduce attrition by two percentage points for the global enterprise, resulting in a $10 million reduction of cost. Following this successful implementation, the project was rolled out to seven other countries (source).

7. Never hire toxic people

The last example is from a case study by Cornerstone about toxic employees. Cornerstone studied the impact of toxic employees in the workplace. Toxic employees are employees who are most likely to engage in toxic behavior. Examples of these behaviors are fraud, drugs or alcohol abuse, and sexual harassment.

These people are not only damaging to the company; they are highly toxic to the general work environment. Previous research suggested that one toxic employee in a team would cause productivity to decrease by 30% to 40%. On top of that, good employees are more likely to quit when they have to work together with toxic colleagues.

The company used a dataset of 63,000 employees. In this dataset, they marked which employees were involuntarily terminated due to workplace violence, falsification of documents, drugs, and alcohol abuse, and other policy violations. Based on these criteria, around 4% of all employees could be classified as being 'toxic'.

After analyzing the dataset, Cornerstone identified a number of key characteristics of toxic people.

Toxic people:

1. are self-proclaimed rule-followers;

2. score low on attendance and dependability;

3. and have a low service orientation.

Remarkably, the study did not find the previously reported high levels of productivity loss in the short term. However, it did find toxic behavior to be contagious. People who work together with toxic colleagues are also more likely to quit. Additionally, the study hypothesized that toxic colleagues contribute to long-term stress and burnout among other employees.

In the end, Cornerstone proved that hiring a toxic employee will cost the employer $12,800 on average, versus an average of $4,000 for a non-toxic employee. This excludes the long-term (and costly) productivity loss through burnout and other negative effects. By fine-tuning the hiring process, companies can prevent hiring candidates who are likely to become toxic and create a healthier working environment.

A game-changer for HR

As these previous examples show, the results of applying predictive people analytics can be astonishing. HR departments can potentially save (or earn) their company millions of dollars. Additionally, HR can help their managers and executives make better decisions by applying predictive analytics and using the right HR metrics.

The potential of predictive people analytics demonstrated by these business cases (and other HR analytics case studies) makes it clear that predictive HR analytics are here to stay. They are the game changer that enables HR to not only assess how employees work but also to predict and optimize the impact of people policies on both the employees and the business.

To learn more about the application of predictive analytics and HR analytics in general, check out these 11 online HR analytics courses, or our HR Analytics Academy in which we offer courses tailor-made for HR professionals who want to learn more about analytics.

This book is published by

AAM Business School

The Only B School in South India to offer

PAY AFTER PLACEMENT

50+ Companies recruit from our campus every year

Inviting new-age companies looking for great talent for accelerating their growth

AAM Students are certified in the following domains

- Recruitment & Selection
- Compensation & Benefits (Payroll)
- Investment Banking & Capital Markets
- NISM Certification
- MIS

- Emotional Intelligence
- Corporate Communication
- Personality Development
- Leadership Development
- Entrepreneurship

- G Suite
- MS Office Suite
- Digital Marketing
- Art of Networking
- Tally ERP 9 Certification
- HR Analytics

AUTHOR OF THIS BOOK

DR. KALAIVANI

Doctorate in Management, PG Diploma in Educational Leadership, Certified Life Coach.

Avidus Academy Of Management

No 64, 35, Josier St, Tirumurthy Nagar, Nungambakkam, Chennai 600034

www.avidus.net

Follow us on

f aamindia   aambusinesshool244