Human Resource Metrics and Analytic

DEHRM508

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LOVELY PROFESSIONAL UNIVERSITY

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Content

Unit 01: Introduction to HR Analytics

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Objectives

After studying, you will be able to:

- Understand the meaning of HR Analytics.
- Understand the definition of HR Analytics.
- To make a decision using data.
- Understand the importance of HR analytics inthe decision-making process

Introduction

In the last decade, there is a significant change in the HR system. Today it's not only Google or Facebookthat has an eye on their people numbers.According to one research of 1,510 respondents conducted in 23 countries illustrates this:51% of HR respondents said they could perform prescriptive analytics orpredictive.89% of respondents agreed that they could use HR metrics to do workforce planning; only 1%have disagreement.94% said they got to know insights into their employees' career development .The above-mentionedfigures reflect the importance of data in HR and data-driven decisions in organizations.The purpose of this Unit is to explain the basic concept of HR analytics and how to conduct data-driven decisions in the organizations.

1.1 Definition of HR Analytics

HR analytics is the process of collecting and analyzing Human Resource (HR) data to improve an organization's staff performance. The synonyms of HR analytics are talent analytics, people analytics, or even workforce analytics.

In 2019, theresearch of LinkedIn analyzed 32 million employee profiles to find out that companies with a good management team routinely experience higher than average retention.

In 2020, make sure that you monitor employee retention rates for individual managers, including team leaders, regional heads, business unit level stakeholders, and the like. This HR metric will inform your leadership training track and make employees feel like they are sincerely valued.

Example: If an engineering firm, for example, has a high turnover rate, the company is not entirely productive. Bringing employees up to full productivity takes time and commitment.

HR analytics gives firms data-backed insight into what's working and what isn't so they can improve and plan more successfully for the future.

Knowing the source of a company's high turnover, like in the example above, can provide significant insight into how it can be lowered. The company can increase income and productivity by decreasing turnover.

1.2 Meaning of HR Measurement

Metrics are measures of quantitative assessment frequently used for assessing, comparing and tracking performance. HR Metrics areusedtomeasuretheeffectiveness of various HR responsibilities and initiatives such as recruitment, retention, training, and labor costs.

It seems that some HR teams aren't delivering as much information as their executive teams would like. Among the non-HR executives surveyed, nearly one-third said their HR team doesn't report often enough, and 16 percent mentioned said they have no idea how often their HR team reports.

According to one research, 51 percent of the respondents did agree that their Human Resource teams report enough, the numbers suggest that many organizations still have room for improvement. It's a great opportunity for HR. Understanding the reporting needs of your executive team, and then meeting those needs, can open the way for you to become a more strategic force in your organization.It isn't frequency alone that matters when it comes to HR metrics—it's also about what you measure. We asked respondents for the types of HR reports they currently use to measure the impact of HR, as well as the types of HR reports they wish they had. From a list of various options, almost a quarter of respondents selected employee satisfaction as a report they would like to have, and 20 percent selected employee engagement.

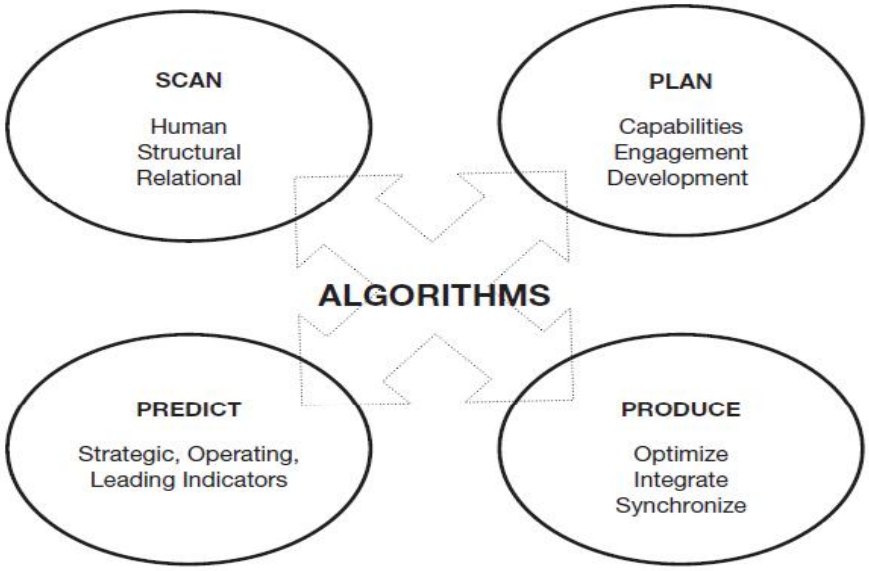
1.3 Decision Making

People aren't as good as they think they are at making decisions. We want to think of ourselves as rational decision-makers, but our limitations in information processing, emotions, and prejudices get in the way. The world is complex, and people have devised methods for simplifying it. Our brains use so-called cognitive biases to assist us to deal with four major issues: information overload, a lack of meaning, the need to act quickly, and recognizing what needs to be retained for later. 5 These shortcuts aren't free. These methods also produce four major issues: we don't see everything, we create illusions, our hasty decisions might be significantly wrong, and our memories can reinforce our mistakes. Despite all evidence that human judgments are flawed, leaders continue to act as if they are.

Did you know?

HR manager has no seat in the strategic decision making of the organization

Human Capital Analytics Model



Scanning

All the external market forces and internal organizational factors are listed in terms of how they might affect the organization's human, structural, and relational capital. Additionally, the interdependencies and interactions across these three forms of capital are recognized and accounted for. This is a critical, often ignored, point.

Planning

Workforce planning is reconstituted as capability development. The industrial-era, gap-analysis, and the structure-focused model is replaced with an agile system focused on building sustainable human capability rather than filling positions; in fact, many of those older positions will be restructured or eliminated.

Producing

Human resources services are studied as processes with inputs, throughputs, and outputs. Statistical analysis is applied to uncover the most cost-effective combination of inputs and throughputs to drive the desired outputs.

Predicting

A three-point measurement system is designed to include strategic, operational, and leading indicators. The causal and correlational aspects of the three points are used to tell acomprehensive story.

1.4 Advantages and Disadvantages of HR Analytics

Advantages

More accurate decision-making can be had thanks to a data-driven approach, which reduces the need for organizations to rely on intuition or guesswork in decision-making.

Strategies to improve retention can be developed thanks to a deeper understanding of the reasons employees leave or stay with an organization.

Employee engagement can be improved by analyzing data about employee behavior, such as how they work with co-workers and customers, and determining how processes and environment can be fine-tuned.

Recruitment and hiring can be better tailored to the organization's actual skillset needs by analyzing and comparing the data of current employees and potential candidates.

Trends and patterns in HR data can lend themselves to forecasting via predictive analytics, enabling organizations to be proactive in maintaining a productive workforce.

Disadvantages

Many HR departments lack the statistical and analytical skillset to work with large datasets.

Different management and reporting systems within the organization can make it difficult to aggregate and compare data.

Access to quality data can be an issue for some organizations that do not have up-to-date systems.

Organizations need access to good quality analysis and reporting software that can utilize the data collected.

Monitoring and collecting a greater amount of data with new technologies (eg. cloud-based systems, wearable devices), as well as basing predictions on data, can create ethical issues.

List of the companies Using HR analytics

1. Analytics Vidhya
2. Crayon Data
3. Gramener
4. Axtria
5. Flutura
6. Flytxt
7. IQR Consulting
8. Convergytics
9. Machine Pulse
10. Infinite Analytics
11. Aureus Analytics
12. Peel-Works
13. AnalyticsOne
14. Valiance
15. Kruxonomy

1.5 Three Domains of HR Analyst

People. Understanding people means understanding HR and the members of your organization so that you're asking good questions. Understanding fundamentals of psychology, like how to motivate employees and teams, comes in handy here. In HR, we need to understand why people work, what they want from their careers, and why they leave organizations. Understanding people also means knowing how to influence and persuade.Influence and persuasion are necessary to secure buy-in and communicate results in a way that resonates with your various stakeholders.

Business. Analytics will have limited impact if they aren't tied to challenges of importance to business leaders. Analysts need to have a thorough understanding of the business process and where the organization generates its competitive advantage.4 It's critical to understand the issues business leaders care about and where the business is in greatest need of help.

Data. Understanding data is about two types of expertise: data expertise and analytics expertise. Data expertise involves working directly with data—data extraction, cleaning, transformation, and management. Analytics expertise involves data analysis, data visualization, and validation. Although data fluency and statistics, particularly more advanced statistics, are newer skills for many HR professionals, you'll see that much of what is needed are things you're ready good at—consulting,business acumen, and a deep understanding of the people and people processes in your organization.

People have been seen to be resistive to making decisions based on data or algorithms. Analytic evidence can be viewed as a danger since it can lead to findings that are at odds with one's

judgment. HR professionals must learn to analyze data in order to lay the groundwork for a more comprehensive evidence-based strategy.

An evidence-based strategy entails employing tried-and-true methodologies to determine what works, how it works, and for whom. According to a 2012 poll of 950 American HR professionals, there are significant differences between what practitioners believe is beneficial and what current research shows are effective.

The four sources of evidence that should be considered, according to the Centre for Evidence-Based Management (CEBMa):

Scientific literature: Findings from empirical studies published in academic journals

Organizational context:data, facts, and figures gathered from theorganization

Practitioner experience and expertise: professional experience andjudgment of practitioners

Stakeholder: values and concerns of people affected by thedecisions

Findings from empirical investigations published in academic journals are referred to as scientific literature.

Context of the company

Case Study:

Meet Jen, She's the HR director of a 1,200-person company. What started as rumblings of an issue has become a full-blown problem. A few vocal managers have been complaining that their company is struggling with turnover. She doesn't know how serious the issue is. She does know that the HR department can't be perceived as unresponsive.Jen knows that these managers are usually pretty quick to complain. However, she wants to be responsive. She decides to take a look at some metrics. She asks an analyst to pull up last year's turnover numbers. They indicate turnover increased by about a percentage point over the last four quarters. Jen doesn't see a problem, so she writes a polite email to the managers and moves onto the next item on her list.

Summary

Measurement and statistical approaches are used in HR analytics to uncover and interpret data patterns. This data aids in the improvement of the company's human resources. HR analytics may boost the HR function's credibility by demonstrating the link between people and business outcomes. Data on people, processes, business outcomes, customer engagement, and more is now available thanks to technological improvements. Other industries are exploiting these data to gain a competitive edge, and they expect you to do the same.

Keywords

- HR analytics
- HR measurement
- Data Driven decisions

Self Assessment

1. HR analytics is one of the ways to convince C suit people to invest on

A. People Initiatives
B. Market Initiatives
C. Financial Initiative
D. Other resources

2. Metrics are measures of _____assessment commonly used for assessing, comparing and tracking performance

A. Quantitative
B. Qualitative
C. Both a &b
D. None of above

3. Time to hire means

A. The average number of days to fill the position
B. Days to fill the position
C. Days to take interview
D. Number of days that employee avails for joining a company

4. Cost per hire means

A. Number of hours spent on one employee
B. The average cost of hiring a new employee
C. the time from hire to full productivity
D. None of Above

5. Various dictionaries define analytics as the science of analysis, from the Greek word

A. Analutika
B. Analytika
C. Anulia
D. None of above

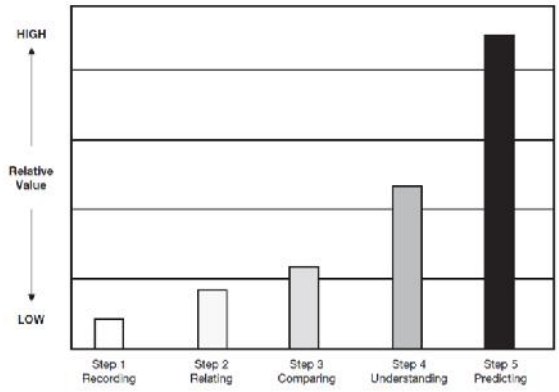
6. The principles of mathematical analysis say analysis means

A. Dismantling into different constituents
B. Joining all the constituents
C. Defining all components
D. All of above

7. The nature of analytics is

A. Science
B. Art
C. Both Science and art
D. None of above

8. The below graph is reflecting the importance of which domain of HR



A. HR Analytics
B. Importance of data
C. Decision making Process
D. Metrics

9. HRA is an outgrowth of and marriage between human resources metrics and _____
A. People analysis
B. Resource allocation
C. HR analysis
D. Business analysis

10. Choose the odd one out
A. Scan
B. plan
C. predict
D. verify

11. In Human analytics Model scanning means
A. Analyzing the impact of all internal stakeholders on organizations' human,structural and relational capital
B. Analyzing the impact of all external stakeholders on organizations' human,structural and relational capital
C. Analyzing the impact of all internal stakeholders on organizations, structural and relational capital
D. All of above

12. Statistical analysis is applied to uncover the most cost-effective combination of inputs and throughputs to drive the desired_____.
A. Outputs
B. Results
C. Processes
D. None of above

13. The past trends of HR is
A. Handling data manually
B. Hard data
C. Files and paper documentation
D. All of above

14. Analytics is the use of computational and visualization methods to derive and leverage insights about shared values and beliefs in organizations.
A. Cultural
B. People
C. Competency
D. Recruitment

15. HR Analytics deals with
A. Metrics of HR
B. Marketing tools
C. Time to hire
D. Cost per hire

Answers for Self Assessment

1.	A	2.	A	3.	A	4.	B	5.	A
6.	A	7.	C	8.	A	9.	D	10.	D
11.	D	12.	A	13.	D	14.	B	15.	A

Review Questions

1. HR analytics is a growing field in the last couple of years.Comment on this statement
2. HR personnel are struggling to get a chair in strategic decision-making to date.Do you agree or disagree? Elaborate your views.
3. Give some examples of HR measurement.
4. What is your point of view regarding the future scope of HR analytics?
5. Do you think that HR managers can play important role inthe strategic decision-making of any organization?

Further Readings

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- Alec Levenson, Strategic Analytics: Advancing Strategy Execution and Organizational Effectiveness (Oakland: Berrett-Koehler Publishers, 2015).
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Unit 02: Aligning HR with Business

CONTENTS

Objectives

After studying this unit you will

- Understand how HR is aligned with Business Goals

Introduction

In the past few decades, HR is considered to be the cost center of the company.HR manager is still struggling to find his seat with C suite executives. Despite this fact that without human resources no organization can imagine the success of firms. But still, it will take some time to get the front seat in strategic decision-making meetings. After studying this unit you will be able to understand the process and steps of HR analytics.

2.1 Process of HR Analytics

Before aligning HR with the business goals, it is very important to understand the process of HR analytics

Following are the steps of HR analytics

Descriptive analytics.

Predictive analytics. ...

Prescriptive analytics. ...

Diagnostic analytics

Descriptive analytics is a statistical method that is used to search and summarize historical data to identify patterns or meaning, it's about describing the data and its characteristics making some

pattern based on historic trends. Descriptive analytics is all about understanding the pattern of the data so that some meaning can be inferred from it.

 **Example:**

If a company manager has data on the attrition level of the employees of different departments over the last five years and the past trends show that in L&D department has the maximum rate of attrition. This data has some meaning from which you can infer that L&D departments need to be a point of discussion for taking necessary action.

Interpret the key results for Descriptive Statistics

Step 1: Describe the size of your sample.

Step 2: Describe the center of your data.

Step 3: Describe the spread of your data.

Step 4: Evaluate the shape and spread of your data distribution.

Step 5: Comparison of different groups

Predictive analytics is a branch of advanced analytics that makes predictions about future consequences using historical data combined with statistical modeling, data mining techniques

 **Examples:**

- In the coming days how many employees will leave the organization.
- How many customers will churn in near future?
- How many employees will get a promotion?

Though predictive analytics has been around for periods, it's a technology whose time has come. Various organizations are adopting predictive analytics to increase their bottom line and competitive advantage.

With time data is used everywhere. There are so many companies that are utilizing data for their decision-making process. These days there are various tools available that make data usage faster, cheaper,and user-friendly.

Importance of Predictive Analytics

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

Detecting fraud. A combination of 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.

Prescriptive Analytics

Most contemporary BI tools have built-in prescriptive analytics for employers to make better decisions thatare not based on gut feelings. One of the more interesting applications of prescriptive analytics is in oil and gas management, where prices constantly fluctuate based on ever-changing political, environmental, and demand conditions

For recruiters, the ability to model employees retention on a variety of factors allows them to make better decisions about training, and performance appraisal. Furthermore, both prescriptive and predictive analytics is useful for managing and maintenance of employees, as well as making better decisions regarding recruitment sources.

In healthcare business intelligence, prescriptive analytics is useful across the industry, both inpatient care and healthcare administration. For practitioners and care providers, prescriptive analytics helps improve clinical care and provide more satisfactory service to patients.

Diagnostic analytics

Diagnostic analytics is an approach that answers the question, "Why did this happen?"

Various incidents occurred in the organization.Diagnostics analytics is an approach that will give you an answer to the root cause of those incidents so that precautionary measures can be adopted in near future.

Case Study:

Meet Venus She's the HR director of a 1,800-person company. What started as rumblings of an issue has become a full-blown problem. A few vocal managers have been complaining that her company is struggling with turnover. She doesn't know how serious the issue is. She does know that the HR department can't be perceived as unresponsive.

Jen knows these managers are usually pretty quick to complain. However, she wants to be responsive. She decides to take a look at some metrics. She asks an analyst to pull the last year's turnover numbers. They indicate turnover increased about a percentage point over the last four quarters. Jen doesn't see a problem, so she writes a polite email to the managers and moves onto the next item on her list.

The next day Jen is called into an emergency meeting. She walks into the room and sees her boss sitting there along with Mark, the director of the managers who complained to her yesterday. No one looks happy. She senses that she's in the hot seat. Mark asks Jen to explain what happened. Suddenly she's getting peppered with questions. How is it possible that turnover isn't a problem? All of Mark's direct reports claim to be losing their best people. What is the company's turnover rate? Is that high or low? What if only the best performers are leaving?

Ultimately, Mark says he doesn't care what the numbers say. They can't meet their objectives without the necessary talent and that is her problem to fix.

After the meeting, Jen's boss sticks around to talk to her. She starts by asking Jen to reflect.

- Being an HR analyst how you will resolve this issue?
- What went Wrong in Jens' Situation?
- How might this all have been avoided?

2.2 HR Value Chain

Efficiency

It comprises HRM effectiveness and processes

Workforce planning:- Workforce planning is an essential business procedure that aligns changing organization requirements with individuals' strategies. It can be the most effective activity an organization can engage in. It doesn't need to be complicated and can be adjusted to suit the size and maturity of any organization. It can provide market and industry intelligence to help organizations focus on a range of challenges and issues, and prepare for initiatives to support longer-term business goals**.**

Recruitment and selection: Recruitment and selection is the process of identifying the need for a job, defining the requirements of the position and the job holder, advertising the position, and choosing the most appropriate person for the job.

Training: Training and development refer to instructive activities within a company shaped to enhance the knowledge and skills of employees while providing information and instruction on how to perform better for specific tasks.

Talent management For Most companies, talent management is a long-term business strategy. If any firm can retain its employees at the optimum level. It would have an impact on their business. Because it's only human resources that are required to run machines or any other task.

Coaching. Coaching is a sophisticated management style that requires developing a relationship that empowers employees by building confidence and competence.

Organizational DesignOrganizational design is the process of aligning the structure of an organization with its objectives, with the ultimate aim of improving efficiency and effectiveness.

Industrial Relation

Industrial relations may be defined as the relations and interactions in the industry particularly between the labor and management as a result of their composite attitudes and approaches regarding the management of the affairs of the industry, for the betterment of not only the management and the workers but also of the industry and the economy as a whole.

2.3 Effectiveness

HRM outcomes

HRM outcomes are the goals to achieve with the HRM activities. We recruit, we train, and we compensate to achieve certain goals/ outcomes. These outcomes include employee satisfaction, motivation, retention, and presence.

Employee Engagement

It is defined as how committed your employees are to the organization.

Retention

How long do employees want to work in the particular organization? This is one of the important aspects of an HR department.HR analytics is working on the past historical data using the step of descriptive analytics and predicting the future based upon the past incidents and then prescribing some functions how to avoid retentions issues in the future.

Competency Level

How competent the employees are in the organization? Competency level in the organization will help you to do workforce planning and using HR analytics will help the manager to meet the future demand of the origination appropriately.

Workforce cost

How much cost does the employer is bearing to recruit, maintain, and retain the employees in the firm? If a firm is making an attempt to measure the cost of the an employee it starts before an employees enters into the organisation .There are various costs that is measured like: Cost per hire, cost per source,training the new joinee ,induction cost ,interview cost etc

2.4 Organizational Objectives

Profit

Profit is considered as the gain amount from any business activity. Whenever an employer hire one employee he is looking forward for the returns that he will recive after hiring that person. Basically, when employer earned more money from the employee .This is called Profit which describes the financial benefit realized when revenue generated from a business activity exceeds the expenses, costs, and taxes involved in sustaining the activity in question.

Market value

To calculate the market value of a company, you would take the total shares outstanding and multiply the figure by the current price per share. For example, if ABC Limited has 50,000 shares in circulation on the market, and each share is priced at $25, its market value would be $1.25 million (50,000 x $25).

Market share

A company's market share is its sales measured as a percentage of an industry's total revenues. You can determine a company's market share by dividing its total sales or revenues by the industry's total sales over a fiscal period. Use this measure to get a general idea of the size of a company relative to the industry.

Turnover

It is defined as the rate at which employees are leaving your organization. Is one of the important goals of HR analysts/HR managers to always maintain the attrition level in the organization. Beacuse high turn over in the company is reflecting s big problem in the firm because if good employees are leaving the organization it would have poor impact on profits.

Moral values

Ethical values and Business ethics include Honesty; Integrity; Responsibility; Quality; Trust; Respect; Teamwork; Leadership; Corporate Citizenship; Shareholder Value; social ethics, moral modes, a customer-centric focus, employee satisfaction, customer satisfaction and finally leading to sustainable business

2.5 Business Performance

Business performance, which is closely knotted to marketable effectiveness, is determined by the ability of a company to implement an ideal organization to offer a product or service that meets the expectations of consumers and customers. Business performance is about meeting customer expectations. How good you are at meeting the expectations of the consumers.

Study evidence shows that HR's credibility increases as it starts using data to inform its decisions. This means that not only can analytics help you diagnose and solve problems, but it also can make you look good, make the HR function look good, and positively impact the bottom line.

2.6 Talent management Functions

Talent management is the attraction, selection, and retention of employees, which involves a combination of HR processes across the employee life cycle.

recruitment, corporate learning and development, performance management, and compensation management.

2.7 Pillars of Talent Management Systems

- Recruitment
- Corporate Learning
- Performance management
- Compensation management

Recruitment

Recruitment is the process of classifying, attracting, interviewing, choosing, hiring, and onboarding employees. In other words, it involves everything from the identification of a staffing need to filling it.

Depending on the size of an organization, recruitment is the responsibility of a range of workers. Larger organizations may have entire teams of recruiters, while others only a single recruiter. In small outfits, the hiring manager may be responsible for recruiting. In addition, many organizations outsource recruiting to outside firms. Companies almost always recruit candidates for new positions via advertisements, job boards, social media sites, and others. Many companies utilize recruiting software to more effectively and efficiently source, top candidates. Regardless, recruitment typically works in conjunction with, or as a part of Human Resources.

Corporate Learning

The corporate training market is over $200 billion around the world and it's going through a revolution. While we often think of training as programs or courses, a new paradigm has arrived, the corporate training industry has been around for decades and it has always been impacted by new technology.

Within a few years, all this concern went away, and pioneers proved that this new paradigm was real. British Telecom, for example, gave their employees small video recorders and asked them to videotape themselves solving complex customer problems. The CHRO of BT spoke at our conference that year and people were amazed. The Cheesecake Factory did the same thing, and the network of training content exploded in value.

Soon enough a few innovative vendors like Jambok and Wisetail started to build video-sharing platforms (Jambok has become Jam by SAP). And the idea of short-form, the user-authored video started to grow. (It grew very slowly at first because companies had no platforms to use.)

Sometime around 2009 the word "micro-learning" was created and this new model started to take hold. In 2010 Grovo was founded, in 2011 Axonify was founded, in 2012 Degreed and Pathgather were founded, and in 2013 Edcast and others came to market, offering a new set of tools that ignored the LMS and provided a modern learning experience that could integrate, manage, curate, and organize videos, articles, podcasts, and any other form of digital content. And now these systems are forming the basis for a whole new LMS industry.

Performance Management

Performance Management is a continuous and systematic effort for the achievement of organizational goals by aligning employees with organizational goals efficiently.

Performance Management is linkage between employee and manager throughout the year builds a communication system between a Manager and an employee that occurs throughout the year, in support of accomplishing the strategic objectives of the organization.

Performance management is a significant aspect of HRM. It is used to form a work environment where people are inspired to provide their best performance and do quality work.

Compensation Management

Compensation Management refers to the formation and execution of sound policies, programs, and practices of employee remuneration.

It is the application of a systematic and scientific approach for compensating the employees for their work in a fair, equitable, and logical manner.

Case Study:

How EON Reduced Employee Absenteeism with Predictive Analytics

Absenteeism in this German energy company had risen above the benchmark, so, the company used predictive analytics to formulate 55 hypotheses to uncover the reason behind absenteeism, out of which they tested 21 and validated 11. The result: The company discovered that a lack of a long

holiday in the year increased absenteeism and shared this insight with managers to improve PTO policies.

Summary

In this unit, it has been discussed the importance of the HR department in the organization and how it is aligned with organizational goals. There are three dimensions through which one organization can achieve organizational effectiveness, efficiency, and Impact on business. HR analytics process has explained the steps of how one can align business goals with human resources.

Keywords

- Business Performance
- HR analytics process

Self Assessment

1. Descriptive analytics is a statistical method that is used to search and summarize_____ data to identify patterns or meaning

A. Historical
B. Future
C. Bothe A&B
D. None of above

2. Descriptive analytics helps companies understand what happened in the _____

A. Future
B. Past
C. Today
D. All of above

3. The CEO of the company has asked the HR manager to give him a report on the past recruitment sources used in the company.Now HR manager is applying which step of the HR analytics Process

A. Predictive analytics
B. Descriptive analytics
C. Prescriptive analytics
D. Diagnostics analytics

4. Predictive analytics is the use of data, statistical algorithms, and machine learning techniques to identify the likelihood of _____outcomes based on historical data

A. Future
B. Past
C. No
D. All

5. Following are the ways to predict employee turnover

A. The Employees who have no change in their profiles
B. The employees having no increase in their salary
C. Employees who were highly rated during the last two performance reviews
D. All of above

6. How Credit Suisse Used Predictive HR Analytics to Reduce _____
A. Employees performance
B. Employee satisfaction
C. Employee Turnover
D. None of above

7. Analytics provides a way to demonstrate the linkage between people and ----------
A. Human resource
B. Business outcome
C. Marketing performance
D. None of above

8. HR analytics use measurement and analysis techniques to understand, improve, and optimize the _____of business.
A. people side
B. resource
C. process
D. result

9. Jen HR manager of the company was looking at the complaint through a metrics lens. How many people have left, and has that number increased over time? Shifting her lens to analytics—focusing on who is leaving, what is their impact on the business, and why are they leaving—can give Jen a lot more information

In the above case ,this is the responsibility of :
A. HR analyst
B. Marketing manager
C. Administrative
D. None of above

10. _____which is closely tied to commercial effectiveness is determined by the ability of a company to implement optimal organization to offer a product or service that meets the expectations of consumers and customers.
A. HR analysis
B. Product development
C. Business performance
D. Research and development

11. One person left in _____hasa huge impact on the firm.
A. Big firm
B. Small startup
C. Department

D. All of above

12. People aren't as good at making decisions as they think

Certain Limitation/s

A. informational-processing limitations

B. emotions

C. biases

D. All of above

13. There are also four primary problems that these solutions create

A. we don't see everything,

B. we create illusions,

C. our quick decisions can be seriously flawed

D. All of above

14. The four pillars of Talent Management Systems

A. Recruitment

B. Corporate Learning

C. Performance management

D. All of above

15. Talent management is defined as

I. Retention of the employees

II. Improvement of the employee performance

III. Training of the employees

IV. All of above

A. I,II

B. II,III

C. III

D. IV

Answers for Self Assessment

l.	A	2.	B	3.	A	4.	A	5.	D
6.	C	7.	B	8.	A	9.	A	10.	C
11.	B	12.	D	13.	D	14.	D	15.	D

Review Questions

Q1. What is the importance of Talent management in the organization?

Q2. Do you think that if one employee leavesa small startup? It has an impact on the whole organization.

Q3. What is the significance of descriptive analytics?

Q4. Let us suppose you are working as an HR manager in a company where the attrition level of employees is quite high. By using the HR analytics process how you can curb this issue?

Q5. Write a note on predictive analytics.

Further Readings

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Unit 03: Steps for Alignment of HRA with Business

CONTENTS

Objectives

After studying, you will be able to:

- Understand data and Metrics.
- Frame queries and building platform for HR analytics,
- Understand how to enhance HR analytics capabilities

Introduction

Until now the missing piece within business intelligence (BI) has been data on human capital and especially predictive human resources analytics (HRA). HRA is an outgrowth of and marriage between human resources metrics and general business analysis. HRA brings to life the logic within HCM:21. Previously, human resources metrics has been confined almost exclusively to labor issues as they relate to the business plan. HRA has opened the door to a much broader and more useful view of the metrics. It can draw on any or all BI data to both support the delivery of human resources services and influence the behavior of all levels of employees, up to and including executives. HRA turns human resources metrics toward the future. It takes past and current strategic and operationaldata and adds leading indicators. Data on retention, readiness,leadership, and engagement speak to what is likely to come tomorrow.Indeed, this is the newest lever in the business intelligence machine.

3.1 Data and Metrics

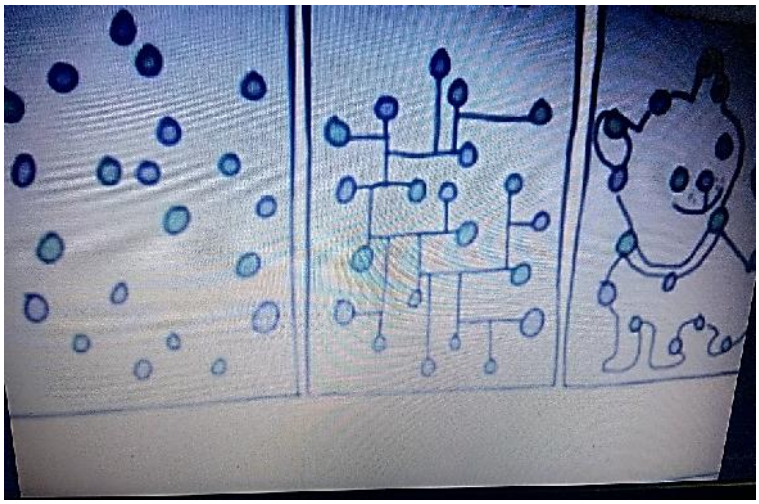
Metrics are measures of quantitative assessment commonly used for assessing, comparing and tracking performance.

HR Metrics are used to gauge the effectiveness of various **HR** responsibilities and initiatives such as hiring, employee retention, training, and labor costs.

Data are the raw numbers you track. When an employee who reports to one of the managers in Jen's scenario leaves, it creates data. Metrics focus on counting, tracking, and presenting past data.

3.2 Relationship of Metrics and Analytics

Metrics	Analytics
Metrics are focused on tracking past or available data.	**Analytics** is about using past or available data to generate predictions or making decision
How many employees left in last few years?	Why do my employees keep leaving?
Measuring the numbers by making comparison between two data points	**Analytics** is about using past or available data to generate predictions or making decision.



Example

If an engineering firm, for example, has a high turnover rate, the company is not entirely productive. Bringing employees up to full productivity takes time and commitment.

HR analytics gives firms data-backed insight into what's working and what isn't so they can improve and plan more successfully for the future.

Knowing the source of a company's high turnover, like in the example above, can provide significant insight into how it can be lowered. The company can increase income and productivity by decreasing turnover.

3.3 Meaning of HR Measurement

Metrics are measures of quantitative assessment frequently used for assessing, comparing and tracking performance. HR Metrics are used to measure the effectiveness of various HR responsibilities and initiatives such as recruitment, retention, training, and labor costs.

It seems that some HR teams aren't delivering as much information as their executive teams would like. Among the non-HR executives surveyed, nearly one-third said their HR team doesn't report often enough, and 16 percent mentioned said they have no idea how often their HR team reports.

According to one research, 51 percent of the respondents did agree that their Human Resource teams report enough, the numbers suggest that many organizations still have room for improvement. Its a great opportunity for HR. Understanding the reporting needs of your executive team, and then meeting those needs, can open the way for you to become a more strategic force in your organization. It isn't frequency alone that matters when it comes to HR metrics—it's also about what you measure. We asked respondents for the types of HR reports they currently use to measure the impact of HR, as well as the types of HR reports they wish they had. From a list of various options, almost a quarter of respondents selected employee satisfaction as a report they would like to have, and 20 percent selected employee engagement.

3.4 Framing Query

In HR analytics framing query is one of the important step to solve any case. Following are the steps

Step 1:-Start with your data:

The very first step is to start with your data. First of all try to find the answer to these questions

Q1. Who do you need buying from?

Q2. Who benefits from this ask ?

Q3. Who is the biggest pessimist of your ask?

It is important to have a level of executive sponsorship when asking for money time and specifically when a larger change management initiative is on the table. They are people projects, and they're best led by the business and influenced and guided by us. Its not required to influence all decision makers. It's critical to focus on the individual decision makers who have the most influence on the program decision or people who are proposing to.

.

Step 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).

Step 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.

Step 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

Step5: 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.

Step 6:- Final Step 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.

It has been identified various metrics that we wish to measure. We have talked about ways we can display what we are measuring by the use of dashboards and scorecards. Now, we need to talk through what do we do with these numbers, the KPIs we were measuring. How often do we find trends and needs with the data and metrics we're tracking?

And how do we find them? Before we build out our business case, we must identify trends and needs that we are finding within our metrics. We need to utilize both internal and external data when we build effective metrics, and we can use external data when we're building an effective story.

Note: For example, if turnover was 5% last year, and it is now 7.5%, it's increased by 50%, the former our data points, the latter is the metric.

3.5 Sources of Data in a Company

There are two sources of data in the company.

Internal Data

Internal data is gathered typically by the company. Following are the sources of Internal Data

1. HR systems
2. Financial systems
3. Corporate financials
4. Engagement survey results
5. Exit interviews.

External Data

External data is found outside.

1. Internet
2. Professional association reports
3. Benchmarking associations.

Case Study: Let's pretend in an employee survey, managers, and longer tenured associates were very frustrated with the constant churn. And there is huge impact of the training on their productivity. The results of the survey mentioned that, the lack of training, and use of online training tools was a concern for new hires, a reason they were leaving. After reviewing all of internal and external data

It has been determined that the need was to invest in a new online self-paced

training tool and those tools would cost $200,000. Beyond just getting the approval for the money, also need to ensure if approved, Building a business case is really just a way in which you tell a story to influence, and we do say by utilizing numbers. The business case is not just about the data and the metrics, it's about how one can create analytics to justify a value and a need for our business. At the end of the day, a business case is a way of presenting a compelling story to achieve approval for an ask.

Your ask should always align with your business objectives be supported by data and have measurable results.

Align the Organization to the Strategy. Managers work around organizational barriers to achieve success. In a strategy-focused organization, work units become linked to the strategy through common goals and objectives, thus creating a synergy that ensures that the linkages continue to work. The formation of the strategy is based upon data .The right kind of data is very integral point of discussion. The HR analyst need to shift his lens from data to metrics and furthermore to analytics. The paradigm of HR has been changing HR is the department which has adapted analytics very late.

3.6 Benefits of HR Metrics

- Improve labor resources allocation (scheduling, bidding, hiring, compensation)
- Predict the results of proposed changes with 'what if' scenarios (PTO policies, benefits changes, additional shifts, additional locations, team makeup)

- Decrease compliance risks (overtime, minimum wage, exempt vs non-exempt classification, FMLA, PBJ, ACA)
- Improve the ROI of HR programs (engagement, wellness, financial planning, performance)

Summary

From the above discussion it has been inferred that data and metrics are important aspect of HR department. How to project that data and metrics around people operation via building case story. Based upon this case dashboards and scorecards has been developed.we rounded out the course with putting it all together and building a business case for change. Utilizing the employee lifecycle data, our metrics, and analytics to tell a story around what we need and how this need will achieve a business result tied to the business outcomes.

Keywords

- Business Goals
- HR analytics
- Data and Metrics

Self Assessment

1Analytics measures

A. Why something is happening?

B. What the impact is of what's happening?

C. Both A&B

D. None of above

2."I feel like a lot of people are ill this month!" This statement is

A. An opinion

B. A gut feeling

C. Fact

D. None of above

3. Metrics are the relations between

A. data points

B. Time frame

C. Two values

D. All of above

4. First step in framing query is

A. Start with data

B. Getting Right Data

C. Areas of analytics

D. Implementation of results

5.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
B. Results
C. Facts
D. None of above

6. The principles of mathematical analysis say analysis means

6. Why Business cases Failed?

A. Lack of metrics or data
B. A poor project cost estimations are three very common reasons why business cases for HR professionals get rejected.
C. Offend in finance is invaluable.
D. All of above

7 . KPI stands for

A. Key performance indicator
B. Key payroll Indicator
C. Kaizen Profit Point
D. Key Performance insurance

8. When we are building our business case, we must find our trends and needs in our

A. HR Analytics
B. Data
C. Decision making Process
D. Department

9 Exit Interviews are sources of _____data.

A. Internal
B. External
C. Both of above
D. None of above

10. Benchmarking association is source of external data

A. True
B. False

11. Building a business case is really just a way in which you tell a story to influence

A. Decision maker

B. CFO
C. Manager
D. None of above

12.One of the important step in building case is Demonstrate your credibility which means…..

A. business case has substantial data a
B. Business case has substantial metrics
C. It should support the analytics
D. All of above

13. Culture Fit

A. Make sure you spend time to explain how the case fits into your culture.
B. Hard data
C. Files and paper documentation
D. None of above

14. Before framing query some important point one should consider that is Think through what your business wants and needs.

What are you trying to solve for, and how is this project going to impact the bottom line?

A. False
B. True

15. Honesty is one of the important aspect for the success of your project

A. True
B. False

Answers for Self Assessment

l.	C	2.	B	3.	D	4.	A	5.	A
6.	D	7.	A	8.	B	9.	A	10.	A
11.	B	12.	D	13.	A	14.	B	15.	A

Review Questions

Q1. HR analytics is a growing field in the last couple of years. Comment on this statement
Q2. HR personnel is struggling to get a chair in strategic decision-making to date. Do you agree or disagree? Elaborate your views.
Q3. Give some examples of HR measurement.
Q4. What is your point of view regarding the future scope of HR analytics?
Q5. Do you think that HR managers can play important role in the strategic decision-making of any organization?

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Unit 04: Framework and Models in HR Analytics

CONTENTS

Objectives

After studying, you will be able to:

- Understand the framework of LAMP
- Application of LAMP in the organization

Introduction

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

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

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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.

4.1 Importance of Predictive Models

One day while walking, a man come across an intoxicated 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, catching nothing. "Are you sure you lost them here?"

"No, I lost them in that dark backstreet over there."

"If you lost your keys in the back street, why don't you search over there?"

"Because this is where the light is."

In many ways, organization measurement systems are like the person looking for the keys where the light is, not where they are most likely to be found. Progressions in information technology often provide technical competences that far surpass the ability of the decision science and processes to use them properly.

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 worsened these issues. 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 street where the keys are is better than a very bright streetlight where the keys are not."

The bottom line on the top is if you have data how to took decisions based on data at right time and with right person it is important. Data is everywhere.

4.2 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:, analytics, logic, 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 aids companies to know where to look for insight and connect data points to meaning in order to make good decisions. The connection between the numbers will give you the answer to this question why this is happened?

For instance Analyst try to find the connection between health and wellness and employee turnover

This step of logic will give you a reason for analysis where to move ahead to find the answer to the questions? This framework represents the connections between Human Resource 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

If you are measuring something meaningful that matters for your organization that is Good Analytics. There are various factors in Human resource management like employee turnover, performance, engagement and absence and learning are not equally important everywhere. That means measurements like these should emphasis precisely on what matters. If turnover is a risk due to the loss of key competences, turnover rates should be stratified to distinguish employees with such skills from others.

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 give answers. You may have data that reflects 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 high performance and 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 all-inclusive 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 tackling people problems. It also helps meaningful data and analysis from that data in front of business leaders who can actually affect and support needed change.eeds 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.

Case Study 

4.3 Top 5 Predictive Analytics Models

Classification Model

The classification model is, the simplest of the several types of predictive analytics models. It puts data in categories based on historical data.

Classification models are best to answer yes or no questions, providing broad analysis helps in decision making. These models can answer questions such as:

- For a HR manager, "Is this employee about to churn?"
- For a loan provider, "Will this loan be approved?" or "Is this customer be defaulter?
- For an online banking, "Is this a fraudulent transaction?"

The scope of cluster model can be applied to different industries and department of the company as per the requirement of the decision making.

Clustering Model

The clustering model sorts data into separate, nested smart groups based on similar attributes. If an ecommerce shoe company is looking to implement targeted marketing campaigns for their customers, they could go through the hundreds of thousands of records to create a tailored strategy for each individual. But is this the most efficient use of time? Probably not. Using the clustering model, they can quickly separate customers into similar groups based on common characteristics and devise strategies for each group at a larger scale.

Other use cases of this predictive modeling technique might include grouping loan applicants into "smart buckets" based on loan attributes, identifying areas in a city with a high volume of crime, and benchmarking SaaS customer data into groups to identify global patterns of use.

Forecast Model

One of the most extensively used predictive analytics models, the forecast model deals in metric value prediction, estimating numeric value for new data based on learnings from historical data.

This model can be applied wherever historical numerical data is available. Scenarios include:

- A SaaS company can estimate how many customers they are likely to convert within a given week.
- A call center can predict how many support calls they will receive per hour.
- A shoe store can calculate how much inventory they should keep on hand in order to meet demand during a particular sales period.

The forecast model also considers multiple input parameters. If a restaurant owner wants to predict the number of customers she is likely to receive in the following week, the model will take into account factors that could impact this, such as: Is there an event close by? What is the weather forecast? Is there an illness going around?

Outliers Model

The outliers model is oriented around anomalous data entries within a dataset. It can identify abnormal figures either by themselves or in conjunction with other numbers and categories.

- Recording a spike in support calls, which could indicate a product failure that might lead to a recall
- Finding unusual information in your NetOps logs and noticing the signs of impending unplanned downtime

The outlier model is particularly useful for predictive analytics in retail and finance. For example, when identifying fraudulent transactions, the model can assess not only amount, but also location, time, purchase history and the nature of a purchase (i.e., a $1000 purchase on electronics is not as likely to be fraudulent as a purchase of the same amount on books or common utilities).

Time Series Model

The time series model consisting of a sequence of data captured, using time as the input criteria. It uses the previous year of data to develop a numerical metric and predicts the next three to six weeks of data using that metric. Use cases for this model includes the number of daily calls received in the past three months, sales for the past 20 quarters, or the number of patients who showed up at a given hospital in the past six weeks. It is a potent means of understanding the way a singular metric is developing over time with a level of accuracy beyond simple averages. It also takes into account seasons of the year or events that points could impact the metric.

If the owner of a salon wishes to predict how many people are likely to visit his business, he might turn to the crude method of averaging the total number of visitors over the past 90 days. However, growth is not always static or linear, and the time series model can better model exponential

growth and better align the model to a company's trend. It can also forecast for multiple projects or multiple regions at the same time instead of just one at a time.

4.4 Significance of Predictive analytics

It is the field of collecting data collecting and identify the pattern of historic data and make decisions.

There are numerous companies which are using predictive analytics in marketing and sales. Still HR and safety are the areas which is still unexplored.

For example, safety and incident data can be used to predict when and where incidents are likely to occur. Appropriate data analysis strategies can also identify the key factors that contribute to incident risk, thereby allowing companies to proactively address those factors to avoid future incidents.

Many companies already have large amounts of data they are gathering. The key is figuring out how to use that data intelligently to guide future business decision-making. Here are five key questions to guide you in integrating predictive analytics in operations.

Defining your desired result not only helps to focus the project, it narrows brainstorming of risk factors and data sources. This can—and should—be continually referenced throughout the project to ensure your work is designed appropriately to meet the defined objectives.

In Operations

Thinking beyond the project to overall operational improvements provides bigger picture insights into the business outcomes desired. This helps when identifying the format results should be in to maximize their utility in the field and/or for management. In addition, it helps to ensure that the work focuses on those variables that can be controlled to improve operations. Static variables that can't be changed mean risks cannot be mitigated.

These are some variables for prediction in the predictive model. It is valuable to brainstorm with all relevant subject matter experts (i.e., management, operations, engineering, third-parties, as appropriate) to get a complete picture. After brainstorming, narrow risk factors based on availability/quality of data, whether the risk factor can be managed/controlled, and a subjective evaluation of risk factor strength. The modeling process will ultimately suggest which of the risk factors significantly contribute to the outcome.

4.5 Implication of Predictive Analytics

The versatility of predictive analytics can be applied to help companies analyze a wide variety of problems when the data and desired project outcomes and business/operational improvements are well-defined. With predictive analytics, companies gain the capacity to:

Explore and investigate past performance

Gain the insights needed to turn vast amounts of data into relevant and actionable information

Create statistically valid models to facilitate data-driven decisions

What are the business benefits?

Have you figured out what you can do with this?

Can you quantify and measure the benefits?

Have you really worked out what the actual business problem is you are trying to solve?

What technical know-how is required?

How technical do users need to be?

Can business users make sense of this without an in-depth background in statistics?

Is the interface easy to use without programming skills?

Is it really possible to predict employee success through the use of analytics? The short answer is yes, although HR is still a relatively new industry tapping the benefits of predictive analytics.

Implication in HR

One way is through aggregating data to manage workflows and boost productivity. Employee data can show pain points and productivity spikes in their day-to-day, and this data only gets better with time.

Using a performance management system to collect this data can help businesses predict future employee performance. More data can be used to build baselines of where employees should be at which stages in their career. Predictive analytics can also help during the hiring process. Gathering data on everything from company review sites and social media to job growth rates and evolving skill sets, predictive analytics can help recruiters find the right matches for their job postings faster and more efficiently. This can also reduce turnover rates in the long run. As a matter of fact, applicant tracking software like Greenhouse is one of a few solutions today that utilize predictive analytics and machine learning for this very purpose.

Implication in Finance

More than 3 billion fraud reports were filed in 2018 with the FTC, resulting in $1.48 billion in total losses. This is up 38 percent in just one year. What's one way to tackle the billions of dollars lost to fraud every year? Well, the use of predictive analytics has become a more prominent solution in the cybersecurity industry. This is done by analyzing typical fraudulent activity, training predictive models to recognize patterns in this behavior, and finding anomalies. Better monitoring of suspicious financial activity should lead to earlier detections of fraud.

Implication in Education

Examples of predictive analytics in higher education include applications in enrollment management, fundraising, recruitment, and retention. In each of these areas, predictive analytics gives a major leg up by providing intelligent insights that would otherwise be overlooked.

Using data from a student's high school years, a predictive model can score each student and inform administrators on how best to support that student over the course of their enrollment.

Models can provide fundraisers with critical information about the best times and methods for reaching out to prospective and current donors.

With analytics, recruiters can more accurately target their outreach where it will lead to the greatest success at the least cost.

Predictive analytics can provide insight into what factors persuade students to stay at your school rather than transfer to another one.

Summary

This unit has thrown light on the importance and application of predictive analytics. There are various models that will help HR manger to predict the future of the department. From the above models one can develop the policy for better decision making.

Keywords

- Predictive Models
- Predictive analytics
- LAMP framework

Self Assessment

1. LAMP stands for

A. Logic,Analytics,Measure,Prediction
B. Logic,Analytics,Measure,Process
C. Logic,assesemnt .Measure,Process
D. Logic,Analysis,Measure,Process

2.Some theories suggest that employees with positive attitudes convey those attitudes to customers, who, in turn, have more _____experiences and purchase ____

A. positive and more.
B. Negative and more
C. Both a &b
D. Positive and less

3. Suppose an organization has data showing that customer attitudes and purchases are higher in locations with better employee attitudes.This is known as

A. Negative correlation
B. Positive correlation
C. Zero Correlation
D. None of above

4. Which one is the last step in LAMP frame work

A. Logic
B. Analytics
C. Process
D. Measure

5.When data is bifurcated into various categories ,based on past information that is Analutika

A. Classification model
B. Cluster model
C. Forecast Model
D. Time series

6. The logic element of any measurement system provides the "story" behind the connections between the _____and _____and outcomes.

A. Numbers and the effects
B. Impact and effect
C. People and problem
D. Employee and employer

7 . If a restaurant owner wants to predict the number of customers she is likely to receive in the following week, which model will take into account?

A. Classification model
B. Cluster model

C. Forecast Model

D. Time series

8. When identifying fraudulent transactions, the model can assess not only amount, but also location, time, purchase history and the nature of a purchase.

This situation is an example of which model application?

A. Classification model

B. Cluster model

C. Outlier model

D. Time series

9 .Outlier Model is one of the technique to find _____behaviour of employees

A. Anomaly

B. Suspicion

C. Fraudulent

D. All of above

10. If the HR manager of a company wishes to predict how many people are likely to join his company, he might turn to the crude method of averaging the total number of visitors over the past 1 year

This is example of

A. Time series model

B. Outlier

C. Predictive model

D. Classification Modelling

11

The time series model comprises a sequence of data points captured, using _____as the input parameter

A. Time

B. Money

C. Resources

D. All of above

12A decision tree produces a sequence of rules that can be used to _____the data

A. Classify

B. Manage

C. Predict

D. Measure

13. Predictive modeling is a mathematical process used to predict future events or outcomes by _____in a given set of input data.

A. analyzing patterns

B. seeing data

C. forecasting

D. measuring metric

14. If an HR Outsourcing is looking to implement targeted policy campaigns for their employees, which predictive model should be applied?

A. Cluster Modeling
B. Classification modelling
C. Decision tree
D. Forecast Modelling

15 Predictive analytics is one of the important tool of HR analytics, in which HR manager can take decision based upon

A. Past behavior of data
B. History of data
C. Current trends
D. All of above

Answers for Self Assessment

l.	B	2.	A	3.	B	4.	C	5.	A
6.	A	7.	C	8.	C	9.	D	10.	C
11.	A	12.	A	13.	A	14.	A	15.	D

Review Questions

Q1. How do you plan to use the predictions to improve operations? What is your goal of implementing a predictive analytics project?
Q2. You're Uber and you want to design a heatmap to recommend to drivers where to wait for a passenger. How would you approach this?
Q3. How would you suggest to a franchise where to open a new store?
Q4. How could you collect and analyze data to use social media to predict the weather?
Q5. Discuss in detail outlier with some live examples.

Further Readings

https://www.ibm.com/analytics/predictive-analytics#:~:text=Predictive%20analytics%20is%20a%20branch,to%20identify%20risks%20and%20opportunities.

https://www.sas.com/en_in/insights/analytics/predictive-analytics.html

https://www.datamation.com/big-data/top-predictive-analytics-examples-analytics-for-business-success/

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Unit 05: HR Research Tools and Techniques

CONTENTS

Objectives

After studying, you will be able to:

- Understand various research tools
- Understand the application of correlational Research
- Understand various kinds of parametric and non parametric Test

Introduction

Correlational research is a type of non-experimental research method in which a researcher measures two variables, understands and assesses the statistical relationship between them with no influence from any extraneous variable.

2003 there was one research conducted that people eating Pizza has low risk of cancer. Now the question rises there is any relation between the two variables. This is called correlation. Whenever there is a relationship between two variables with any interference of any extraneous factor.

For example, it can memorize the jingle of a pizza truck. The louder the jingle means pizza truck is closer. Who taught us that? Every human being is simply relied on the basic understanding and came to a conclusion. If there are multiple pizza trucks in the area and each one has a different jingle, we would memorize it all and relate the jingle to its pizza truck.

CorrelationalResearch is about correlation between two variables. This relation can be positive negative and Zero.

5.1 Types of correlational research

Mainly three types of correlational research have been identified:

1. ***Positive correlation***: A positive relationship between two variables is when an increase in one variable leads to a rise in the other variable. A decrease in one variable will see a reduction in the other variable. For example, the amount of money a person has might positively correlate with the number of cars the person owns.

2. ***Negative correlation***: A negative correlation is quite literally the opposite of a positive relationship. If there is an increase in one variable, the second variable will show a decrease and vice versa.

For example, being educated might negatively correlate with the crime rate when an increase in one variable leads to a decrease in another and vice versa. If the level of education in a country is improved, it can lower crime rates. Please note that this doesn't mean that lack of education leads to crimes. It only means that a lack of education and crime is believed to have a common reason – poverty.

3. ***No correlation***: In this third type, there is no correlation between the two variables. A change in one variable may not necessarily see a difference in the other variable. For example, being a millionaire and happiness is not correlated. An increase in money doesn't lead to happiness.

Data collection

The distinctive feature of correlational research is that the researcher can't manipulate either of the variables involved. It doesn't matter how or where the variables are measured. A researcher could observe participants in a closed environment or a public setting

Ethically this method is acceptable if the participants remain anonymous, and if the study is conducted in a public setting, a place where people would not normally expect completes privacy. As mentioned previously, taking an example of the grocery store where people can be observed while collecting an item from the aisle and putting in the shopping bags. This is ethically acceptable, and that is the reason most researchers choose public settings for recording their observations. This data collection method could be both qualitative and quantitative.

Archival data

Another approach to correlational data is the use of archival data. Archival information is the data that has been previously collected by doing similar kinds of research. Archival data is usually made available through primary research.

In contrast to naturalistic observation, the information collected through archived data can be quite straightforward. For example, counting the number of people named Richard in the various states of America based on social security records is quite straightforward.

5.2 Characteristics of Correlational Research

Correlational research has three main characteristics. They are:

Non-experimental: Correlational study is non-experimental. It means that researchers need not manipulate variables with a scientific methodology to either agree or disagree with a hypothesis. The researcher only measures and observes the relationship between the variables, without altering them or subjecting them to external conditioning.

Backward-looking: Correlational research only looks back at historical data and observes events in the past. Researchers use it to measure and spot historical patterns between two variables. A correlational study may show a positive relationship between two variables, but this can change in the future.

Dynamic:The patterns between two variables from correlational research are never constant and are always changing. Two variables having a negative correlation in the past can have a positive correlation relationship in the future due to various factors.

Case Study

Jen's (VP HR) team is on board, the team of managers Vice President HR just need to dive deeper into the data. They start by talking about what they each already know well. The HR department mentions that they routinely send out exit surveys and those employees have the option to do an exit interview. She points out that they also have performance ratings. The organizational effectiveness specialist mentions the engagement survey. It's only administered annually, but there may be something the team can learn from it. The talent acquisition manager mentions that his team enters some data into the system during the recruiting and hiring process. For example, they use rationale codes to keep track of why candidates turn down a job offer. Salary is one of the rationales included in the codes.

5.3 How to Conduct a Correlational Study?

1. Create a hypothesis

A hypothesis is a prediction about variables of interest.

Variables are simply anything that can be measured or counted. In HR, we usually work with variables like employee engagement, turnover, salary, and job satisfaction. Starting any analytics project with a hypothesis will help you determine the kind of data you need. A simple way of structuring a hypothesis is as an if / then statement

The R&D managers have a hypothesis about turnover in their department: low pay is explaining the turnover problem. Put another way, they hypothesize that if R&D employees are paid more, then they will be less likely to leave the organization.

It's important to look at multiple hypotheses.

If your initial hypothesis is not supported, you'll have little direction for moving forward.

If Jen only considers the managers' hypothesis, what happens if she finds out pay doesn't explain the turnover problem? She can't propose alternative solutions without investigating alternative hypotheses.

Think about the other sources of data Jen's team mentioned. You've got the components of alternative hypotheses there.

Some possible alternative hypotheses are that employees are leaving because they aren't engaged in their work, they don't have good relationships with their coworkers, or they don't get along with their supervisors.

A large financial firm did some digging into the drivers of high performance.

- GPA
- quality of references
- Attendance at top universities didn't matter.

Things like lack of misspellings in résumés and related sales experience did matter in predicting top performance.

How to conduct a correlational study?

Choose a data collection method

1. Data Collection Method
2. Survey
3. Observation
4. Secondary Data

Collect your data

Once you establish your method, collect the data. Consider a sample size that is big enough to determine correlation.

- For **example**, asking 10 people for their income and if they prefer picking up dinner or delivery might not provide you with a clear correlation
- Employees who attend more training sessions are likely to change the company.

IV Analyze the results

Analyzing data can help you identify if you have positive, negative or no correlation. Although there may be a positive or negative correlation, a third variable still might be the cause.

Parametric Test	Nonparametric Test
Paired t-test	Wilcoxon Signed Rank test
Unpaired t-test	Mann-Whitney U test
One way ANOVA	Kruskal-Wallis H test
Pearson's coefficient	Spearman's coefficient

5.4 Non-Parametric Tests

Non-parametric tests are used to identify patterns of diverse populations. It is constructed without relation to some specific parametric distribution of probability. Distribution-free experiments are often considered non-parametric because they do not include any population distribution. Non-parametric tests are all mathematical techniques that do not create assumptions about the distribution of factors or parameters to be tested. Where there are biased data, the non-parametric experiment depends on techniques that do not rely on any specific distribution.

The term non-parametric does not imply these models do not have any parameters. In truth, the features and various varieties of the criteria aren't constrained and not fixed in stone. Therefore, these structures are considered general models.

Non-parametric T-test

When uncertain hypotheses occur inside a sample, we use Non-parametric tests which are called parametric counterparts. When results do not obey a regular distribution or are calculated on an ordinal basis, nonparametric statistical tests may be used for interpretation. A parametric test is used on naturally distributed data, and a non-parametric test is used on warped data.

Non-parametric Paired T-test

The two samples would be compared using the paired t-test and would come from the same party. The t-test is acceptable because the independent variables have two degrees, and they are evaluated with repeated steps.

Types of Non-parametric Statistical Tests

Important non-parametric data include:

- Kruskal-Wallis Test
- Friedman Test
- 1-Sample Sign Test
- Mood's Median Test
- Spearman Rank Correlation
- Mann-Kendall Trend Test
- Mann-Whitney Test

5.5 Advantages and Drawbacks of the Non-Parametric Test

The benefits of the non-parametric evaluation are:

- Easily understood.
- Simple calculations.
- There is no assumption of distribution necessary.
- For any form of data.

The disadvantages of the non-parametric test are:

- Less effective than a parametric test.
- Results are not able to be reliably measured because of the absence of corrections.
- Applications of Non-parametric Statistical Methods

When non-parametric tests are used, the following criteria apply:

- When predicted parameters are not reached.
- The null hypothesis may be checked without any distribution of it.
- To do fast analysis.
- When quantitative evidence is available.

5.6 Illustrated Examples on Non-parametric Tests

1. List an example of a nonparametric testing procedure.

Solution. The only nonparametric exam a subject is going to have to perform is a Chi-Square test. There are also others such as: For example, non-parametric alternatives to One way ANOVA and Two-sample t-test are the Kruskal-Willis test and Mann-Whitney U test.

Chi-square is non-parametric since it does not presume a fixed distribution for the data. Non-parametric tests must be utilized where one or all of the following criteria apply: all factors are trivial or ordinal.

5.7 Parametric Test

Parametric tests are those that assume that the sample data comes from a population that follows a probability distribution — the normal distribution — with a fixed set of parameters.

Common parametric tests are focused on analyzing and comparing the mean or variance of data.

The mean is the most commonly used measure of central tendency to describe data, however it is also heavily impacted by outliers. Thus it is important to analyze your data and determine whether the mean is the best way to represent it. If yes, then parametric tests are the way to go! If not, and the median better represents your data, then nonparametric tests might be the better option.

As mentioned above, parametric tests have a couple of assumptions that need to be met by the data:

Normality — the sample data come from a population that approximately follows a normal distribution

Homogeneity of variance — the sample data come from a population with the same variance

Independence — the sample data consists of independent observations and are sampled randomly

Outliers — the sample data don't contain any extreme outliers

Degrees of Freedom

Before we get into the different statistical tests, there is one important concept that should be discussed — degrees of freedom.

The degrees of freedom are essentially the number of independent values that can vary in a set of data while measuring statistical parameters.

Let's say you like to go out every Saturday and you've just bought four new outfits. You want to wear a new outfit every weekend of the month. On the first Saturday, all four outfits are unworn, so you can pick any. The next Saturday you can pick from three and the third Saturday you can pick from two. On the last Saturday of the month though, you're left with only one outfit and you have to wear it whether you want to or not, whereas on the other Saturdays you had a choice.

So basically, you had 4–1=3 Saturdays of freedom to choose an outfit — your outfit could vary.

That's the idea behind degrees of freedom.

With respect to numerical values and the mean, the sum of the numerical values must equal the sample size times the mean, i.e. sum = n * mean, where n is the sample size. So if you have a sample size of 20 and a mean of 40, the sum of all the observations in the sample must be 800. The first 19 values can be anything, but the 20th value has to ensure that the total of all the values adds up to 800, therefore it has no freedom to vary. Hence the degrees of freedom are 19.

The formula for degrees of freedom is sample size — number of parameters you're measuring.

Comparing means.

If you want to compare the means of two groups then the right tests to choose between are the z-test and the t-test.

One-sample (one-sample z-test or a one-sample t-test): one group will be a sample and the second group will be the population. So you're basically comparing a sample with a standard value from the population. We are basically trying to see if the sample comes from the population, i.e. does it behave differently from the population or not.

The mean age of patients known to visit a dentist is 18, but we hypothesize it could be greater than this. The sample must be randomly selected from the population and the observations must be independent of one another.

Two-sample (two-sample z-test and a two-sample t-test): both groups will be separate samples. As in the case of one-sample tests, both samples must be randomly selected from the population and the observations must be independent of one another.

Two-sample tests are used when there are two variables involved. For example, comparing the mean money spent on a shopping site between the two sexes. One sample will be female customers and the second sample will be male customers. Since the means are being compared, one of the variables involved in the test has to be numerical (the money spent on a shopping site is the numerical variable).

Notes: Don't confuse one-sample and two-sample with one-tailed and two-tailed! The former is related to the number of samples being compared and the latter with whether your alternate hypothesis is directional. You can have a one-sample two-tailed test.

How do we choose between a z-test and a t-test though? By looking at the sample size and population variance.

If the population variance is known and the sample size is large (greater than or equal to 30) — we choose a z-test

If the population variance is known and the sample size is small (less than 30) — we can perform either a z-test or a t-test

If the population variance is not known and the sample size is small — we choose a t-test

If the population variance is not known and the sample size is large — we choose a t-test

T-test

As mentioned above, the t-test is very similar to the z-test, barring the fact that it works well with smaller samples and the population variance doesn't need to be known.

The t-test is based on the t-distribution, which is a bell-shaped curve like the normal distribution, but has heavier tails.

As the sample size increases, the degrees of freedom also increase, and the t-distribution becomes similar to the normal distribution. It becomes less skewed and tighter around the mean (lighter tails). Why? We'll find out in a bit.

There are three types of t-tests. Introductions for two have already been given above — one-sample and two-sample. Both of these come under the 'unpaired t-test' umbrella, and so the third type of t-test is the 'paired t-test'.

The concept of paired and unpaired is to do with the samples. Is the sample the same or are they two different samples? Are we monitoring a variable in two different groups or the same group? If the sample is the same, then the t-test should be paired, else unpaired.

For example, let's say you want to test whether a certain medication increases the level of progesterone in women.

If the data you have is the progesterone levels of a group of women before the medication was consumed and the progesterone levels of the same group of women after the medication was consumed, then you would conduct a paired t-test since the sample is the same.

If the data you have is the progesterone level of two groups of women of different age groups after the medication was consumed, then you would conduct a two-sample unpaired t-test since there are two different samples.

Every statistical test has a test statistic which helps us calculate the p-value which then determines whether to reject or not reject the null hypothesis. In the case of the t-test, the test statistic is known as the t-statistic. The formula to calculate the t-statistic differs depending on which t-test you're performing, so let's take a closer look at them all.

Summary

In this unit various kind of test and tools has been discussed which can help us to understand the implications of various research tools.

Keywords

- Correlational Study
- parametric
- non- parametric Test

Self Assessment

1. Correlational research is a type of _____research method in which a researcher measures two variables, understands and assesses the statistical relationship between them with no influence from any extraneous variable

A. Experimental research
B. Quasi experimental research
C. non-experimental
D. none of above

2. A correlational study may show a positive relationship between two variables, but this can _____in the future.

A. Change
B. Remain same
C. Fact
D. None of above

3. Two variables having a negative correlation in the past can have a _____correlation relationship in the future due to various factors.

A. Positive
B. Negative
C. Remains same
D. Constant

4. If a study finds that when salary increment of an employees in an area, leads to satisfaction, this can be a.

A. Positive correlation
B. Negative correlation
C. No correlation
D. Zero correlation

5. Variables indicate whether a data point is higher or lower than another as well as by how much. This information helps to identify

A. Interval
B. Ratio
C. Ordinal
D. Lagging

6. If you're gathering at least two sets of data, sometimes more. For example, if you hypothesize parents are more likely to shop for children's clothes in the fall, you might gather seasonal data and customer data. This data can help you see if there are any relationships between demographics and seasons. This is an example of which kind of research

A. Experimental
B. Correlational
C. Causal.
D. All of above

7. ____research is a method used to identify the cause–effect relationship between a dependent and independent variable

A. Correlation
B. Causal-comparative
C. Experimental
D. All of above.

8. Causal-comparative research is a family of research designs used to examine potential causes for observed differences found among existing

A. Variables
B. Research
C. None of above
D. Groups

9. In which kind of research manipulation is not possible
A. Causal comparative research
B. Correlation
C. Experimental research
D. All of above
10. In causal correlational research it remains in _____
A. Two group
B. Three group
C. One group
D. Numerous groups

11. In experimental research ,one can _____the variables
A. Non manipulative
B. Remains same
C. Manipulate
D. None of above

12. For the two-sample t-test, we need two
A. Two variables
B. One variable
C. Three variables
D. None of above

13. Non parametric tests are used when your data isn't_____
A. Linear
B. Measurable
C. Normal
D. None of above

14. How to know whether data is normal or not?
A. Check the skewness and Kurtosis of the distribution using software like Excel
B. Check skewness
C. Check kurtosis
D. Check with sampling technique

15. Suppose you are interested in evaluating the effectiveness of a company training program. One approach you might consider would be to measure the performance of a sample of employees is
A. Before and after completing the program
B. Before the training program
C. After the training program
D. None of above

Answers for Self Assessment

1.	C	2.	A	3.	A	4.	A	5.	A
6.	B	7.	B	8.	D	9.	A	10.	C
11.	C	12.	A	13.	C	14.	A	15.	A

Review Questions

1. Does correlation and dependency mean the same thing? In simple words if two events have correlation of zero, does this convey they are not dependent and vice-versa?
2. If two variables have a high correlation with a third variable, does this convey they will also be highly correlated? Is it even possible that A and B are positively correlated to another variable C? Is it possible that A and B are negatively correlated with each other?
3. Can single outlier decrease or increase the correlation with a big magnitude? Is Pearson coefficient very sensitive to outliers?
4. Does causation imply correlation?
5. What does a non-parametric test mean?
6. What distinguishes parametric tests from nonparametric tests?

Further Readings

- https://www.questionpro.com/blog/correlational-research/
- https://www.shiksha.com/probability-preparation/non-parametric-test-3075
- https://www.sciencedirect.com/topics/medicine-and-dentistry/parametric-test
- https://statisticsbyjim.com/hypothesis-testing/nonparametric-parametric-tests/

Unit 06: HR Metrics

CONTENTS

Objectives

After studying, you will be able to:

- understand various metrics in HR.
- understand framework of Score cards,
- understand the application of Scorecards,
- know difference between Balance score card and HR scorecard.

Introduction

Recruiting metrics are measurements used to track recruitment success and optimize the process of hiring candidates for an organization. When used correctly, these metrics help evaluate the recruiting process and whether the company is hiring the right people. Additionally, they provide you with data that will allow you to make improvements to your recruitment and selection process. They are an integral part of a data-driven recruitment funnel, which you can explore in-depth in our Talent Acquisition Certificate Program.

Making the right recruiting decisions is important. This image (from Greenhouse) shows the employee's lifetime value as the sum of all the HR decisions made about that employee.

70% of hiring managers stating recruiting departments need to become more data-centric to expand long-term business impact, the need for precise recruiting metrics has never been greater.

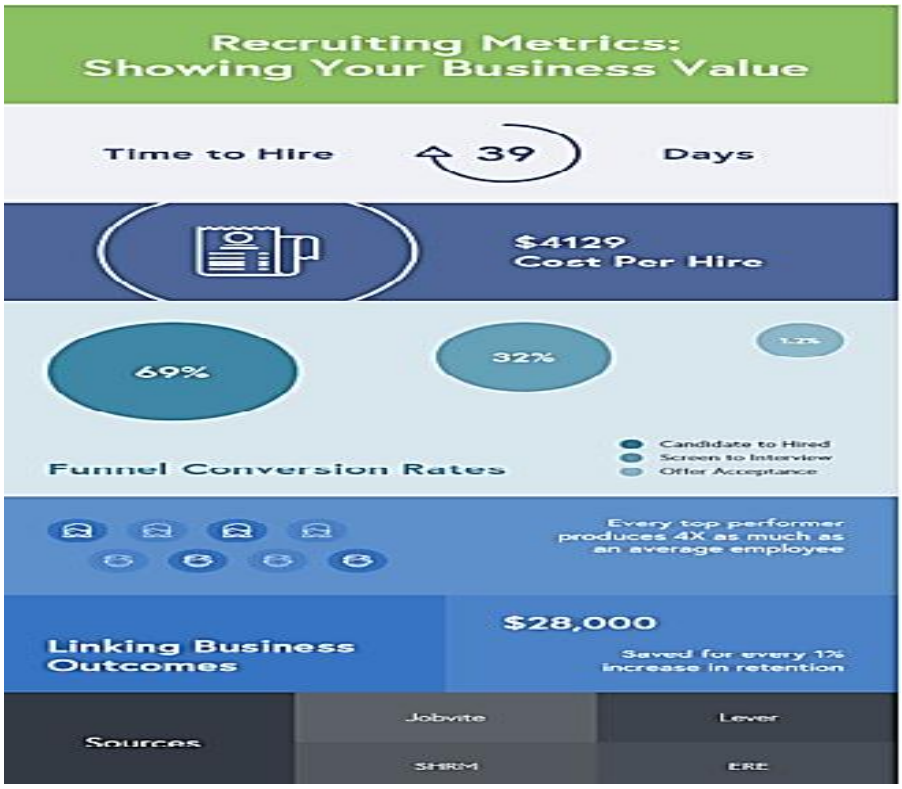
HR costs make up 28% of a company's total operating expenses , according to PwC.

With so much cash at stake, it's no wonder that companies are increasingly demanding their recruiting departments to calculate metrics and demonstrate their ROI.To provide

ainclusiveoverview on how to measure, optimize, and show the business value of your recruiting process, we created this guide on recruiting metrics for talent acquisition professionals.

6.1 Recruitment Metrics

See a quick summary of recruiting metrics in infographic below.



Making the right recruiting decisions is important. This image (from Greenhouse) shows the employee's lifetime value as the sum of all the HR decisions made about that employee.

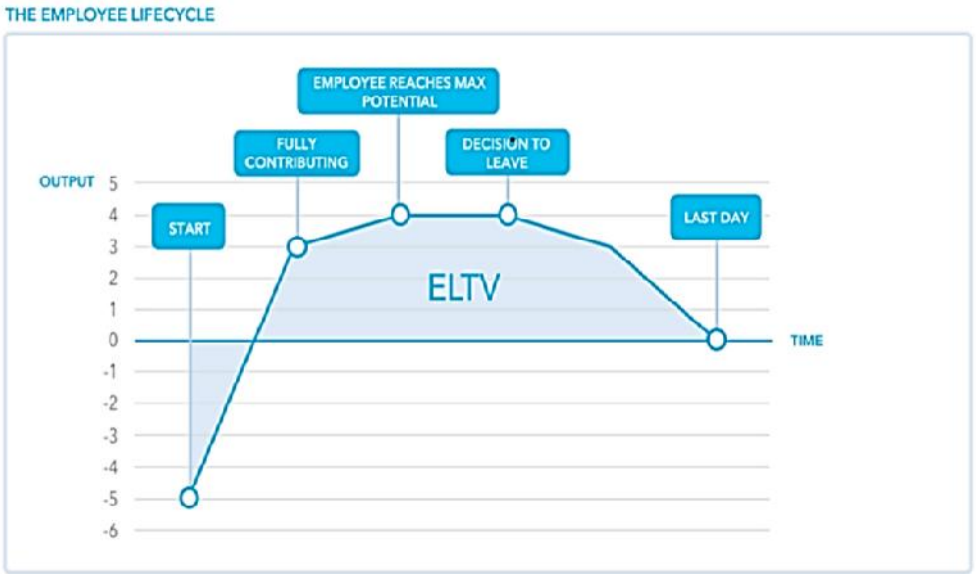


Fig: 6.1

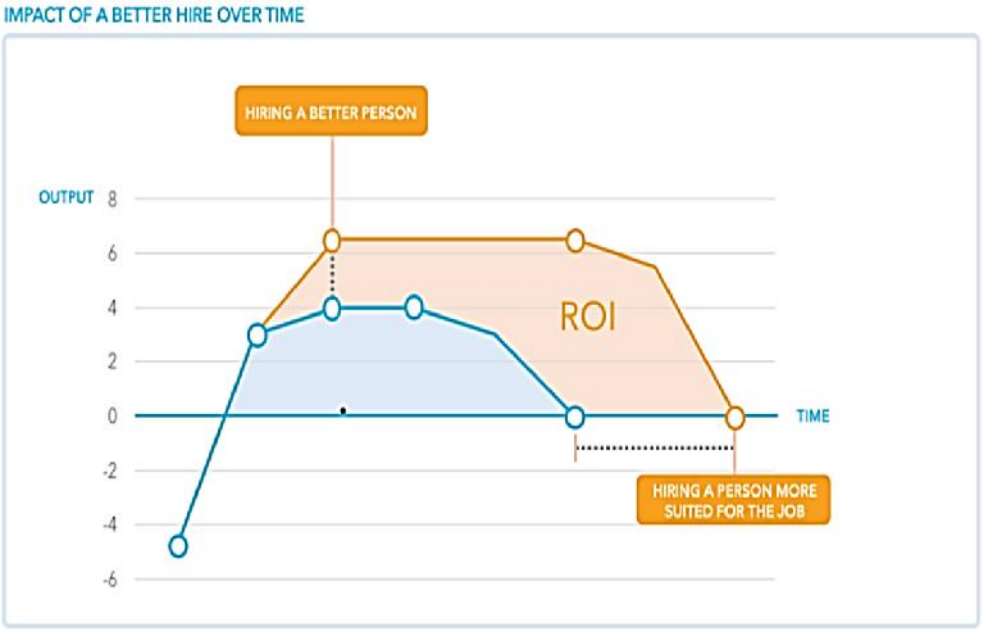


Fig 6.2

This is why acquisition the right people is so imperative. Whether you're starting off by measuring recruitment data or fine-tuning your recruiting metrics, this list will give you a great overview.

List of Recruitment Metrics

Fig 6.3 List of Recruitment Metrics

Time to fill

It refers to the number of datebook days it takes to find and hire a new candidate, often measured by the number of days between approving job demand and the candidate accepting your offer.

Several factors can influence time to fill, such as supply and demand ratios for specific jobs as well as the speed at which the recruitment department operates

Time to Hire

Time to hire signifies the number of days between the moment a candidate applies or is approached and the moment the candidate accepts the job. In other words, it measures the time it takes for someone to move through the hiring process once they have applied. Time to hire thus provides a solid indication of how the recruitment team is performing. This metric is also called 'Time to Accept'.

iCIMS breaks down the time spent on the hiring process as:

- 15% – Applied for Job
- 23% – HR Scrutiny
- 37% – Hiring Manager Evaluation
- 23% – Interviewing
- 2% – Hired

Source of Hire

Tracking the sources which attract new hires to your organization is one of the most popular recruiting metrics. This metric also helps to keep track of the effectiveness of different recruiting channels. A few examples are job boards, the company's career page, social media, and sourcing agencies.

Having a clear understanding of which channel works and which doesn't, you'll be able to double down on the channels that are bringing you the most ROI and decrease spending on those that aren't.

- Silkroad's data shows the most common sources of hire include:
- 31% – Job board or aggregator
- 22% – Employee referral
- 11% – Internal hire
- 11% – Company career site
- 10% – Agency

If you see that most of your successful hires are not coming from LinkedIn but your internal job board, then that's the channel that you want to be focusing on

First-year Attrition

- First-year attrition or first-year/new hire turnover is a key recruiting metric and also indicates hiring success. Candidates who left the job in their first year of work fail to become fully productive/creative and usually cost a lot of money. First-year attrition can be managed and unmanaged.
- Managed attrition means that the contract is terminated by the employer. Unmanaged attrition means that they leave on their own accord (this is also referred to as voluntary turnover). The former is often an indicator of bad first-year performance or bad fit with the team.
- The second is often an indicator of unrealistic expectations which cause the candidate to quit. This could be due to a mismatch between the job description and the actual job, or the job and/or company has been oversold by the recruiter.This metric can also be turned around as **candidate retention rate.**

Quality of Hire

Quality of new hire, often measured by someone's performance rating, and also measuring first year performance. Candidates who receive high-performance ratings are indicative of hiring victory while the opposite holds true for candidates with low-performance ratings.

- Low first-year performance ratings are indicates of bad hires. A single wrong hire or bad hire can cost a company ten of thousands of dollars in both direct and indirect costs.

Hiring Manager satisfaction

Hiring manager satisfaction is another recruiting metric that is indicative of a successful recruiting process. When the recruitment manager is satisfied with the new employees in their team, the candidate is likely to perform well and fit well in the team. In other words, the candidate is more likely to be a successful hire.

Candidate job satisfaction

Candidate job satisfaction is abrilliant way to track whether the prospects set during the recruiting process match reality. A low candidate job satisfaction highlights mismanagement of expectations or incomplete job descriptions.

A low score can be better managed by providing a realistic job preview. This helps to present both the positive and negative aspects of the job to potential candidates, thus creating a more realistic view.

Applicants per opening

Applicants per job opening or applicants per hire gauges the job's popularity. A large number of applicants could indicate a high demand for jobs in that particular area a job description that's too broad.

The number of applicants per opening is not necessarily an indicator of the number of qualified candidates. By narrowing the job description and including a number of hard criteria, the number of applicants can be reduced without reducing the number of suitable candidates.

You can also focus more on sourcing from channels that have brought qualified candidates in the past.

Selection ratio

The selection ratio refers to the number of hired candidates compared to the total number of candidates. This ratio is also called the Submittals to Hire Ratio.

$$SelectionRatio=(Numberof\ iredcandidates\ )/(Totalnumberofcandidates\ )$$

Cost per hire

The cost per hire recruitment metric is the total cost invested in hiring divided by the number of hires

$$Cost\ per\ hire = \frac{Total\ recruitment\ cost}{Total\ number\ of\ hires} = \frac{Total\ internal\ cost + total\ external\ cost}{Total\ number\ of\ hires}$$

TOTAL RECRUITMENT COST	
External cost	Internal cost
Advertising cost	Time spent by recruiter - (avg. wages * hours spent)
Agency fees	Time spent by manager - (avg. wages * hours spent)
Candidate expenses	New hire onboarding time - (avg. wages * hours spent)
New hire training cost	Lost productivity
Other external costs	Other internal costs

6.2 Need For Training Metrics

Year on year, L&D departments within organizations carefully plan the type of training they need to provide to employees to reach business goals and improve overall business results. But does this actually work? And if it works, is it 100% optimized to achieve the anticipated outcome?

- Using employee training metrics in training evaluation allows you to make data-driven decisions. It removes prejudice and avoids decisions being made out of aimpulse. From an administrative perspective, it creates procedural fairness and gives validity to any monetary investment made in training.
- Financial performance to be measured – You're able to link training metrics to financial performance metrics (e.g., ROI, liquidity, profitability measures).
- To track performance over time – Using the same metrics and KPIs allows you to observe any noticeable improvement as a direct result of your training efforts.
- Benchmark training to competitors – Using consistent metrics allows you to compare your training program to competitors and measure whether you're underspending or overspending.
- Communicate clearly to employees – You're able to show employees the value of training and the value of the investment made in them.
- One of the biggest reasons employees leave an organization is due to deficiency of training. Using training metrics can sometimes be a simple way to show employees the value of the investment made in them. Sometimes it's not about what is done but how value it is communicated.

6.3 Importance of Training Metrics

Executives are typically skeptical about investing money into training without any clear outcomes or metrics. It's understandable, as there is an increased push to cut costs, and usually, the training budget is one of the first items that is affected.

- Tracking employee training metrics helps your organization ensure that the training you provide is engaging and, most importantly, contributing to organizational goals.

6.4 Employee Training Metrics

1. Evaluating the success of a training program.
2. Measuring training effectiveness of a program.
3. Using data points and insights to align the training the organization's goals.
4. To evaluate different components of a training program.

Example: The main focus of employee training metrics is 'effectiveness.' So, let's say, for example, you work in a company that sells clothes online. In order to drive sales, you need to improve the SEO (search engine optimization) of your website to drive leads and ultimately get more sales. However, after a quick analysis, you realize your employees do not have the necessary SEO skills – so you send them to a training course.

The employee training metrics would help answer the following questions:

Q1. Was the training of employees on SEO successful?

Q2. Were the learners satisfied with the training?

Q3. Has there been an increase in sales to the website? Has there been a noticeable increase in leads?

Q4. Is your website more SEO-optimized?

Q5. What is the additional training needed for any further SEO skills?

Key employee training metrics

1. Training cost per employee

This is a straightforward metric, which divides the total cost of training by the number of employees. This can be for a specific program or as a sum of all training done in a particular year. The formula would be:

$$\text{Training cost per employee} = \frac{(\text{cost of training})}{\text{number of employees}}$$

Example: Let's say your training for the year costs $100,000, and you have 75 employees.

Training cost per employee = $100,000 / 75 = $1,333.33

For instance, the average Training industry found that the average spend per employee annually is $1,046. So, you're able to measure if you are overspending or if it is justified..

3. **Training Return on Investment**

Return on investment (ROI) of training measures the efficiency or profitability of the money you put into the training. It is usually linked to greater revenue and business impact. You don't need to measure ROI of every training initiative at your organization. Typically, you would only track this key metric for the top 5% most impactful training programs.One of the most popular ways to measure training return on investment.

Example: Training Return on Investment = (Return of Benefit – Investment Cost) / Investment Cost x 100

Let's say you spent $45,000 on training to increase the speed of your customer service reps resolving issues. As a result of this, they were able to increase customer satisfaction and sales, which led to an increase of $100,000 in net profit from sales. Therefore:

($100,000 – $45,000) / 45 000 x 100 = 122% return on investment of training.

Training experience satisfaction

This is most popular training metrics to measure and can usually be found in a post-training survey. It is used to gauge how satisfied learners are with the training they received. You can use the Net Promoter Score (1 to 10) with the question, "How likely is it that you would recommend this training session to a friend or peer" to gather feedback and measure training experience satisfaction.

6.5 Scorecards

One of the key challenges 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 board table.

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

The HR scorecard is a strategic HR measurement system that helps to

Indicators

- Leading indicators are measurements that forecast 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.

6.6 HR Scoreboards

An HR scorecard is a visual representation of key measures of human resource department achievements, productivity and other factors important to the organization.

Five Key Elements – Score Cards

- The first element is what we called Workforce Success.
- The second element is we called Right HR Costs.
- The third element we describe as Right Types of HR Alignment.
- The fourth element is Right HR Practices.
- The fifth element is Right HR Professionals.

6.7 Difference Between HR/Balance Scorecards

Balance Scorecard is a tool to provide the stakeholders/Management a measure on how the organization is progressing to achieve its goals. In a similar fashion, the HR Scorecard help you measure,monitor and report HR KPI's and help HR identify how they contribute in achieving Organisation's goals.

The Advantages of the Balanced Scorecard in the HR Business

The use of balanced scorecards, developed to track and monitor selected key performance indicators for different departments, should not exclude the human resources organization.

Key performance indicators for HR typically include financial results, customer satisfaction, process improvement and career development.

Creating a balanced scorecard for an HR business helps leaders identify and agree upon a strategic approach. Shared goals encourage collaboration and cooperation.

6.8 HR 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.

Summary

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. This is one of the way by which HR department of the company can improve the performance of the company by taking into consideration each and every aspect of HR metrics.

Keywords

Business Goals, HR analytics, data and Metrics

Self Assessment

1If you would keep track of every recruiting metric you could find on the web, you'd have no time left to do actual

A. recruiting
B. management
C. Funding
D. None of above

2.With 70% of hiring managers stating recruiting departments need to become more _____to improve long-term business impact.

A. data-driven
B. people driven
C. experience driven
D. technology driven

3.Making the right recruiting decisions is important. Why?

A. the employee's lifetime value as the sum of all the HR decisions made about that employee.
B. Employees are asset of the company
C. Employees make the company progressing
D. All of above.

4.Time to fill is defined as

A. This refers to the number of calendar days it takes to find and hire a new candidate, often measured by the number of days between approving a job requisition and the candidate accepting your offer.
B. Time to hire represents the number of days between the moment a candidate applies or is approached and the moment the candidate accepts the job

C. Tracking the sources which attract new hires to your organization is one of the most popular recruiting metrics. This metric also helps to keep track of the effectiveness of different recruiting channels

D. often measured by someone's performance rating, gives an indicator of first-year performance of a candidate

5. Quality of hire

A. often measured by someone's performance rating, gives an indicator of first-year performance of a candidate

B. This refers to the number of calendar days it takes to find and hire a new candidate, often measured by the number of days between approving a job requisition and the candidate accepting your offer.

C. Time to hire represents the number of days between the moment a candidate applies or is approached and the moment the candidate accepts the job

D. Tracking the sources which attract new hires to your organization is one of the most popular recruiting metrics. This metric also helps to keep track of the effectiveness of different recruiting channels

6. How do you calculate the cost per hire?

A. Subtract the external recruitment costs from the internal recruitment costs.

B. Add all internal and external recruitment costs and divide by the number of filled positions within a set time frame.

C. Divide the number of open positions by the number of closed positions in a set time frame.

D. Add all internal and external recruitment costs and divide by the new hire's salary.

7. Employee churn analytics takes into consideration _____ termination of employees.

A. Voluntary

B. Involuntary

C. Both voluntary & involuntary

D. None of the above

8. Information type which focuses on accomplishments of employees is classified as:

A. Trait based information

B. Behavior based information

C. Results based information

D. Coaching based information

9. Why is it important to track recruitment and hiring metrics?

A. It enables HR to talk to upper management in the language of business.

B. It is the only way to know if the recruiter is performing his/her job successfully.

C. It shows that the HR department is pulling its weight.

D. Recruiting and hiring metrics are not that valuable to track.

10.The following data is an example of which metric?

Local News paper 3/12=25%

Mosnter.com 8/10=80%

Company website 1/5=20%

Industry Magazine 3/6=50%

A. Interview-to-offer ratio
B. Return on investment ratio
C. Recruitment yield ratio
D. External/internal hire ratio

11. _____ are measurements that predict future business growth

A. Leading indicators
B. Lagging
C. Loading
D. None of above

12. Most HR scorecards are tied to corporate goals or _____

A. strategic plans
B. Operational
C. Policy
D. Procedures

13. A Vice President learns from HR that managers in his division are taking all first and second round candidates out to an expensive restaurant for lunch downtown (which is a 45-minute drive) prior to their on-site interviews. He informs the managers that from now on only second round interview candidates (a much smaller pool of individuals) will be taken out to a less expensive restaurant that is closer to the office. This decision will decrease which of the following metrics?

A. Time-to-fill
B. Cost-per-hire
C. Interview-to-offer
D. Recruitment yield ratio

14. Relationships section of job description defines who would you:

A. Supervise
B. Report to
C. Work with
D. All of the above

15. Which of the following is not a benefit of Corporate Culture Analytics?

A. Tracks changes in culture
B. Ensures that the right people are hired to fit in corporate culture
C. Ensures that the right people are hired for the vacant positions
D. Creates early warning systems for a toxic culture

Answers for Self Assessment

l.	A	2.	A	3.	D	4.	A	5.	A
6.	C	7.	C	8.	C	9.	A	10.	C
11.	A	12.	A	13.	B	14.	D	15.	D

Review Questions

Q1. Do you agreed that people analytics drive business?

Q2. Businesses use human resources scorecards to measure effectiveness. Critically analyse this statement.

Q3. Discuss in detail the elements of HR scorecards.

Q4. Write a note on Recruiters performance metrics.

Q5. If you can't measure it, you can't improve it. Justify this statement with relevant explanation.

Further Readings

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U07: HR Reports

CONTENTS

Objectives

- To understand employee information.
- To analyze the components of recruitment reports
- To comprehend the Importance of HR reports in decision making

Introduction

HR reports are documents that provide information and insights related to human resources activities within an organization. These reports can cover a range of topics, including employee recruitment and retention, performance management, employee satisfaction, compensation and benefits, diversity and inclusion, and more.

HR reports typically include data analysis and metrics, such as turnover rates, employee demographics, and performance ratings. They may also include written summaries, charts, and graphs to help illustrate trends and patterns.

Some common types of HR reports include:

Recruitment reports: These provide insights into the effectiveness of recruitment efforts, including the number of applicants, time to fill open positions, and the sources of hires.

Employee turnover reports: These track employee turnover rates and reasons for employee departures, which can help organizations identify areas for improvement in retention and engagement.

Performance management reports: These provide insights into employee performance, including ratings, goal attainment, and development opportunities.

Employee engagement surveys: These gather feedback from employees about their satisfaction, engagement, and overall experience working for the organization.

Compensation and benefits reports: These provide insights into employee compensation and benefits, including salary ranges, bonus and incentive programs, and benefits utilization.

HR reports can be used by HR departments, senior management, and other stakeholders within an organization to make data-driven decisions about HR strategy, policies, and practices.

7.1 Employee Information

Human resource reporting or HR reporting consists of detailed information regarding each employee. This information includes personal details as well as work performance data.Hence, reports allow companies to understand and manage general employee performanceEmployee information forms provide key data on employees that can be used to keep track of who worked for the company, when, and in what positions. It can also be used as an emergency contact information form in the event of any serious workplace injury.

Example Employee Information Form

Company Name	
Employee Information	
Personal Information	
Full Name:	
Last First M.I.	
Address:	
Street Address Apartment/Unit #	
City State ZIP Code	
Home Phone:	Alternate Phone:
Email	
SSN or Gov't ID:	
Birth Date:	Marital Status:
Spouse's Name:	
Spouse's Employer:	Spouse's Work Phone:
Job Information	
Title: Employee ID:	
Supervisor:	Department:
Work Location:	Email:

Work Phone:	Cell Phone:
Start Date:	Salary: $
Emergency Contact Information	
Full Name:	
Last First M.I.	
Address:	
Street Address Apartment/Unit #	
City State ZIP Code	
Primary Phone:	Alternate Phone:
Relationship:	

7.2 Benefits of HR Reports

Identify organizational flaws

HR departments supports as a common point for all departments to report components of the organization that aren't operating so that staff can receive appropriate training. For example, the sales department may discover that half of the sales team is unable to clinch a sale due to a lack of excellent bargaining abilities. This could be a sign of bad hiring processes, or it could indicate the need for this segment of the sales force to be trained in effective bargaining skills.

Making future-focused and effective plans

HR reporting is an excellent approach to develop plans and activities in areas ranging from recruitment toemployee engagement and beyond by providing a clear, data-driven picture that allows you to make informed decisions that provide candid long-term benefits. Modern reporting methods not only allow professionals to access data more quickly as business concerns emerge, but they also allow them to plan more effectively and strategically.

Keep track of staff performance

HR managers that are proactive identify problems before they become disasters. A crucial aspect of this procedure is assisting employees who are sinking to get above the water. If employees aren't given frequent feedback and guidance, they won't be able to advance. There are occasions when reallocating someone to more appropriate roles may be necessary. Weekly reports made by HR reporting software can help determine how well employees are performing.

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.

7.3 How to create a Human Resource Report?

An HR dashboard is the efficient way to monitor, manage, track, and report on data.

Using this business intelligence tool enables you to track, analyze and report on HR KPIs (key performance indicators).

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 wants to know about the organization's workforce, they ask HR to send them a report. After this request, the HR data department will work tirelessly 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.An HR report can be computerized, if certain software is used to create it – such as Excel, PowerBI Etc. There are many software options on the market – these are some of the best HR dashboards.There are several important metrics that need to be included in an human resources report. Note that most of them are high-level metrics as they provide an organizational overview.

7.4 HR Reports for Effective Business Reporting

Headcount Report

In a joint SHRM/Globo force study, 47 % of HR leaders cited employee retention and turnover are the biggest challenge for the HR managers. Both these challenges can only handled in an appropriate manner if you have reliable head count reports which reflects current employee count after hires, terminations, and transfers. With greater clarity about the number of employees in each department and function, one can begin to explore the factors that impact turnover—and what can be do to improve retention.

A headcount report is also helpful in illustrating trends in employee movement. It allows you to see which departments have lost talent over time and which have grown to full capacity. A comprehensive headcount report forms the foundation of reports such as the employee census, time and attendance reports, and training cost summaries. With real-time headcount data from an HCM platform, you can report on:

Employee count and turnover by location, department, or function

Retention rates across job level or title

FTE (full-time equivalent) versus overall employee headcount

2. Recruiting Report

When you get recruiting data from an all-in-one HCM platform, have all information about candidates and open positions in one place, helping you save time and build a more efficient recruiting process.

All open and filled positions. The number of candidates for each position. The average time and cost to hire for each position. Where candidates are in the recruiting process, so no one falls through the cracks. View our ultimate guide to employee management and see how streamlining HR functions provides a competitive advantage.

A Capterra survey of HR professionals found that 75 percent rely on software to track recruiting activity, and of those, 94 percent say the software has improved their hiring process. It can do the same for you, helping you stay organized and better equipped to compete for talent. Instead of managing recruiting activity with email and spreadsheets, you can generate real-time recruiting reports from a centralized database and see exactly where you stand in fulfilling your recruitment goals.

7.5 Performance Management Report

Performance management is an important way to align employee action with company goals. With clear and easily accessible employee performance reporting, you can see your best performers, as well as those who need coaching or training. A performance review report not only shows manager feedback and ratings, but it can also draw on information from other documents that you've stored in each employee's performance profile, such as:

Productivity reports

Performance improvement plans.

Performance management discussions are more fruitful when performance data and history are readily accessible. When managers have the necessary resources to deliver thoughtful and honest feedback, everyone benefits. HCM software compiles and organizes employee performance data in one place, giving managers access to performance data and facilitating productive performance discussions.

These reports involve measuring, reporting, and managing or employee progress. Furthermore, performance management metrics include performance appraisals and KPIs.

Performance management reports are vital as they can improve the execution of strategies and output delivery. All employees are measured within this report to improve overall organizational success.

7.6 Compensation Report

A compensation report is a critical HR report for understanding earnings growth over time, as well as employee pay, which may comprise the following:

1) Base salary
2) Overtime
3) Incentives
4) Paid leave
5) Payroll deductions

Spreadsheets can hold a lot of compensation data, but they're hard to keep up to date. In contrast, a centralized HR platform allows you to easily access real-time payroll data and generate reports for a range of stakeholders in HR, accounting, and company leadership.

Employee Management Guide

A compensation report doesn't just deliver accurate earnings information. It can also help you stay in compliance with the Affordable Care Act (ACA) and other federal regulations. For example, a compensation summary report provides details on employee payroll deductions for employer-sponsored health benefits, helping you coordinate open enrollment and ongoing benefits administration in an efficient and compliant manner.

5. ***Diversity Report***

Certain organizations are required by law to conduct diversity reporting annually, most commonly in the form of the Equal Employment Opportunity report or EEO-1. An all-in-one platform with compliance reporting features can help you collect information about employee age, gender, and ethnicity, and store it securely. With reliable demographic information about employees, you can better understand the makeup of the workforce, and develop HR policies and programs that serve employees' needs.

HR Reporting Made Easy

Having a reliable set of standard HR reports helps you stay more organized, productive, and allows you to better understand and serve the needs of the workforce. With the help of an all-in-one HR software platform, you can harness the potential of your company's data and deliver actionable information to a range of stakeholders.

Want to learn more about how to improve productivity and save time and money within your HR department? Download our guide, The Hidden Costs of Managing Employees in Disconnected Systems.

The Hidden Costs of Managing Employees in Disparate Systems

1. Internet
2. Professional association reports
3. Benchmarking associations.

 **Example**

The sales department may discover that half of the sales team is unable to clinch a sale due to a lack of excellent bargaining abilities. This could be a sign of bad hiring processes, or it could indicate the need for this segment of the sales force to be trained in effective bargaining skills

Employee turnover rates are another area where HR departments must pay attention. A high turnover rate indicates the type of work environment in which people are employed. Companies may retain top staff by identifying concerns with the work environment.

Align the Organization to the Strategy. Managers work around organizational barriers to achieve targets. In a strategy-focused organization, work units become linked to the strategy through common goals and objectives, thus creating a collaboration that ensures that the linkages endure to work. The formation of the strategy is based upon data. The right kind of data is very integral point of discussion. The HR analyst need to shift his lens from data to metrics and furthermore to analytics. The paradigm of HR has been changing HR is the department which has adapted analytics very late.

7.7 Administration Report

Part-time employees: indicates the evolution of part-time workers over a specified time period.Part-time workers are good for the beginning stages of companies and don't acquire much risk. KPIs include the tracking of part-time contracts parallel to metrics like company performance and results as well as employee satisfaction and engagement

1. **Female to male ratio**: measures the level of gender diversity in your business, which can indicate gender bias. It's critical to be aware of diversity to acquire differing approaches to business innovation and gain competitive assets. KPIs depend on candidate availability at certain times
2. **Internal mobility:**internal mobility refers to every initiative or action related to the promotion, appointment, or hire for a position of an employee already enrolled in the company's workforce. This internal mobility summary displays various figures related to it – promotions to the position of director and managing director, the ratio of positions filled through internal initiatives relative to the total positions, and finally – the percentage of vacancies filled internally
3. **Average time stay:** indicates the longest time period employees stay with the company and whether the company is good at retaining talent.

   The metric tracks the average number of weeks, months, or years that an employee stays. The longer the stay, the better for the company's return on investments for hiring and training. An example can be seen below:

Summary

It is essential for the HR department to retain their reports up to date and organized. HR reports for management can have a direct impact on employee retention and even productivity. A constantly updated health reports, wellness reports, etc will make the employees feel valued and worthy at the workplace and hence have a reflection on retention.

The employee engagement reports will help the managers and team leads to get a better understanding of the teams and individuals who are engaged and can do the needful to alter their engagement activities accordingly. It is safe to say that HR is the breath and life of an organization.

Keywords

Performance reports, HR Reports, Employee information

Self Assessment

1The most productive HR teams rely on effective business ____

A. Reporting
B. Managing
C. Documentation
D. None of above

2.The good news is that HR reporting doesn't have to be cumbersome or____

A. time-consuming
B. A gut feeling
C. Fact
D. None of above

3. Reporting on the workforce is one of HR's _____tasks

A. essential
B. cumbersome

C. Two values
D. All of above

4. Regular reporting enables HR to keep a finger on the pulse of the organizations by tracking key _____

Start with data

A. workforce metrics
B. Areas of analytics
C. Implementation of results
D. Man force culture

5.FTE stands for

A. Full time equivalent
B. Full time employee
C. Full time employer
D. None of above

6. **Employees Active** report depicts

A. This metrics represents the number of employees who are on leave at the organization
B. This metrics represents the number of employees who left the organization
C. This metrics represents the number of employees working at the organization
D. This metrics represents the number of employees not working at the organization

7 . **Turnover**:

A. This metric represents the number and/or percentage of employees who Joined in the previous period
B. This metric represents the number and/or percentage of employees who left in the previous period
C. This metric represents the number and/or percentage of employees who applied in the previous period
D. All of above

8**Absence/Absenteeism R**ate is defined as

A. This metric represents the number and/or percentage of employees who Joined in the previous period
B. This metric represents the number and/or percentage of employees who left in the previous period
C. This metric represents the number and/or percentage of employees who applied in the previous period
D. This metric represents the percentage of time that employees were absent in the previous period on average

9. Training cost…

A. represents the total amount that a company spends on training new hires and the existing workforce
B. represents the total amount that a company spends on hiring new hires and the existing workforce
C. represents the total amount that a company spends on compensating new hires and the existing workforce
D. represents the total amount that a company spends on appraising new hires and the existing workforce

10.Whyare HR reports beneficial for an organization
A. Identify Organizational Flaws
B. Making Future-focused andEffective Plans
C. Keep Track of Staff Performance
D. All of above

11 Administration Report

A. Part-time employeesCFO
B. Female to male ratio
C. Internal mobility
D. All of above

12These reports involve measuring, reporting, and managing or employee progress. Furthermore, performance management metrics include performance appraisals and KPIs.
A. Recruitment report
B. Performance report
C. Absentees report
D. Compensation reports

13. Culture Fit

A. Make sure you spend time to explain how the case fits into your culture.
B. Hard data
C. Files and paper documentation
D. None of above

14. **Female to male ratio**:

A. measures the level of gender diversity in your business
B. measures the importance of females in the business
C. measure the importance of males in the business
D. None of above

15. ___ refers to every initiative or action related to the promotion, appointment, or hire for a position of an employee already enrolled in the company's workforce

A. Internal mobility
B. Training

C. Promotion

D. None of above

Answers for Self Assessment

1.	A	2.	A	3.	A	4.	A	5.	A
6.	C	7.	B	8.	D	9.	A	10.	D
11.	D	12.	B	13.	A	14.	A	15.	A

Review Questions

Q1. Write a note on compensation reports.

Q2. HR is growing more significant, and reporting is critical not just for assisting professionals. Critically analyze this statement.

Q3. HR reports are crucial in making business choices. Do you agree with this statement?

Q4. Modern reporting methods not only allow professionals to access data more quickly as business concerns emerge, but they also allow them to plan more effectively and strategically. Justify this statement.

Q5. Why are HR reports useful for an organization?

Further Readings

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The HR Scorecard, Brian Becker, Mark Huselid, Dave Ulrich

Web Links

https://www.peoplehum.com/blog/hr-reports-all-you-need-to-know#

Unit 08: HR Dashboards and Scorecards

CONTENTS

Objectives

After studying, you will be able to:

- Prepare HR dashboard
- Importance of HR dashboards and score cards in the organization
- Know that HR analytics a better tool for decision making

Introduction

The role of technology in business management practices is growing rapidly. With improvements in data processing capabilities, businesses can utilize these technologies along with internet resources to create powerful information systems which can be used to better manage and lead the organization forward. Due to these changes in information distributing and accessibility, both internal organizational information and external environmental knowledge can be made more available than in the past. With this growth in knowledge availability, there is also a stronger need for designing systems capable of processing and displaying this data so that business professionals without specialties in information technology can also easily use these tools effectively. Instead of being intimidated by new technical capabilities, companies must learn to use them towards creating competitive advantages. For example, dashboard is being used by executives and managers to anticipate trends or new events, identify possible upcoming problems, and find competitive solutions (Lamont, 2007).

Definition

A dashboard is defined as "visually attractive mechanism of monetarization and is used for obtaining information through a set of indicators" (Campos, 2008, p. 259). A single screen visual display built on color coding and graphs rather than numerical values is important in transforming detailed, minute pieces of quantitative and qualitative data into a more communicable and easily understandable idea (Lamont, 2007; Few, 2005). Settings can often be customized and tailored to individual users to meet their specific needs to show either the big picture or "smaller slices of data" (Lamont, 2007). The HR function has evolved over the past few years, from just administrative function tasked with payroll and other similar tasks to becoming key in determining an organization's approach and strategy. It is vital to understand how effective this function is in executing tasks, and the HR Scorecard gives management insights into the HR department's success or failures in the corporate world.

8.1 HR Dashboards Overview

Specifically, Human Resource dashboards are pictorial depictions of appropriate external and internal data meant to improve decision outcomes in HR. Campos identifies six Human Resource management activities in which dashboards can help the firm gain a competitive advantage: organization, working environment, knowledge management, Human Resource development, reward management, and workers' relationships (2008). HR dashboards have the potential to improve Human Resource functioning by standardizing "policies and processes of staff through all organization, facilitating the development of an integrated and coherent system of staff management" while lessening "the load of work of Human Resource functions eliminating low value tasks" (Campos, 2008, p.258). They also allow for supplying of "efficient administrative services" and enhancing "winning strategies" and competitive advantages over rivals (Campos, 2008 p. 258). It should be used to support decision making, remain clear and efficient, be easily adaptable as the organization changes, maintain maximum visibility of key indicators, and motivate management (Campos, 2008).HR dashboards aid executives in decision making by consolidating internal and external information graphically in order to make it easier to evaluate. This is mainly accomplished through taking large sums of data and drilling-down variables to uncover trends and patterns (Boudreau, 2002). If successfully developed and maintained, Human departments can use information technology to improve decision making and indirectly lower costs. Direct cost reductions for example are increased productivity while indirect savings could stem from lower turnover leading to less training expenses. Although HR dashboards are used mainly by Human Resource professionals, they must also incorporate data from other departments and sources in order for users to make well informed decisions. In addition to improving functional specific performance, they must also benefit the organization overall. Boudreau argues that ideal HR dashboards should "tie HR measures to a compelling business concept and, in principle, can articulate links between HR measures and strategic or financial outcomes" (Boudreau, 2002, p.14).

8.2 HR Dashboards

Acquiring, developing, and retaining talent is complex. From recruiting to performance management, businesses increasingly rely on technology to help monitor the lifeblood of the company. From payroll, to performance measurements, to goal alignment, HR software provides a great deal of worker information.

But simply collecting data isn't helpful. Data is only valuable when it tells a story.

That's where modern HR software and analytics comes in. It helps companies aggregate and present employee data in a meaningful way. In turn, that lets your business make data driven decisions.

- Where should you spend time and money sourcing new candidates from?
- What is the difference in skill level between top and bottom performers in the company? How can you bridge that gap?
- How many high potential leaders does the company have and what is the risk of losing them?

8.3 What Makes a Good HR Dashboard?

HR dashboards are useful for analyzing performance and identifying areas for improvement in an organization. They're not only important to HR managers, but for C-level executives as well. Decision makers ensure that company strategy is aligned from executive to managerial to individual goals. Executives and HR leaders must work together to identify the data they need in order to take action. Then you can collect and monitor that data to keep workforce performance aligned with organizational objectives.

A good HR dashboard will provide a concise and intuitive display of clear key performance indicators. Below are a few tips to consider when customizing or creating an HR dashboard:

1. Narrow down what you measure. Just because you can monitor dozens of KPIs doesn't mean you should. You're not building Frankenstein's monster. You're painting a nuanced picture of the workforce that guides the decision making process. Monitor the metrics that benchmark performance. Stick to the eight to 12 most important visualizations and drill down as necessary.

2. Only measure meaningful data. The most valuable data is actionable. The goal is to monitor metrics which can be linked to a future course of action. Let's say HR needs to meet aggressive hiring deadlines due to the company's rapid growth. If your all of your top performing employees were found through LinkedIn ads, then should you spend time and money sourcing new candidates at job fairs? Only monitor data from which you can glean insights for decisions. Are you strong or weak in the skill capabilities your company needs in the next three to five years?

3.Dive deeper. Businesses must strike a delicate balance between measuring everything and measuring nothing. To do this, first pinpoint the challenges of each department. Next, determine which are related to HR. Then determine what metrics would provide insight into these challenges.

8.4 What is Scoreboard?

The HR scorecard is a tool that helps measure, manage and improve the role of the HR function in the organization. HR metrics and KPIs or HR deliverables are measured using the HR scorecard. This data is also used to predict the future growth of the organization. While HR is becoming an integral function in the world of business today, in many organizations it does not receive the authority and recognition it requires and indeed deserves. Becker, Huselid and Ulrich published a book in 2001, titled, The HR Scorecard: Linking People, Strategy and Performance. The book intended to highlight the importance of the HR function and make it known that the HR function is an integral part of an organization's overall strategy

8.5 How to Create an HR Scorecard

There are five steps taken to create an HR scorecard:

1. Outlining HR strategy
2. Pinpointing HR deliverables.
3. Creating HR processes, best practices and HR policies
4. Aligning HR systems to the strategy
5. Deciding optimum efficiency

Outline HR Strategy

An automobile manufacturer is moving into electric vehicle manufacturing. The goal is to build the most cost-effective electric vehicles with a focus on safety technology. In terms of the market, the company is late to the game and competition is fierce. The company is located in India and there are already several electric automobile manufacturers.

Since the company's goal is clear, the question becomes, what can HR do to align with the business goals? The first step is to outline an HR strategy.

HR Strategy Outline	
Strategy	Produce cost-effective vehicles with a focus on safety technology

Talent Growth	Focus on hiring experienced senior engineers and have them train teams of less experienced engineers	
Financial	Keep hiring costs low to ensure production costs are low	
Process	Reduce time taken to attract and hire required talent	Improve Employer Branding to attract and retain talent

The HR Strategy Outline begins with the company's goal at the beginning. The second line is where HR comes in, the focus of the HR department is to find a small number of experienced professionals and use them to train fresh talent. This means offering competitive packages to senior engineers, however, it also means improving the company's image in order to attract that talent.

With the competition already being fierce in the market, the company has to hire the required personnel quickly and begin production. This means they have to attract and hire the required talent quickly.

Pinpoint HR Deliverables

To be able to measure the success of the strategy, HR deliverables have to be pinpointed. The HR scorecard example below depicts how these strategies can be measured.

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!

KPI	Current Score	Target Score
Become Most Desirable Auto Company to Work for	15	10
Time to Release First Electric Vehicle	4 years	2.5 years
HR manager satisfaction score after specified time	0.65	0.80
Recruitment Costs	USD 3.5 M	USD 2.8 M
Time to Hire in Days	49	25
Candidate Acceptance Ratio	60%	80%
Top Employer Score	Top 50%	Top 20%

These KPIs show exactly where the company stands and what the desired goals are. HR can then take the measures required to ensure these targets are met.

HR has to improve their quality of hire, reduce the time to hire and improve company culture and employee packages to ensure that they become a top employer and thereby attract good talent

Creating HR Processes, Best Practices and HR Policies

The next part of the HR scorecard has to do with creating the HR processes, best practices and HR policies that will determine how the strategy is achieved.

a. HR Processes:

In order to reduce time to hire, the HR team has to ensure they use the right sources and also have clear communication about the exact talent required, as well as keep communication clear with management to ensure that resumes are reviewed quickly and interviews are conducted without delay.

One process that could be implemented is to create workflows that have strict deadlines that are to be met. This information can be communicated to all relevant parties and the time to hire can be cut down.

b. HR Policies:

The company has to have better employer branding. This means that HR has to implement policies that ensure that the desired employer branding is built. This can be done by ensuring the work culture improves, by associating with recruiters that have similar branding goals and by offering competitive compensation packages and benefits.

c. Best Practices:

This part deals with the exact practices that will help the HR department reach their goals, or achieve their KPIs.

Policies, processes and practices that work together are called a practice 'bundle.' These practices work together to achieve the HR KPIs.

Aligning HR systems to the Strategy

This means that all the different HR practices, policies and processes have to come together to achieve the same objective. There cannot be conflicting interests here.

If the company is looking at improving employer branding, these efforts have to reach the type of talent that is required. Merely improving employer branding without having visibility to the right audience is not enough.

While the goal is to get the talent quickly so that production can be sped up, this shouldn't come at the cost of quality of hire. HR has to ensure that both these KPIs are met. Meaning they have to have the processes in place to reduce the time to hire, but at the same time, ensure that they take the necessary steps to hire quality talent.

Deciding Optimum Efficiency

This part has to do with deciding how to balance the whole thing. While it is imperative to keep hiring costs low to ensure that production costs remain low, it is also vital that the quality of talent that is hired is good.

8.6 When Would You Use an HR Scorecard?

HR managers and human resource management can use the tool to:

Evaluate and measure the effectiveness of human resource function and allocate budget towards HR initiatives. Give clear insights into which human resources initiatives should be prioritized, and set realistic human resources targets. Determine who needs support from HR and make informed decisions regarding resource allocation. n the best HR practices, this tool is also used to identify individuals who need extra attention. Provide feedback & development opportunities to manage HR activities better. Moreover, it is used to conduct annual reviews to Identify talent gaps.

Human resource Scorecards are available in two formats: Excel-based Scorecards and PDF-based Scorecards. Both versions offer the same functionality. You also have the option to choose between a monthly, quarterly, or yearly update frequency.

8.7 Benefits of HR Scorecards

1. Provide key executives with the ability to drill down data to show what is actually driving the specific measure.
2. Allow management to integrate resources for organizational efficiency and adaptability to external forces.
3. Promote transparency and accountability in various performance areas.Help users summarize and analyze information quickly and present it in a format that is easy to follow and comprehend.
4. Promote proactive reactions to issues which come up cross-functionally and allow executives to forecast and adjust strategies when performance does not go as planned.
5. A scorecard helps keep the goals at the center, uses specific parameters to track progress, and follows initiatives for monitoring actions.

6. The HR scorecard can come in handy for designing performance reports and dashboards, ensuring the focus remains on critical strategic issues and helping the HR department monitor the execution of its plan.
7. Having a scorecard takes the guesswork out of trying to understand everyone's responsibilities in the team and gets the entire department synced up under one structure. This also gives a much clearer picture of HR projects and initiatives.
8. An HR scorecard allows HR personnel to individually align their goals across the department and organization. When every employee sees a greater purpose behind the goals and objectives they are aiming to achieve; it engages them even more in their work.

Disadvantages of an HR Balanced Scorecard

While there are so many benefits to deploying an HR scorecard, there are potential roadblocks you should be aware of:

Even though there are many HR scorecard templates you can use, the framework must be customized to suit your business requirements. This can be time-consuming and tedious - especially for first-time users.

HR scorecards can be overly complicated to understand despite there being many case studies and resources to read from.

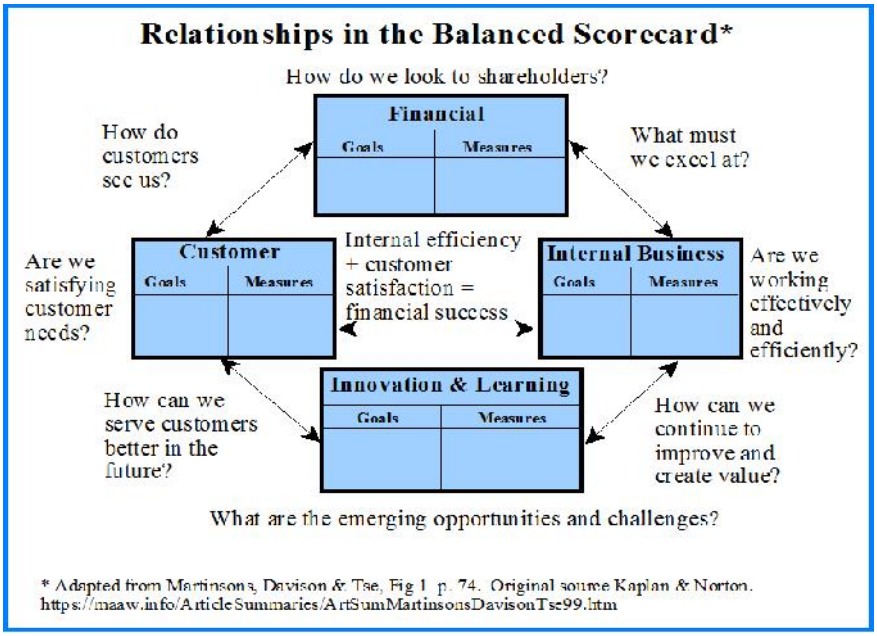
HR scorecards usually require managers to report information, which can cause some resistance and even delays.

8.8 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. 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!



8.9 The HR Scorecard: a Critique

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

"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."

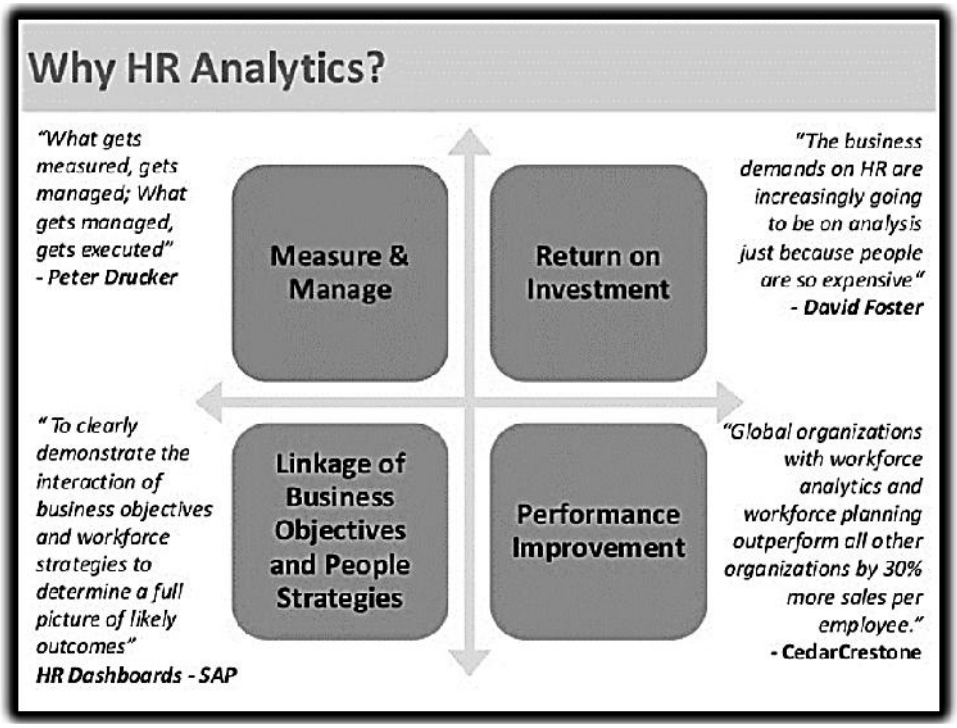
External sensing is the idea that you look at market opportunities for customers and investors. Bringing that into the company is the biggest driver of business results. The key is, therefore, to link metrics and analytics to the business.

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."

8.10 HR Analytics a Better Tool for Decision Making

Managerial tasks and decision-making on critical issues form an integral part of the work, which falls under the scope of the HRM of an organization. Decision-making has been identified as one of the most critical organizational processes including employee behavior, work performance, levels of motivation and the amount of stress levied on employees (Griffin and Moorland, 2011). It is critical that the nature of HRM practices implemented would be aligned and synchronized with larger expectations and guidelines for employee behavior and competitive goals. Keeping in perspective, the desired role behavior of an employee, that is, the requisite skills, knowledge dimensions and abilities, various competitive business strategies can be closely matched withorganizationalconditions in order to see development in critical areas, such as decision-making (Pereira, 2013). Human resource analytics is a relatively novel intervention in the larger domain of HRM, and it refers to the use of statistical tools, measures and procedures, which can be used in employing and masking the most effectual decisions such as HRM strategies and practices. It is often referred as people analytics or talent analytics or workforce analytics ("People Analytics", n.d.). HR analytics can be understood as being more credible because it provides statistically valid data and evidence that can be used in the process of creating new strategies during the implementation of existing HR strategies and other measures. The possibilities for HRM offered by analytics have been realized by employers and organizations, but there remainsan immense room for growth in the area and the study of the relevance of analytics within thevarious categories that fall under HRM



Conclusion

The HR scorecard is a great tool when used right. To ensure that it is used right, HR teams have to ensure that the data they collect is accurate and that they are consistent in their measurement of the KPIs. Developments in Human Resources Management (HRM) are fast being integrated with corresponding changes in data and information processing.

Keep in mind that the template above is meant as an easy-to-understand example. HR departments need to design suitable scorecards relevant to their organizations. Implemented correctly, the HR scorecard can be an invaluable tool.

Case Study:Credit Suisse: Predicting turnover

Credit Suisse is a financial services company based in Switzerland that employs over 47,000 people. To reduce turnover, they tried to predict which employees were most likely to leave the company and when. It's been estimated that the cost of replacing an employee can be anywhere between 30 and 400 percent of an employee's salary, depending on seniority and experience. This is a substantial loss for a company the size of Credit Suisse.

Because the Credit Suisse workforce is so large and since they have strong data tracking practices, the analytics team had substantial information on who left the company, why, and after how long. The team dug deeper to explore "the specific circumstances prior to the points of departure" by tracking over 40 variables, such as performance ratings, the time spent in a given role, and the size of an employee's team. The resulting predictive people analytics model gave Credit Suisse the ability to accurately predict how likely an employee is to leave the organization in the next year based on as few as ten indicators. With these predictors, Credit Suisse is able to identify risk factors and address these issues with employees before they result in attrition.

What you measure is what you get. Senior executives understand that their organization's measurement system strongly affects the behavior of managers and employees. Executives also understand that traditional financial accounting measures like return-on-investment and earnings-per-share can give misleading signals for continuous improvement and innovation—activities today's competitive environment demands. The traditional financial performance measures worked well for the industrial era, but they are out of step with the skills and competencies companies are trying to master today. As managers and academic researchers have tried to remedy the inadequacies of current performance measurement systems, some have focused on making

financial measures more relevant. Others have said, "Forget the financial measures. Improve operational measures like cycle time and defect rates; the financial results will follow." But managers should not have to choose between financial and operational measures. In observing and working with many companies, we have found that senior executives do not rely on one set of measures to the exclusion of the other. They realize that no single measure can provide a clear performance target or focus attention on the critical areas of the business. Managers want a balanced presentation of both financial and operational measures.

Example: Think of the balanced scorecard as the dials and indicators in an airplane cockpit. For the complex task of navigating and flying an airplane, pilots need detailed information about many aspects of the flight. They need information on fuel, air speed, altitude, bearing, destination, and other indicators that summarize the current and predicted environment. Reliance on one instrument can be fatal. Similarly, the complexity of managing an organization today requires that managers be able to view performance in several areas simultaneously.

Summary

It is essential for the HR department to retain their reports up to date and organized. HR reports for management can have a direct impact on employee retention and even productivity. A constantly updated health reports, wellness reports, etc will make the employees feel valued and worthy at the workplace and hence have a reflection on retention.The employee engagement reports will help the managers and team leads to get a better understanding of the teams and individuals who are engaged and can do the needful to alter their engagement activities accordingly. It is safe to say that HR is the breath and life of an organization.

Keywords

HR scoreboards, HR dashboards, HR decision making

Self Assessment

1. In general, HR metrics should measure which of the following?

A. The same goals and objectives that are put forth by the business
B. Employee engagement
C. ROI, cost, revenue impact, increased productivity or performance, and/or decreased cost
D. How your programs are performing using KPIs for dashboards?

2. To identify how HR can connect to this business outcome…….

A. one can create a strategy map
B. Creation of HR policies, processes, and practices
C. Aligning HR systems
D. Creating HR efficiencies

3. The HR scorecard is a great tool when used right. To ensure that it is used right, HR teams have to ensure that the data they collect is _____and that they are consistent in their _____of the KPIs.

A. Accurate and measurement
B. Time and measurement
C. Measurement and outcomes
D. None of above

4. HR scorecard is a report that you conduct to calculate the success rate of _____employees.

A. human resource
B. Marketing
C. Financial
D. All of above

5. When creating a scorecard, it is recommended that you pick ___measurement approach and stick to it.

A. Many
B. One
C. Four
D. Two

6. Human resource Scorecards are available in two formats:

A. Software based
B. KPI based
C. Excel-based Scorecards and PDF-based Scorecards
D. All of above

7. Developments in Human Resources Management (HRM) are fast being integrated with corresponding changes in data and _____processing,

A. information
B. analytics
C. Keep a track on organizational performance
D. All of above

8. A scorecard helps keep the goals at the center, uses specific parameters to track progress, and follows initiatives for poor performance

A. management
B. monitoring actions
C. Performance action
D. None of above

9. Choose one incorrect statement out of the following:-

A. It seems that analytics is taking the guesswork out of the decision-making process by offering a more data-driven approach.
B. It is essential for the HR department to retain their reports up to date and organized.
C. HR reports for management can have a direct impact on employee retention and even productivity
D. The HR scorecard is a great tool when used by CEO of the company

10. An HR scorecard allows HR personnel to _____align their goals across the department and organization.

A. Individually
B. In team
C. Department

D. None of above

Answers for Self Assessment

1.	C	2.	A	3.	A	4.	A	5.	B
6.	C	7.	A	8.	B	9.	D	10.	A

Review Questions

1. Do you think HR dashboards are the best tool for performance measurement?
2. Discuss in detail steps of preparing HR dashboards.
3. Can we continue to improve and create value with dashboards? Opine your views.
4. How you can use balance scorecards in HR department to measure its efficiency?.
5. The balanced scorecard allows managers to look at the business from four important perspectives, Discuss four perspectives with examples in detail.

Further Readings

- https://www.questionpro.com/blog/correlational-research/
- https://www.shiksha.com/probability-preparation/non-parametric-test-3075
- https://www.sciencedirect.com/topics/medicine-and-dentistry/parametric-test
- https://statisticsbyjim.com/hypothesis-testing/nonparametric-parametric-tests/

U09: HR Data

CONTENTS

Objectives

After studying, you will be able to:

- Understand the process of data collection.
- Understand Big data in Human Resource management
- Understand Relationship of HR and Big data

Vignette: VINCI, a global leader in concessions and construction with over 185,000 employees spread across 2,100 companies, uses big data to improve its HR functions. Through big data, VINCI is able to effectively manage employee data and make employee communications, onboarding, and terminating employment more efficient. The organization can now easily adapt to company-wide changes, gain a better understanding of HR, and improve the overall efficiency of human capital.

Introduction

Data saturates the modern world. Data is information, information, is knowledge, and knowledge is power, so data has become a form of contemporary currency, a valued commodity exchanged between participating parties. Data helps people and organizations make more informed decisions, significantly increasing the likelihood of success. By all accounts, that seems to indicate that large amounts of data are a good thing. However, that's not always the case. Sometimes data is incomplete, incorrect, redundant, or not applicable to the user's needs.

9.1 Data Quality

Data quality is the measure of how well suited a data set is to serve its specific purpose. Measures of data quality are based on data quality characteristics. Quality characteristic means that information is correct. For example, in the realm of financial services, does a customer really have $1 million in his bank account?

9.2 Importance of Data Quality

Bad data can have significant business consequences for companies. Poor-quality data is often pegged as the source of operational snafus, inaccurate analytics and ill-conceived business strategies.

Examples of the economic damage that data quality problems can cause include added expenses when products are shipped to the wrong customer addresses, lost sales opportunities because of erroneous or incomplete customer records, and fines for improper financial or regulatory compliance reporting.

An oft-cited estimate by IBM calculated that the annual cost of data quality issues in the U.S. amounted to $3.1 trillion in 2016. In an article, wrote for the MIT Sloan Management Review in 2017, data quality consultant Thomas Redman estimated that correcting data errors and dealing with the business problems caused by bad data costs companies 15% to 25% of their annual revenue on average.

9.3 Characteristics of Data Quality

- Accuracy
- Completeness
- Consistency
- Validity
- Uniqueness
- Timeliness

***Accuracy*:*Accuracy is a crucial data quality characteristic because inaccurate information can cause significant problems with severe consequences. We'll use the example above – if there's an error in a customer's bank account, it could be because someone accessed it without his knowledge*.**

Completeness

"Completeness" refers to how comprehensive the information is. When looking at data completeness, think about whether all of the data you need is available; you might need a customer's first and last name, but the middle initial may be optional.

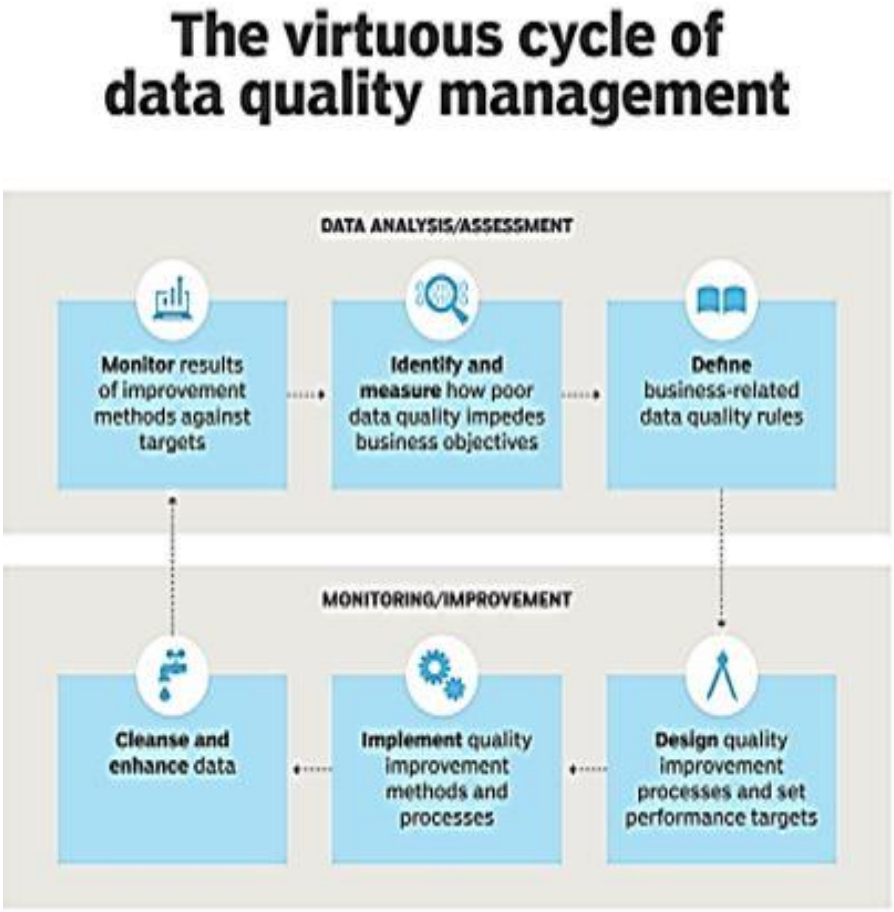
Why does completeness matter as a data quality characteristic? If information is incomplete, it might be unusable. Let's say you're sending a mailing out.

Reliability

In the realm of data quality characteristics, reliability means that a piece of information doesn't contradict another piece of information in a different source or system. It can be used an example from the healthcare field; if a patient's birthday is January 1, 1970 in one system, yet it's June 13, 1973 in another, the information is unreliable.

RelevanceReliability is a vital data quality characteristic. When pieces of information contradict themselves, you cannot trust the data. You could make a mistake that could cost the firm money and reputational damage. When one is looking at data quality characteristics, relevance comes into play because there has to be a good reason as to why y collecting this information in the first place.

You must consider whether you really need this information, or whether you're collecting it just for the sake of it.



Why does relevance matter as a data quality characteristic? If you're gathering irrelevant information, you're wasting time as well as money. The analyses won't be as valuable.

Timeliness

Timeliness, as the name implies, refers to how up to date information is. If it was gathered in the past hour, then it's timely – unless new information has come in that renders previous information useless. The timeliness of information is an important data quality characteristic, because information that isn't timely can lead to people making the wrong decisions. In turn, that costs organizations time, money, and reputational damage.

9.4 Data Collection

As our society moves away from factory jobs, lifelong education is becoming an increasing necessity. Technology and data have become a part of how we work. That change has placed more demands on educators than ever before. Whether teaching in a classroom or a boardroom, one need to learn how to collect and manage data.

This process consists of the following five steps.

1. Determine What Information You Want to Collect
2. Time frame for data collection
3. Determine your method of collection
4. Collect the data
5. Analyze the Data

Determine What Information is to be Collected

The first thing which should be considered is choose what details you want to collect. You need to decide what topics the information will cover, who you want to collect it from and how much data you need.

Example: Your goals — what you hope to accomplish using your data — will determine your answers to these questions. As an example, you may decide to collect data about which type of articles are most popular on your website among visitors who are between the ages of 18 and 34. You might also choose to gather information about the average age of all of the customers who bought a product from your company within the last month

Time frame for data collection

Next, you can start formulating your plan for how you'll collect your data. In the early stages of your planning process, you should establish a timeframe for your data collection. You may want to gather some types of data continuously. When it comes to transactional data and website visitor data.

Example: You may want to set up a method for tracking that data over the long term. If you're tracking data for a specific campaign, however, you'll track it over a defined period. In these instances, you'll have a schedule for when you'll start and end your data collection

Determine your method of collection

At this step, you will choose the data collection method that will make up the core of your data-gathering strategy. To select the right collection method, you'll need to consider the type of information you want to collect, the timeframe over which you'll obtain it and the other aspects you determined.

Collect the data

Once you have finalized your plan, you can implement your data collection strategy and start collecting data. Be sure to stick to your plan and check on its progress regularly. It may be useful to create a schedule for when you will check in with how your data collection is proceeding, especially if you are collecting data continuously.

Analyze the Data and Implement Your Findings

Once you've collected all of your data, it's time to analyze it and organize your findings. The analysis phase is crucial because it turns raw data into valuable insights that you can use to enhance your marketing strategies, products and business decisions. Once you've uncovered the patterns and insights in your data, you can implement the findings to improve your business

Although data can be valuable, too much information is unwieldy, and the wrong data is useless. The right data collection method can mean the difference between useful insights and time-wasting misdirection.

Six data collection methods:

1. Interviews
2. Questionnaires and surveys
3. Observations
4. Documents and records
5. Focus groups
6. Oral histories

Interviews

If you asked someone completely unaware of data analysis how to best collect information from people, the most common answer would likely be interviews.

Almost anyone can come up with a list of questions, but the key to efficient interviews is knowing what to ask?

Efficiency in interviewing is crucial because, of all the primary data collection methods, in-person interviewing can be the most expensive.

Observation

Observation involves collecting information without asking questions. This method is more subjective, as it requires the researcher, or observer, to add their judgment to the data. But in some circumstances, the risk of bias is minimal.

Example: If a study involves the number of employees in a company's party at a given time, unless the observer counts incorrectly, the data should be reasonably reliable. Variables that require the observer to make distinctions, such as how many millennials attended party in a given period, can introduce potential problems.

In general, observation can determine the dynamics of a situation, which generally cannot be measured through other data collection techniques. Observation also can be combined with additional information, such as video.

Documents and records

Using documents and records can be efficient and inexpensive because you're predominantly using research that has already been completed.

However, since the researcher has less control over the results, documents and records can be an incomplete data source.

Focus groups

A combination of interviewing, surveying, and observing, a focus group is a data collection method that involves several individuals who have something in common.

The purpose of a focus group is to add a collective element to individual data collection.A focus group study can ask participants to watch a presentation, for example, then discuss the content before answering survey or interview-style questions.

Oral histories

At first glance, an oral history might sound like an interview. Both data collection methods involve asking questions. But an oral history is more precisely defined as the recording, preservation, and interpretation of historical information based on the opinions and personal experiences of people who were involved in the events.

Example: A researcher may be interested in studying the effect of a flood on a community. An oral history can shed light on exactly what transpired. It's a holistic approach to evaluation that uses a variety of techniques.

Questionnaires and surveys

Questionnaires and surveys can be used to ask questions that have closed-ended answers.

Data gathered from questionnaires and surveys can be analyzed in many different ways. You can assign numerical values to the data to speed up the analysis. This can be useful if you're collecting a large amount of data from a large population.

To be meaningful, surveys and questionnaires need to be carefully planned. Unlike an interview, where a researcher can react to the direction of a respondent's answers, a poorly designed questionnaire will lead the study nowhere quickly. While surveys are often less expensive than interviews, they won't be valuable if they aren't handled correctly.

Surveys can be conducted as interviews, but in most cases, it makes sense to conduct surveys using forms.

Online forms are a modern and effective way to conduct surveys. Unlike written surveys, which are static, the questions presented in online forms can change according to how someone responds thanks to the conditional logic form feature.

Example: For instance, if you use Jot form to create your forms, when someone answers no to a question about allergies, they won't have to scroll past all of the related follow-up questions about specific allergies. Instead, they'll go immediately to a question on a different topic.

9.5 Data Quality

Data quality is a measure of the condition of data based on factors such as accuracy, completeness, consistency, reliability and whether it's up to date.

9.6 How to Measure Data Quality?

Assessing Data Quality

Assess in data and build data best practices into company's DNA. Although the technical dimensions of data quality control are usually addressed by engineers, there should be a plan for enforcing best practices related to data quality throughout the organization. After all, virtually every employee comes into contact with data in one form or another these days. Data quality is everyone's responsibility. Assessing data quality on an ongoing basis is necessary to know how well the organization is doing at maximizing data quality. To measure data quality – and track the effectiveness of data quality improvement efforts – you need, well, data. What does data quality assessment look like in practice? There are a variety of data and metrics that organizations can use to measure data quality.

Database entry problems

In cases where you are working with structured datasets, you can track the number of database entry problems that exist within the datasets. The fewer data quality problems you have to start with, the faster you can turn your data into value. A few of these measurements include the ratio of data to errors and the number of empty values. The ratio of data to errors This is the most obvious type of data quality metric. It allows you to track how the number of known errors – such as missing, incomplete or redundant entries – within a data set corresponds to the size of the data set. If you find fewer errors while the size of your data stays the same or grows, you know that your data quality is improving.

Data Analytics Failure Rates

The most obvious and direct measure of data quality is the rate at which your data analytics processes are successful. Success can be measured both in terms of technical errors during analytics operations, as well as in the more general sense of failure to achieve meaningful insight from a dataset even if there were no technical hiccups during analysis. The main purpose of a data quality plan is to enable effective data analytics, so fewer analytics failures mean you are doing a good job on the data quality from

How long is your data time-to-value?

Calculating how long it takes your team to derive results from a given data set is another way to measure data quality. While a number of factors (such as how automated your data transformation tools are) affect data time-tovalue, data quality problems are one common problem that slows efforts to derive valuable information from data.

How much data you are processing.

Your ability to process ever-larger volumes of data is one reflection of your ability to maintain data quality. If your data cleansing processes perform poorly, you are unlikely to be able to sustain a high volume of data processing and analytics. Data transformation error rates. Problems with data transformation – that is, the process of taking data that is stored in one format and converting it to a different format – are often a sign of data quality problems. Your data transformation tools will struggle to work effectively with data that they encounter in unexpected formats, or that they cannot interpret because it lacks a consistent structure. By measuring the number of data transformation operations that fail (or take unacceptably long to complete) you can gain insight into the overall quality of your data

How much you pay for data storage?

Are your data storage costs rising while the amount of data that you actually use stays the same? This is another possible sign of data quality issues. If you are storing data without using it, it could be because the data has quality problems. If, conversely, your storage costs decline while your data operations stay the same or grow, you're likely improving the data quality front.

9.7 Big Data for Human Resources

Introduction

Big data is the large volume of data that both structured and unstructured that inundates a business on a day-to-day basis. But it's not the amount of data that's important. It's what organizations do with the data that matters. Big data can be analyzed for insights that lead to better decisions and strategic business moves.

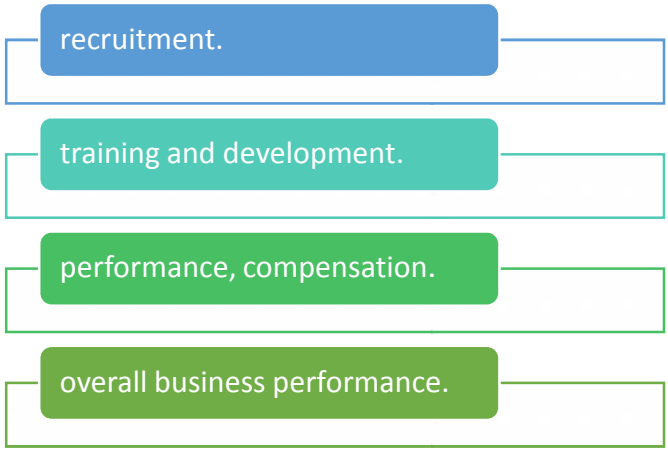
Importance of big data

The importance of big data doesn't revolve around how much data you have, but what you do with it We can take data from any source and analyze it to find answers that enable cost reductions, time reductions, new product development and optimized offerings, and smart decision making.

We can take data from any source and analyze it to find answers that enable

1. Cost Reductions,
2. Time Reductions,
3. New Product Development And
4. Optimized Offerings, And
5. Smart Decision Making.

Big data in human resource management refers to the use of many data sources to evaluate and enhance practices in



Meaning

Big Data is a collection of data that is huge in volume, yet growing exponentially with time. It is a data with so large size and complexity that none of traditional data management tools can store it or process it efficiently. Big data is also a data but with huge size.

Big data in human resource management refers to the use of many data sources to evaluate and enhance practices in recruitment, training and development, performance, compensation, and overall business performance.

Need of Big Data

Big data in human resource management refers to the use of many data sources to evaluate and enhance practices including recruitment, training and development, performance, compensation, and overall business performance. Big data in human resource management refers to the use of many data sources to evaluate and enhance practices including recruitment, training and development, performance, compensation, and overall business performance.

It also has attracted the attention of HR professionals who now can analyze mountains of data to answer key questions regarding employee productivity, the impact of training on business performance, employee attrition and more. Using sophisticated HR software that offers robust data analytics HR professionals can make smarter and more accurate decisions.

9.8 How Big Data will change HR?

For example, HRIS can sort through thousands of applications in a small fraction of the time humans can by filtering CVs with key words and skills necessary to the job.

Example: Bank of America used HR software that studies movements and interactions among its employees and noticed the teams with the best bonds were also those that were most efficient.

Employee Productivity Performance metrics have been one of the most widely adopted uses of big data for HR and are used to improve workplace conditions and facilitate optimal performance by teams.

9.9 Converting HR Data Into HR Information

Collecting data about your HR operational performance is important, but it's also important to effectively convert your raw data into real insights so you can make smart, informed decisions.

It can even be worthwhile to have people on your HR team that are particularly skilled at reading data. When you process your HR data into digestible pieces of information, you will have a much more comprehensive understanding of how your HR operations are working, where the bottlenecks are, and how to take strategic action to make continuous improvements. Setting up metrics for HR operational performance is crucial for understanding how your service delivery is working. Without measurements, it's extremely difficult to know what's working, what needs attention, and if you're meeting your goals. Setting up metrics for HR operational performance is crucial for understanding how your service delivery is working. Without measurements, it's extremely difficult to know what's working, what needs attention, and if you're meeting your goals.

Determining the right KPIs for your team and then keeping track of them over time can give you data that helps determine inefficiencies. You are then able to convert your data into information that can be used to make pointed decisions about your team, content, and processes so you can continually optimize service delivery. Using information about your HR operations allows you to take strategic action. For instance, if you've acquired data about your employees' most frequently asked questions, you now have information about what your employees care about and what they are confused by?

How to Use HR Information?

Using HR information to guide decision-making can have a direct, positive impact on your HR service delivery. It allows you to drill down into trends, inefficiencies, and bottlenecks so that you make targeted, strategic changes.

And armed with HR information, you'll have a better understanding of how to best allocate your time, resources, and staff to make improvements and provide your employees with better support. Knowing these main points, you can focus on addressing specific employee concerns. Another example could be gathering data on how long your processes take to complete. You can use this information to look for global inconsistencies that need to be fixed and opportunities to streamline. Equipped with a comprehensive understanding of your processes, you can also explain to leadership why certain things take longer to complete than others - with the numbers to back you up.

9.10 Relationship of Big Data with People Analytics

People 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, to manage people at work

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

1. How much of my employee turnover consists of regretted loss?
2. What factors drive employee turnover?

3. What will my turnover be next year?
4. How can I optimize staffing levels for our HR self-service customer tickets?
5. What are my biggest workforce risks?

Summary

For organizations and their HR leaders, teams and practitioners respectively this means that value creation for both human capital and data are an increasingly valuable asset and one that has untold potential for people teams as developments in big data continue to unfold. Data quality is like oral hygiene: we all know we need to do it, but sometimes we get lazy. But it's crucial for higher operational efficiency, to realize cost savings, and a stronger decision-making foundation backed by data. With high-quality data — even faced with rapidly growing volumes — a successful analytics operation is easier to manage and more accurate and will provide dynamic insights for everyone.

Keywords

Big data, Data quality, Data Collection, HR and Data information

Self Assessment

1. Data Quality is like____

A. Data hygiene
B. Data manipulation
C. Data cleaning
D. Data surfing

2. Data in ____ bytes size is called big data

A. Meta
B. Giga
C. Peta
D. Tera

3. Choose the primary characteristics of big data among the following

A. Volume
B. Variety
C. Value
D. All of above

4. Which of the following is not a part of the data science process.

A. Communication building
B. Discovery
C. Operationalize
D. Model planning

5. Identify the different features of Big Data Analytics.

A. Open source
B. Data recovery
C. Scalability
D. All of above

6. What is meant by 'accuracy'?

A. The overall quality of the data.

B. The level of detail at which data is stored.

C. The lack of bias in the data.

D. The extent to which a value approaches its true value

7. What is meant by the term 'precision'?

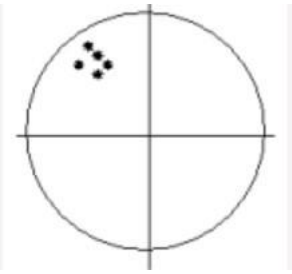
A. The lack of bias in the data.

B. The level of detail at which data is stored.

C. The extent to which a value approaches its true value.

D. The overall quality of the data.

8. Looking at the above rifle target, how would you describe the shooting of this contestant?



A. Inaccurate and precise.

B. Accurate and precise.

C. Inaccurate and imprecise.

D. Accurate and imprecise.

9. In the realm of data quality characteristics, reliability means

A. that a piece of information contradicts another piece of information in a different source or system

B. that a piece of information doesn't contradict another piece of information in a different source or system

C. that a piece of information doesn't contradict another piece of information in a same source or system

D. None of above

10. Timeliness, as the name implies, refers to

A. how up to date information is.

B. How relevant data is .

C. How precise the data is.

D. How accurate the data is.

11. Data quality features are increasingly being integrated into what other kind of technology platform?

A. Analytics

B. Data integration

C. Enterprise search

D. Storage

12. Which of the following terms best characterizes the process of examining data for statistics and information about the data?

A. Data Profiling
B. Data cleaning
C. Business Intelligence search
D. Data governance

13. Consulting firm Gartner said in 2021 that bad data quality costs organizations an average of

A. $12.9 million per year.
B. $120.9 million per year.
C. $2.9 million per year.
D. $9 million per year.

14. which one of the following is the most expensive method of data collection?

A. Interview
B. Website
C. Google link
D. All of above

15. Focus groups is defined as

A. a focus group is a data collection method that involves several individuals who have something in common
B. a focus group is a data collection method that involves several individuals who have something in different.
C. a focus group is a data collection method that involves two individuals who have something in common
D. a focus group is a data collection method that involves several individuals

Answers for Self Assessment

1.	A	2.	C	3.	A	4.	A	5.	D
6.	A	7.	B	8.	A	9.	B	10.	A
11.	A	12.	A	13.	A	14.	A	15.	A

Review Questions

1. What do you think are the three most important skills for a data quality analyst to have?
2. What is the Relationship of Big Data with People Analytics?
3. How good is a company's data quality? How you will evaluate this?
4. How can you ascertain that biasness in data collection can be removed?
5. What is the important criterion for data collection?

Further Readings

- https://www.dataversity.net/what-is-data-quality/
- https://www.simplilearn.com/data-quality-article
- https://www.guru99.com/what-is-big-data.html
- https://www.sciencedirect.com/science/article/pii/S2351978919301477
- https://datascience.codata.org/articles/10.5334/dsj-2015-002/

U10: HR Reporting

CONTENTS

Objectives

After studying, you will be able to:

- Understand types of HR Reports
- Importance of HR reports in Organisations

Introduction

Data saturates the modern world. Data is information, information, is knowledge, and knowledge is power, so data has become a form of contemporary currency, a valued commodity exchanged between participating parties. Data helps people and organizations make more informed decisions, significantly increasing the likelihood of success. By all accounts, that seems to indicate that large amounts of data are a good thing. However, that's not always the case. Sometimes data is incomplete, incorrect, redundant, or not applicable to the user's needs.

10.1 What is HR Reporting?

HR reporting is the process of tracking key metrics about your workforce, often through human resources information systems (HRIS). In addition to tracking and measuring data, these systems help HR teams manage many of the day-to-day work related to payroll, benefits and other transactional HR needs.

10.2 Recruiting Report

If you are hiring (or intend to hire) new employees, it is important to keep track of your recruiting process. Evaluating how successful your recruitment process is can help you speed up the process and find the best candidates for each position. When compiling a recruiting report, look at the following metrics:

Function type: This metric typically characterizes the different roles at a business, both in terms of departments and geographic areas.

Open positions and new hires:These metrics show the number and/or percentage of open positions you currently have, as well as how many employees joined the organization within the past year.

Time to fill vacancies: This measures the time between when a job requisition is approved and when an offer is accepted. Time to fill (also referred to as "average time to hire") is a measure of how efficient and effective your company's recruiting process is.

Did you know?

The Society for Human Resource Management reported that the average time to fill a position is 41 days.

Recruitment costs: The total cost of recruitment efforts often includes the amount spent on external staffing agencies, job advertisements and lost productivity. Understanding the cost per hire for each job type can reveal where your recruitment process is efficient and where it should be modified.

Recruiting conversion rate: Along with recruitment costs, you want to identify your recruitment conversion rate. This measures how many job applicants are turned into hired employees. Analyzing this will show you whether your recruitment efforts are successful or not.

10.3 9 Types of HR Reports for Management

Employee information reports

Employee Information Reports provide all information on employees' data factors, such as employee headcount, employee turnover rates, diversity, revenue per employee, employee satisfaction percentage, employee engagement percentage, and average employee tenure, among others.

HR may use these reports to track all of the aforementioned metrics and more, depending on the company's needs, such as turnover rates by department, location, or team.

The main benefit of this report is that it allows one to evaluate and compare data across departments, locations, and different cross-sections to get a detailed picture of the company's performance management.

Recruitment reports

Recruitment Human Resources Reports are one of the most important reports that have shown to be quite beneficial in improving hiring tactics and increasing candidate journey transformation rates. Measuring, analyzing, and comprehending the many variables involved in recruitment can be quite beneficial to your Talent Acquisition team.

The following are some highly suggested metrics to track in recruitment reports:

i. Time spent on each candidate

ii. Number of candidates evaluated in a timeline
iii. Rate of offer declination
iv. Reasons for offer rejection
v. Total number of interviews
vi. Interview evaluations
vii. Duration of the interview
viii. Types of Interviews
ix. Job Application trends
x. Email application trends
xi. Career site application trends
xii. Top channels for candidate sourcing
xiii. Sources that brings the most qualified candidates
xiv. Active job postings by location,
xv. Candidates from the talent pool and their behavior patterns

10.4 Onboarding and Off boarding reports

Onboarding and Off boarding have grown to become crucial HR functions to measure. Organizations have realized the necessity of maintaining strong employee retention and satisfaction rates, which promotes the employer brand. Make sure you measure your onboarding and off boarding processes, conduct relevant surveys to understand your employees' comments, and evaluate the data using reports to enhance both.

Onboarding feedback, pre-onboarding drop-off rates, post-90-days drop-off rates, retention rates, training spend per employee, and ROI on each employee are some key metrics to track.

10.5 Performance Management Report

Managing employee performance is critical to the success of your business. There are a few metrics you can gauge to get a clear view of how well your employees are performing and where they may need additional training or assistance. When compiling a performance management report, look at the following metrics:

Productivity reports: Maintain consistent metrics for each employee on their overall productivity. You can also track productivity over teams, departments or locations.

Engagement and satisfaction reports: Similar to employee productivity, you want to measure engagement and satisfaction. Having an engaged workforce is an indicator that you have a healthy work culture. It can also help increase employee retention.

Absenteeism rate:This shows the average percentage of time, or number of days, that employees were absent in the previous period

Did you Know?

According to the Bureau of Labor Statistics (BLS), the average absenteeism rate is roughly 3% for full time workers

Training costs:This refers to the total amount of money spent on training new hires and existing employees; it should also include the costs of travel and training materials.

The following are some of the most typical parameters to be examined when measuring performance:

- Employee evaluations
- Time to employee productivity
- The number of hours worked and revenue

- Employee objectives and performance, as well as their improvements
- Peer reviews, etc.

This can be done based on levels, locations, departments, positions, and so on. One may track the performance of all product marketers, for example, to see how well product marketing is performing in the company.

10.6 HR Administrative Report

Employers should have an overall view of their company, and administrative reports are a great way to do that. When compiling administrative reports, look at the following metrics:

***Active employees*:** This shows the number of employees currently on your payroll. You should always keep an accurate count of exactly how many employees you have on both a full-time and part-time basis.

Full-time equivalent (FTE): An FTE is a measure of the hours worked by a single employee on a full-time basis. This system is used to convert the hours worked by multiple part-time employees into the hours worked by a full-time employee. On an annual basis, an FTE is equivalent to 2,080 hours, which equates to eight hours per day for five workdays per week.

Male-to-female rate: This is often measured for diversity and equality purposes, as tracking gender numbers helps to assess pay gaps and address some healthcare-related insurance cost issues.
Education level: This partially assesses employees' overall qualifications for their current positions. It also helps measure what percentage of your workforce has four-year and graduate degrees

New Hire Budget/Analysis

This report, as the name suggests provides a list of all employees that have been newly hired within a defined date range. The report also contains details such as annual salary, employment status and the like.

Terminations Budget/Analysis

This report contains the list of all employees who have been terminated from employment within a defined date range. The report also details the salary of the terminated employees, whether they have been replaced with a new hire and the reason for employee termination, whether it was voluntary, involuntary and likewise.

Rehired Terminations Budget/Analysis

This report contains the list of those employees who were terminated by the employer and were rehired. The report also encompasses details such as salary information, current employment status, original hire date, and prior termination date.

Turnover

This is a part of the monthly HR reports for management that gives an analysis of the number of terminated employees which is the monthly turnover rate. Sometimes, it becomes hard for the organization to retain employees and it may lead to a massive turnover. The organization then develops strategies to bring down their turnover rate.

Paid Leave Analysis

This report is used to create an assembled summary of available paid leave for a specific group of employees. It provides details such as the number of paid leave left, the hours that have been taken, the salary of the particular employee and the likewise.

Leave Administration

This report provides details about the employees placed "On Leave" within a particular date period. This report is used to generate a list of employees on extended leave. It includes details such as the type of leave, leave, whether it is paid leave, leave duration, and return date.

Employee Change History

This report gives a summary of changes that have been made to an employee profile over a specified period of time. It might be marital status, residential information and likewise

Status Change

This report provides a summary of all employee personnel records where a specific type of account change has been executed within a defined date range. This report is used to identify accounts affected by specific types of data adjustments, including pay rate, job code, hire date, or termination.

10.7 Compensation Report

A compensation report is important for businesses to understand how much they are spending on their employees. When compiling compensation reports, look at the following metrics:

- ***Employee pay:*** Track how much you are paying your employees. This can be comprised of a few different data points including base salary, overtime (OT) pay, paid leave, payroll deductions and additional incentives.
- ***Cost of absence***: This metric refers mainly to unscheduled absenteeism, which is essential to uncovering one of the most expensive unseen costs in the workplace.
- ***Cost of labor***: This is the sum of all employee compensation, which includes employee wages, benefits and payroll taxes paid by the employer. The cost of labor is broken into direct and indirect (overhead) costs, which are then usually sliced up into additional buckets.
- These are just some of the more common HR metrics that can provide you with a better understanding of how your organization is performing compared with the competition.

10.8 Equal Employment Opportunity Reports

Equal employment opportunity is a pivotal concept for employees and employers alike. It ensures that the employment in an organization is not biased towards a specific gender, race or age group.

New Hires Information

This report will give the details of the new hires and other data specific to the equal employment opportunity reports.

Terminations Information

This report is a variation of the standard Terminations report, including additional employee personal data specific to Equal Employment Opportunity analysis.

Equal Employment Opportunity Headcount

This report provides employee information in the government-specified equal employment opportunity format. The government mandates the filing of this form for all employers with more than 100 employees.

10.9 Miscellaneous HR Reports for Management

EmployeeTransfers

This report provides a list of all employees transferred to a new company using the Employee Transfer EAN with an effective date in the defined date range. The old and new companies are included in the report.

Years of Service

This report provides tenure information for all employees within the organization. Use this report to perform analysis on staff experience by department, job title, location, or other employee classes.

Employment Anniversary

This report provides employment anniversary date information for all employees within the organization. Use the report to create a summary of employee anniversary dates for use in recognition programsor other business purposes.

Emergency Contact

This report provides a summary list of current Emergency Contacts designated for each employee within the organization, including contact name, telephone number, and relationship to the employee.

Birthdays

This report provides a summary list of birthday information (excluding year of birth) for each employee within the organization.

Mailing Labels

This report provides a summary list of employee address information that can be used with Excel and MSWord to create formatted labels.

10.10 HR Reporting Pitfalls

Turnover rate:In the context of human resources, turnover represents the percentage of employees who leave your business over a given period due to both voluntarily and involuntarily reasons, including termination, retirement or replacement. You can also keep track of retention rates, average time of stay, and dismissal rates.

FYIFYI: Organizations should generally aim for a 10% turnover rate, although this can vary based on industry.

10.11 Importance of HR Reporting

Tracking HR metrics allows companies to know themselves better and use data to improve their business and workforce. Here are some of the benefits of HR reporting:

Strategy development: Each year, companies develop new strategies and projections, and businesses need to assess HR metrics as a part of that planning.

Data transparency: When your team members can view data about your organization, they are more informed and feel more connected to the company, which is crucial for building engagement and inclusivity.

Accountability: As with all areas of the company, the HR department needs to share and explain costs and any needs for additional resources.

10.12 Application of HR Reporting by Companies

If your company is growing, it's usually a good idea to partner with a third-party HRIS provider to help you measure and track data and KPIs. Many HRIS providers offer complete cloud-based HRIS platforms that can organize data to produce more streamlined and informative metrics. Here are some solid options for monitoring all of the key metrics that help companies track personnel performance as well as process payroll, benefits and other attributes:

BambooHR: BambooHR offers reporting, applicant tracking, a centralized employee database, metrics/KPI tracking and more. Read our full review of BambooHR.

Paychex: Paychex flex is our choice for the best HR software for supporting remote teams. Read our full review of Paychex.

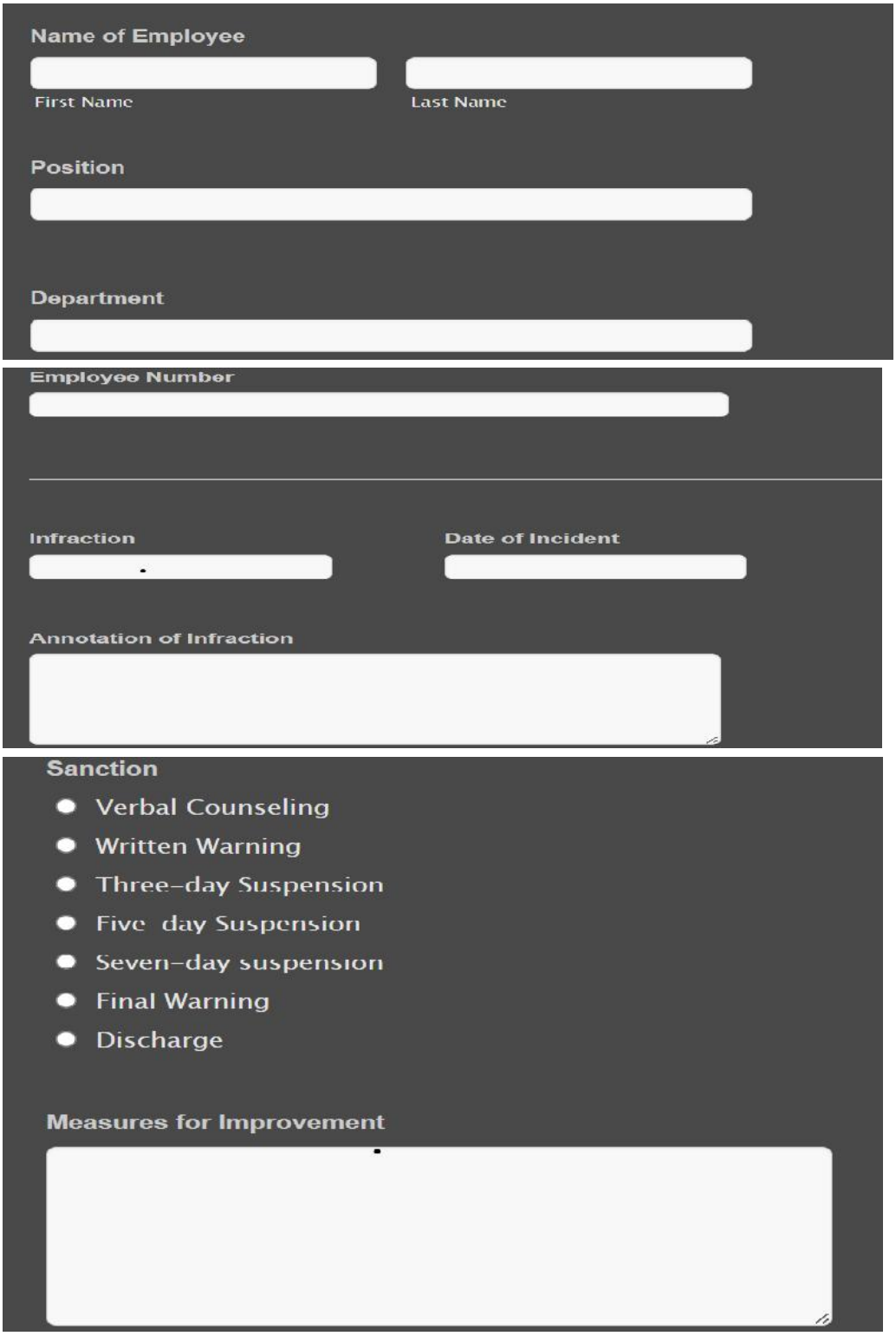
Rippling: This HR software benefits small businesses, specifically because of its self-service portal. Read our full review of Rippling.

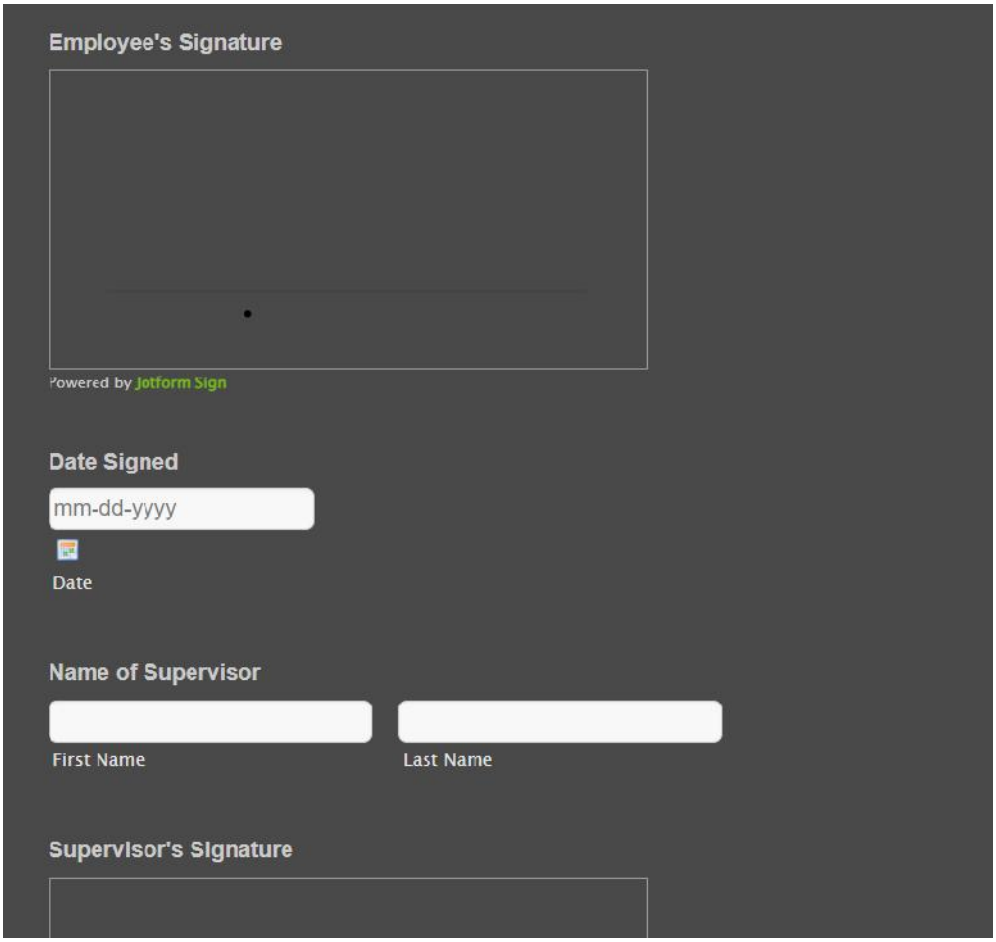
GoCo: This is our best pick for HR software for custom workflows. Read our complete review of GoCo.

Gusto: Gusto's services include payroll and HR servicing, and its versatility makes it great for companies in a variety of industries. Read our full review of Gusto.

10.13 Templates of Various HR Forms

Disciplinary Action Form





10.14 Best Practices for Quality HR Reporting

1. Ask the right questions

HR, like every other division in your company, gathers a tonne of data that can give you an understanding of how well your business is doing in terms of workforce management, productivity, and satisfaction. It is important to use the right HR data to accurately assess issues and opportunities in your HR department. o avoid wasting time working with all of the available data, before you begin creating your HR reports, ask yourself the simple yet powerful question: what do I need from the data? This question can be answered by thinking about the answers to other questions, such as what is the core idea I want to convey? Who is going to use my HR reports? How often are reports made? What context should my reports have?

You can filter the data and keep only the information that is pertinent to addressing your main questions by providing answers to all of these questions in advance. By doing this, you will approach your HR tracking process with a prepared mind, improving its efficiency in terms of time and greatly lowering the possibility of errors due to using incorrect data in your analysis.

2.Use a mix of HR KPIs

After you've defined the broad questions and objectives of each of your HR reports, it's time to select the KPI metrics that will help you visualize your performance and achieve your business objectives.

Depending on the goal of your reports and the inferences you want to make from them, many metrics can be tracked weekly, monthly, or annually. To achieve this, you should carefully choose the metrics you use. Your HR reports should combine a variety of potent KPIs that, when combined, will improve your data storytelling and facilitate better decision-making by providing a more comprehensive picture of all aspects of your human resources department.

3.Automate the HR reporting process

HR managers have a lot on their plates, whether finding new workers, organizing training opportunities, or ensuring your company has a great working environment. Due to the lengthy manual process of gathering accurate data from various sources, it can be difficult to find time to perform detailed HR reporting.

Automated reporting is the solution to all of these issues. Your human resources team can concentrate on decision-making and strategy by automating reports, which will improve department performance as a whole.

4.Use interactive HR sporting tools

While there are undeniable advantages to automating your HR reporting process, the success of your HR department will ultimately depend on how visually appealing and interactive your reports are.

HR reports have been manually produced for many years in static PowerPoint presentations or protracted text documents that were difficult to read and analyze. There are now many tools available on the market to improve the efficiency and effectiveness of the reporting process, thanks to the increase in businesses leveraging their data.

Summary

It is pivotal for the HR department to keep their reports up to date and organized. HR reports for management can have a direct impact on employee retention and even productivity. A constantly updated health reports, wellness reports, etc will make the employees feel valued and worthy at the workplace and hence have a reflection on retention. The employee engagement reports will help the managers and team leads to get a better understanding of the teams and individuals who are engaged and can do the needful to alter their engagement activities accordingly. It is safe to say that HR is the breath and life of an organization.

Keywords

HR reports, Recruitment reports, Performance reports, Compensation reports.

Self Assessment

1. The success of your HR department will ultimately depend on how visually appealing and interactive your reports are.

A. True

B. False

2. Tracking HR metrics allows companies to know themselves better and use data to improve their business and workforce.

A. True

B. False

3. Accountability refers to your team members can view data about your organization, they are more informed and feel more connected to the company, which is crucial for building engagement and inclusivity.

A. True

B. False

4. Choose odd one out

I. It goes without saying that human resources (HR) department is one of the most pivotal sectors within your organization.
II. HR department can make or break a business.
III. They go all the way to ensure that the right talent is hired, recruited and retained.
IV. HR is growing more significant, and reporting is critical not just for assisting professionals in extracting the finest possible insights,

A. I
B. II
C. III,IV
D. None of above

5. Finding patterns in this tangle of data would be virtually impossible. The only solution is.

A. Digital HR reporting
B. Identify organizational flaws
C. Operationalize
D. Model planning

6. Why are HR reports beneficial for an organization?

A. Identify organizational flaws
B. Scalability
C. To Identify organizational flaws
D. All of above

7. Some of the most typical parameter/s to be examined when measuring performance is/are
   I. Employee evaluations
   II. Time to employee productivity
   III. The number of hours worked and revenue
   IV. Employee objectives and performance, as well as their improvements

A. I
B. II
C. I,II,III

8. The finance team is in charge of majority of the _____provided to employees. Payroll, on the other hand, is the responsibility of the.

A. Compensation--------. HR department
B. HR department--------Compensation
C. HR department-------Finance department
D. Marketing department-------compensation

9. This report contains the list of all employees who have been terminated from employment within a defined date range.

A. Termination Analysis
B. Rehired Analysis

C. Turnover analysis
D. Leave Analysis

10. This report provides a list of all employees transferred to a new company using the Employee Transfer
A. Years of Service
B. EmployeeTransfers.
C. Employment anniversary
D. Performance management reports

11. In the realm of data quality characteristics, reliability means
A. that a piece of information contradicts another piece of information in a different source or system
B. that a piece of information doesn't contradict another piece of information in a different source or system
C. that a piece of information doesn't contradict another piece of information in a same source or system
D. None of above

12. Timeliness, as the name implies, refers to
A. how up to date information is.
B. How relevant data is .
C. How precise the data is.
D. How accurate the data is.

13. Human Resources Reports are one of the most important reports that have shown to be quite beneficial in improving _____tactics and increasing candidate journey transformation rates Analytics
A. hiring
B. Enterprise search
C. Storage
D. Analytics

14. If your company is growing, it's usually a good idea to partner with a third-party___
A. HRIS
B. Data governance
C. HR Reports
D. CRM

15. Absenteeism rate:
A. This shows the average percentage of time, or number of days, that employees were absent in the previous period
B. Maintain consistent metrics for each employee on their overall productivity. You can also track productivity over teams, departments or locations.

C. Similar to employee productivity, you want to measure engagement and satisfaction. Having an engaged workforce is an indicator that you have a healthy work culture. It can also help increase employee retention.

D. None of above

16. Open positions and new hires:

A. These metrics show the number and/or percentage of open positions you currently have, as well as how many employees joined the organization within the past year

B. These metrics show the number and/or percentage of Closed positions you currently have, as well as how many employees joined the organization within the past year

C. These metrics show the number and/or percentage of prospective positions you have last year as well as how many employees joined the organization within the past year

D. These metrics show the number and/or percentage of off roll positions you currently have, as well as how many employees joined the organization within the past year

17. Performance reports can also show how each employee is doing in terms of meeting their objectives. The connotation of objective is

A. They can highlight skills

B. The good and negative feedback each employee received during the appraisal process,

C. Total appraisal scores. When all of this critical data is readily available, it can encourage higher employee performance.

D. All of above

Answers for Self Assessment

1.	T	2.	T	3.	F	4.	D	5.	A
6.	A	7.	C	8.	A	9.	A	10.	B
11.	A	12.	A	13.	A	14.	A	15.	A
16.	A	17.	D						

Review Questions

1. Discuss in detail the various types of HR reports.
2. HR reporting is the process of tracking key metrics about your workforce. What are various methods by which you can track HR metrics.
3. If you are hiring (or intend to hire) new employees, it is important to keep track of your recruiting process. How can you track the recruitment process?
4. There are a few metrics you can gauge to get a clear view of how well your employees are performing. Explain those metrics in detail.
5. Employers should have an overall view of their company, and administrative reports are a great way to do that. When compiling administrative reports, what are the metrics to be considered for assessment?

Further Readings

- https://www.jotform.com/form-templates/category/human-resources
- https://www.hr.com/en/resources/free_forms/

Unit 11:HR Data Visualization

CONTENTS

Objectives

- Understand data visualization
- Importance of data visualization
- Understand Root cause analysis
- Understand the process of root cause analysis

Introduction

Data visualization is the presentation of data in a pictorial or graphical format. It enables decision makers to see analytics presented visually, so they can grasp difficult concepts or identify new patterns. With interactive visualization, you can take the concept a step further by using technology to drill down into charts and graphs for more detail, interactively changing what data you see and how it's processed.

11.1 Importance

Because of the way the human brain processes information, using charts or graphs to visualize large amounts of complex data is easier than poring over spreadsheets or reports. Data visualization is a quick, easy way to convey concepts in a universal manner – and you can experiment with different scenarios by making slight adjustments.

11.2 Need for Data Visualization

- Identify areas that need attention or improvement.
- Clarify which factors influence customer behavior.
- Help you understand which products to place where.
- Predict sales volumes.

11.3 Goals

The main goal of data visualization is effectively, efficiently, elegantly, accurately as well as meaningfully communicating information

11.4 Types of Data Visualizations

Tables: This consists of rows and columns used to compare variables. Tables can show a great deal of information in a structured way, but they can also overwhelm users that are simply looking for high-level trends.

	A	B	C	D
1	Product	Qtr 1	Qtr 2	Grand Tota
2	Chocolade	$744.60	$162.56	$907.16
3	Gummibarchen	$5,079.60	$1,249.20	$6,328.80
4	Scottish Longbreads	$1,267.50	$1,062.50	$2,330.00
5	Sir Rodney's Scones	$1,418.00	$756.00	$2,174.00
6	Tarte au sucre	$4,728.00	$4,547.92	$9,275.92
7	Chocolate Biscuits	$943.89	$349.60	$1,293.49
8	Total	$14,181.59	$8,127.78	$22,309.37

Fig11.1: Table

Pie charts and stacked bar charts: These graphs are divided into sections that represent parts of a whole. They provide a simple way to organize data and compare the size of each component to one other.

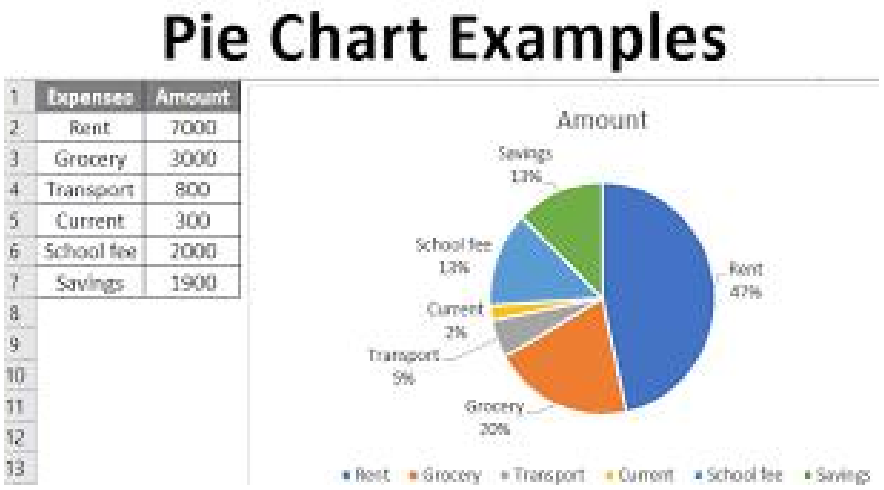


Fig 11.2: Pie Chart

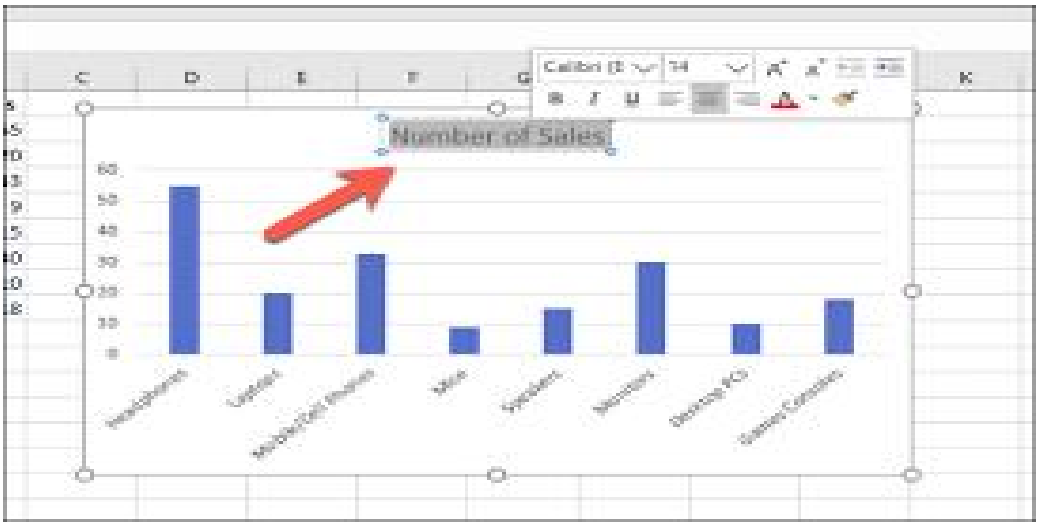


Fig:11.3-Bar Charts

How to make a bar chart in Excel

Step1:- Insert your data into a worksheet.

Step2:- Select your data.

Step3:- Click on the Insert tab.

Step4:- Select 2D bar chart from the various chart options.

Line graphs and area charts: These visuals show change in one or more quantities by plotting a series of data points over time. Line graphs utilize lines to demonstrate these changes while area charts connect data points with line segments, stacking variables on top of one another and using color to distinguish between variables

Fig 11.4:- Line Chart

11.5 When You Should Use a Line Chart?

A line chart should be used when you want to show changes in the value of one or more variables over a period of time. This type of chart is great for displaying trends or comparing multiple variables. It can also be used to show the relationship between two or more variables.

On the horizontal axis, you need a variable that depicts continuous values that have a regular interval of measurement. Very commonly, this variable is a temporal one, generating an observation every minute, hour, day, week, or month. The choice of interval size, or bin, is a decision that the analyst will usually need to make for the data, rather than it being an inherent data characteristic.

On the vertical axis, you will report the value of a second numeric variable for points that fall in each of the intervals defined by the horizontal-axis variable. Often, this will be a statistical summary like a total or average value across events within each bin.

Appropriateness of Line Charts

Choose an Appropriate Measurement Level

An important aspect of creating a line chart is selecting the right interval or bin size. For temporal data, a too-broad of a measurement interval may mean that it takes too long to see where the data trend is leading, hiding away the useful signal. On the flip side of the coin, a too-short a measurement interval may only reveal noise rather than signal.

Testing out different intervals or relying on your domain knowledge about what data is being recorded can inform you of a good choice of bin size. It can also be possible to use multiple lines, with one line for a fine-grained interval, and then a second line for the overall trend, averaging over a rolling window.

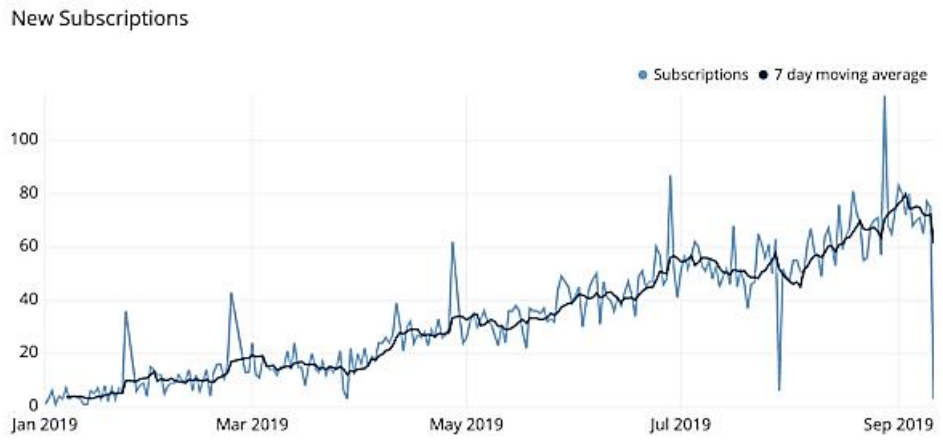


Fig 11.5: -Numerous line chart

Don't Plot Too many lines

With great power comes great responsibility, so while there is the technical capacity to put many lines onto a single line chart, it is a good idea to be judicious in the amount of data that you plot. A good rule of thumb is to limit yourself to five or fewer lines, lest the plot end up looking like an unreadable tangle. However, if the lines are well-separated, you can still plot all of the values you wish to track.

If you find the need to plot more lines than can be read in a single axis, then you might consider faceting the plots into a grid of smaller line charts. It will be more difficult to see details in these plots, so it's a good idea to sort them by some important characteristic (like average or final value) to help draw out important points. If you are using a tool that allows for interactive plots, another alternative is to be able to highlight individual lines or grey out lines to be out of focus as the reader desires.

11.6 Common Line Chart Options

Include Additional Lines to Show Uncertainty:

When we have a line that depicts a statistical summary like an average or median, we can also have an option to add to the plot to display uncertainty or variability in the data at each plotted point. One way of doing this is through the addition of error bars at each point to show standard

deviation or some other uncertainty measure. Another alternative is to add supporting lines above or below the line to show certain bounds on the data. These lines might be rendered as shading to show the most common data values, as in the example below.

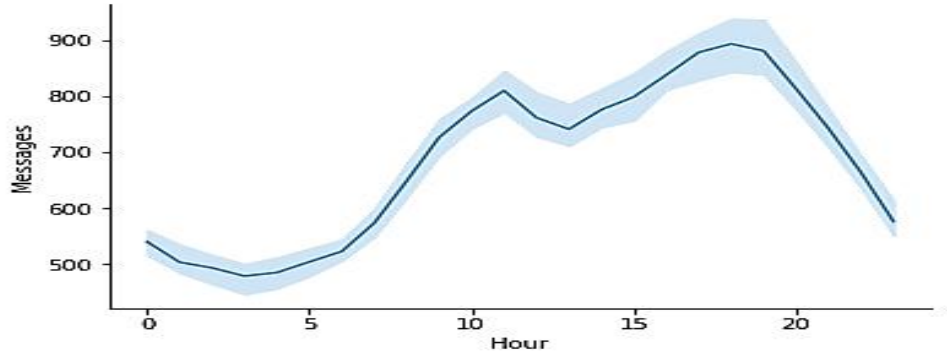


Fig6:-Line Chart

Sparkline

A special use case for the line chart is the sparkline. A sparkline is essentially a small line chart, built to be put in line with text or alongside many values in a table. Because of its small size, it will not include any labeling. Statistics can be placed next to the sparkline to indicate starting and ending values, or perhaps minimum or maximum values. The main point of a sparkline is to show change over a period of time, and is often seen in financial contexts.

Symbol	Chart	Value	Change
XP		24.54	-1.25
YSK		31.39	+0.54
ZFR		16.78	-0.14

Fig 11.7:- Sparkline

Ridgeline plot

One variant chart type for a line chart with multiple lines is the ridgeline plot. In a ridgeline plot, each line is plotted on a different axis, slightly offset from each other vertically. This slight offset can save on space compared to a complete faceting of plots. Like the sparkline, vertical axis markings are typically eschewed: it would be difficult to read those values on the different axes. Ridgeline plots are mainly used to compare lots of groups on their frequency distributions. This is most useful when a clear pattern is visible when the lines are ordered in some way.

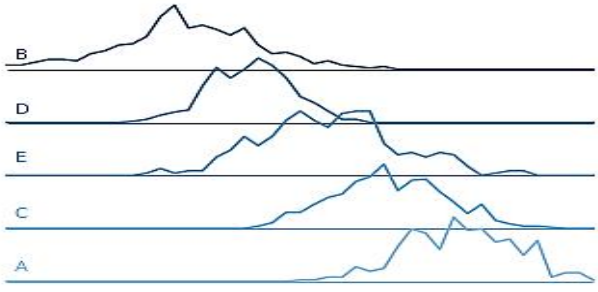


Fig 11.8 Ridgeline Plot

11.7 Histogram

A histogram is a graphical representation of the distribution of a set of numerical data. It is an estimate of the probability distribution of a continuous variable. The histogram consists of rectangular bars with heights proportional to the frequency of the numerical data that falls within specific ranges, called bins. The bins are usually specified in advance and the data is divided into these bins. The x-axis of a histogram typically represents the range of values for the data, while the y-axis represents the frequency or count of the data within each bin.

Histograms are useful for getting a sense of the distribution of the data, identifying outliers and skewness, and for comparing the distributions of different sets of data. They are widely used in data analysis, especially in fields such as engineering, finance, and biology.

It is important to choose the bin size carefully, as it can affect the shape and interpretation of the histogram. Too many bins can result in a histogram that is too fine-grained, while too few bins can lead to loss of information or mask important features of the distribution.

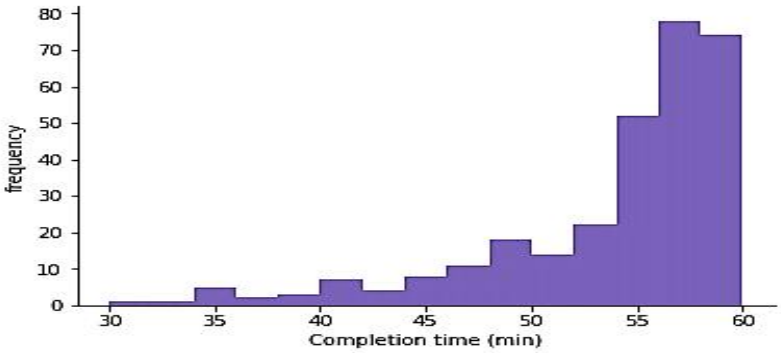


Fig 11.9 Histogram

11.8 Scatter Plots

These visuals are beneficial in reveling the relationship between two variables, and they are commonly used within regression data analysis. However, these can sometimes be confused with bubble charts, which are used to visualize three variables via the x-axis, the y-axis, and the size of the bubble.

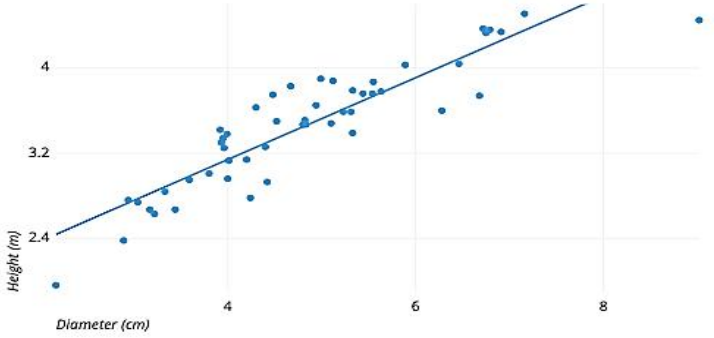


Fig 11.10 Scatter Plot

11.9 Heat Maps

These graphical displays are helpful in visualizing behavioral data by location. This can be a location on a map, or even a webpage.

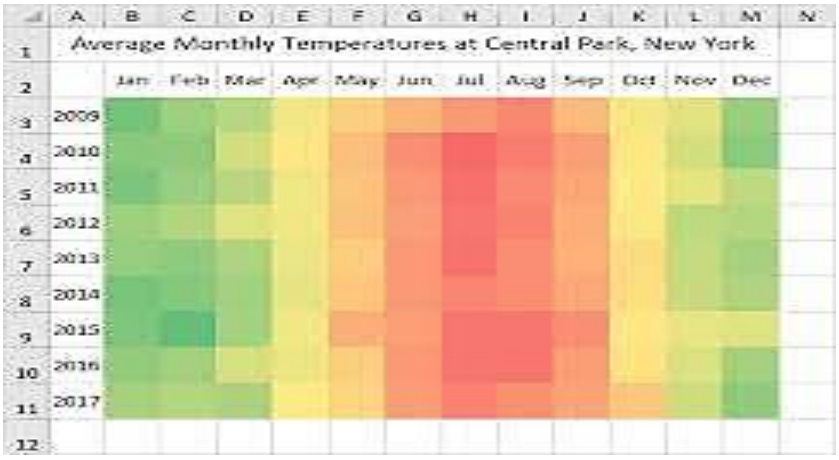


Fig 11.11 Heat Maps

11.10 Tree Maps

Tree maps are displaying hierarchical data as a set of nested shapes, typically rectangles. Tree maps are great for comparing the proportions between categories via their area size.

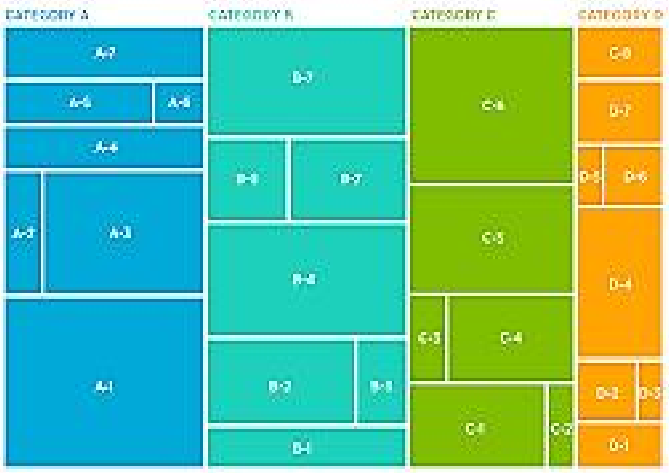


Fig 11.12:Tree Maps

11.11 Bar Chart

If the variable we want to show on the horizontal axis is not numeric or ordered, but instead categorical, then we need to use a bar chart instead of a line chart. The bars in a bar chart are usually separated by small gaps, which help to emphasize the discrete nature of the categories plotted. Note, however, when our horizontal axis is numeric or ordered, we aren't restricted against using a bar chart, as seen in the example below.

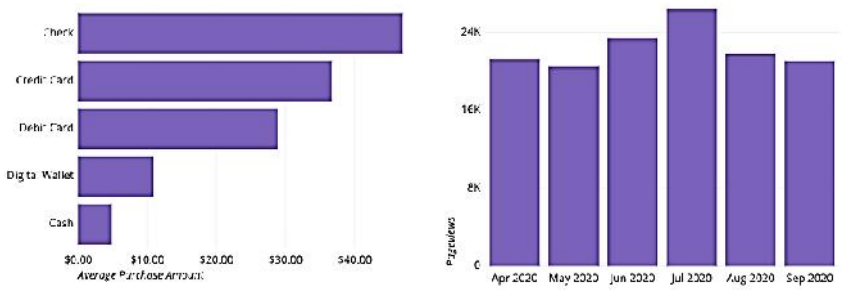


Fig 11.3 Bar Charts

11.12 Root Cause Analysis

Introduction

The easiest way to understand root because analysis is to think about common problems. If we're sick and throwing up at work, we'll go to a doctor and ask them to find the root cause of our sickness. If our car stops working, we'll ask a mechanic to find the root cause of the problem. If our business is underperforming (or overperforming) in a certain area, we'll try to find out why.

For each of these examples, we could just find a simple remedy for each symptom

Example: To stop throwing up at work, we might stay home with a bucket. To get around without a car, we might take the bus and leave our broken car at home. But these solutions only consider the symptoms and do not consider the underlying causes of those symptoms—causes like a stomach infection that requires medicine or a busted car alternator that needs to be repaired. To solve or analyze a problem, we'll need to perform a root cause analysis and find out exactly what the cause is and how to fix it.

Meaning Root cause analysis (RCA) is the process of discovering the root causes of problems in order to identify appropriate solutions. RCA assumes that it is much more effective to systematically prevent and solve for underlying issues rather than just treating ad hoc symptoms and putting out fires.

Root cause analysis can be performed with a collection of principles, techniques, and methodologies that can all be leveraged to identify the root causes of an event or trend. Looking beyond superficial cause and effect, RCA can show where processes or systems failed or caused an issue in the first place.

Goals and Benefits of RCA

The first goal of root cause analysis is to discover the root cause of a problem or event. The second goal is to fully understand how to fix, compensate, or learn from any underlying issues within the root cause.

The third goal is to apply what we learn from this analysis to systematically prevent future issues or to repeat successes. Analysis is only as good as what we do with that analysis, so the third goal of RCA is important.

We can use RCA to also modify core process and system issues in a way that prevents future problems. Instead of just treating the symptoms of a football player's concussion,

Example: Root cause analysis might suggest wearing a helmet to reduce the risk of future concussions. Treating the individual symptoms may feel productive. Solving a large number of problems looks like something is getting done.

But if we don't actually diagnose the real root cause of a problem we'll likely have the same exact problem over and over. Instead of a news editor just fixing every single omitted Oxford comma, she will prevent further issues by training her writers to use commas properly in all future assignments.

11.13 Data Visualization and IBM

While there are various data visualization tools on the market, Cognos Analytics is IBM's business intelligence and data visualization tool. Cognos Analytics's self-service platform integrates cognitive computing technology, including artificial intelligence and machine learning, to make it easy for organizations to visualize data, share new insights, and encourage data-driven decision-making. To learn how to visualize your data with Cognos and other every day tools, like Excel, please sign-up for our "Data Visualization and Dashboards with Excel and Cognos" course on Coursera (link resides outside IBM).

IBM Planning Analytics is IBM's artificial intelligence-infused integrated planning solution that automates planning, forecasting, and budgeting. By accelerating processes and obtaining more reliable results, Planning Analytics powers more intelligent workflows that drive greater accuracy

and efficiency. IBM Planning Analytics is built on IBM's powerful calculation engine TM1, that allows businesses to harness data to inform the best possible business decisions.

IBM Watson Studio provides the environment and tools to help businesses solve problems by collaboratively working with data. Businesses can choose the tools they need to analyze, visualize, cleanse, and shape data and to create and train machine learning models

11.14 Skills in Data Visualization

Data visualization draws knowledge and experience from multiple fields including computing, business, and design.

Most important

1. Visualization design: charts, diagrams, maps, etc.
2. UI and interaction design
3. Knowledge of the dev tool
4. Business domain knowledge

Highly useful

1. Programming/scripting
2. Data models
3. Data preparation
4. Analytics methods
5. Data literacy, statistics

Very helpful

1. Artistic design
2. Communication, story telling
3. Information behavior

Summary

Data visualization is going to change the way our analysts work with data. They're going to be expected to respond to issues more rapidly. And they'll need to be able to dig for more insights – look at data differently, more imaginatively. Data visualization will promote that creative data exploration.

Keywords

Data visualization, bar graphs, pie charts, histogram.

SelfAssessment

Multiple Choice Questions

1. If the variable we want to show on the horizontal axis is not numeric or ordered, but instead categorical, then we need to use a _____instead of a line chart.

A. Bar chart
B. Line chart
C. Histogram
D. Heat Chart

2. Pie chart shows the total number of employees in different companies

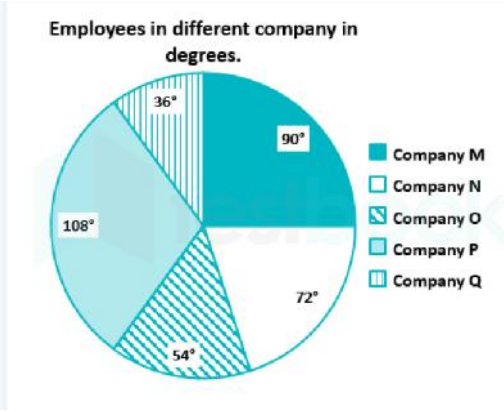


Fig 11a:Pie Chart

Find the average number of employees in Company M and N

A. 1200
B. 1350
C. 1400
D. 1500

3. What is the percentage of the employees of Company P?(Fig :11a)

A. 30%
B. 32%
C. 39%
D. 40%.

4. What is the percentage of the employees of company Q?(Fig :11a)

A. 14%
B. 12%
C. 23%
D. 10%

5. Root cause analysis means

A. Trying to find the root cause of the problem
B. Is an attempt to find the consequences of the problem
C. Is a measure to find the results of the problem
D. Identifying the stakeholders of the problem

6. Tree maps are ...

A. displaying hierarchical data as a set of nested shapes,
B. Typically, rectangular representation of the data
C. great for comparing the proportions between categories via their area size.
D. All of above

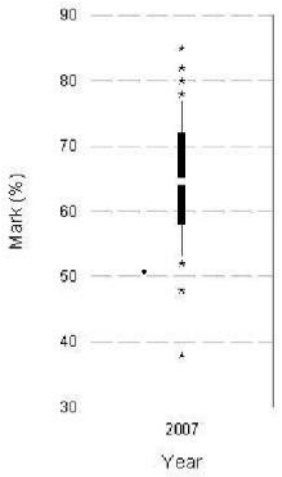
7. A histogram is a graphical representation of the distribution of a set of numerical data. It is an estimate of the probability distribution of a _____

A. continuous variable.

B. categorical variable
C. Metric
D. None of above

8. The types of histograms includes
A. Group chart
B. Deviation of bar chart
C. Paired chart
D. All of above

9. What is this graph known as



A. Box whisker diagram
B. Scatter plot
C. Error bar chart
D. Histogram

10. The histogram, pie chart and frequency polygons are
A. One dimensional diagram
B. Two dimensional diagram
C. Dispersion diagram
D. Cumulative diagram

11. The easiest way to understand root cause analysis is to think about _____
A. common problems.
B. Complex problem
C. No problem
D. identical problem

12. A histogram is a graphical representation of the distribution of a set of numerical data.
A. True
B. False

13. A special use case for the line chart is the sparkline

A. True
B. False

14. Histogram is an estimate of the probability distribution of a continuous variable
A. True
B. False

15. A line chart should be used when you want to show changes in the value of one variable over a period of time.
A. True
B. False

Answers forSelfAssessment

1.	A	2.	B	3.	A	4.	D	5.	A
6.	D	7.	A	8.	D	9.	A	10.	B
11.	A	12.	A	13.	A	14.	A	15.	B

Review Questions

1. Do you think that data visualization of data is important step in business decision making? If Yes state your views
2. Data visualization is the representation of data through use of common graphics. List out various methods of data visualization.
3. What are steps to convert the raw data into visualization?
4. Why is data cleaning important for data visualization?
5. Explain the best practices for data visualization?

Further Readings

https://haralick.org/DV/Handbook_of_Data_Visualization.pdf

https://32net.id/bukaheula/share/SYCWaE5oc1kTqt9D6VLB0wqSno3PFMgUBWRAWeh9.pdf

https://www.researchgate.net/publication/327578825_Data_Visualization_for_Analytics_and_Business_Intelligence_A_Comprehensive_Overview

Web Links

https://www.ibm.com/in-en/topics/data-visualization

https://jtr13.github.io/cc21/interview-questions-for-data-visualization.html

https://www.sas.com/en_in/insights/big-data/data-visualization.html

Unit 12: Datafication of Human Resources

CONTENTS

Objectives

- Understand the datafication of HR.
- Understand Transforming data into information
- Tools for the data transformation

Introduction

A new buzzword has hit the business world: Datafication - turning an existing business into a "data business. "

Think about it this way: Facebook has "datafied" our friend network. Google has "datafied" our search and information retrieval. LinkedIn has "datafied" our professional connections. Twitter is "datafying" news and real time information. Waze is "datafying" our driving. GE is "datafying" all its engines, power plants, and machines.

Each of these businesses is harnessing what we now call Big Data to store, analyze, and monetize the information around its business. This is why the word - it defines the "rethinking" of what Organizations around the globe are looking to data to drive better outcomes. They want to better serve their customers. They want to develop better products. They want to run more efficiently. They want to expand their businesses and develop competitive advantages. Seemingly everyone

knows that data has a role to play in today's highly digitized environment, but too many organizations think data alone will light their path. In reality, data is just the raw material needed to generate the insights that can change a business. So, how do we harness the data in a way that generates insights that, in turn, create value? What do industry leaders do differently in this space compared to other businesses? we do around the data, not just the product and the process.

12.1 Computerization of Data or Datafication

Datafication is a technological trend turning many aspects of our life into data, which is subsequently transferred into information realized as a new form of value.

Kenneth Cukier and Victor Mayer-Schöen berger introduced the term Datafication to the broader lexicon in 2013.

Data Geek

"Data geek" this is not really new. Business execs have been trying to analyze and "datafy" sales, customer acquisition, product profitability, and supply chain costs for many years. But what is new is the rapid speed and amazing tools we now have to store, manipulate, and analyze this information.

12.2 Origin of Datafication

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, 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.

12.3 Datafication of HR

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. 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.

Case Study:

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.

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 braches, and the loss rate dropped dramatically.

12.4 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.

12.5 Major Trends in datafication

I. More data
II. More Tools
III. 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.

More Tools:

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.

More Techniques

- 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.

Three major categories of new tools:

1. ***Visualization and analysis*** tools (desktop tools that let users analyze data and create reports);
2. ***Middleware and database tools*** (tools that collect, clean, store, and query data—including tools that use Hadoop16)
3. ***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.

More Tools

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.

12.6 Transforming Data Into Information

The HR world is awash in data. There are statistical reports from all levels of government, consulting studies from organizations looking for business, association polling results and a constant stream of possibly relevant data in the popular media. On top of this, and perhaps most importantly, every HR management system has at its core a database with many thousands of pieces of unique employee and job-related data.

Data are akin to raw, unprocessed ore. It takes tons of ore and lots of processing to yield a kilogram of gold. Similarly, it takes lots of computer processing power and the right questions to turn raw data — which is mostly useless for analysis purposes — into information. And its information that every HR department needs to guide decisions and planning.

12.7 Six Ways to Transform Data into Information

1. Collect only useful data

Before collecting data, take a step back and ask the fundamental question:

Can I turn this data into information or knowledge to help me make decisions that will improve services and reduce costs?

a. When you understand the answer to that question, you will be in a better position to establish
b. What data to collect?
c. How to turn it into information you need to make decisions?

2. Use analytical tools

Use tools that help you analyze the information and data you have. Export the data from your system if necessary and load it into Excel. Use Excel's pivot table tool to analyze data and convert it into information. You can use other software or enterprise systems that are designed for data analysis as well. The key thing is to step beyond lists and printouts and start analyzing the data in a way that's meaningful to your responsibilities

3. Get accurate data

Of course, you need good data in the first place. Make sure you have what you need and it is reasonably accurate, but consider how you will use it and how much of a difference accurate data will make in your decision-making.

Accuracy or detail are also something you need to manage so you don't end up overwhelmed with detail, or spend too much effort getting detail or accuracy that simply doesn't matter in the end.

Example:

For instance, if you are tracking costs as part of a process in order to make management decisions, does your tracking method have to tie into the financial system and match to the penny?

Does it have to be a live link with your own system, or can you download the needed information from the financial system daily or weekly? Determining the right KPIs for your team and then keeping track of them over time can give you data that helps determine inefficiencies.

You are then able to convert your data into information that can be used to make pointed decisions about your team, content, and processes so you can continually optimize service delivery.

4. Convert Data to Information

- Information is when you take the data you have and analyze it or manipulate it by combining it with other data, trending it over time, assessing or analyzing the outliers that need to be

dealt with, and, most important, applying your own experience and knowledge to transform that data into something you can use to make a decision with.

5. Make decisions with the information

Once you have collected and analyzed your data and turned it into information, you should assess what matters to your decision. If there is any question about the accuracy or completeness of your data, or you are using historical information to do projections, do a variance analysis—if it was 25% higher, would you make the same decision? What is the likelihood the result would be in that range? How big a risk will it be?

- What parts of the information are important to the decisions you want to make? How will they impact the success or failure of your initiative? How much weight do they have compared to other factors?
- For instance, when looking at costs and how you may implement processes, approvals, or other methods to reduce them, will you be causing costs to increase elsewhere? What is the real likelihood?

Caution:"A company's intelligence quotient is determined by the degree to which its IT infrastructure connects, shares, and gives structure to information," Steve Haeckel, former Director of Strategic Studies at IBM's Advance Business Institute.

- We have always been told that information is power. But this is not exactly true. Data, in itself, is nothing or almost nothing. A transformation process is needed to convert data into information that once analyzed, is valuable.
- In recent years, a variety of names that refer to data analysis have emerged. Traditional business intelligence now includes concepts such as data discovery, visual analysis, agile BI, and business analytics.

6.Data collection process

In order to use information, a series of initial processes must be performed to transform data and adapt it to our analysis model. This process, known as ETL (Extraction, Transformation, Load), is made up of three main phases:

During the extraction stage, data is obtained from sources by downloading flat text files (or obtaining them from the client), and then loading them into the repository (ODS) in intermediate tables that contain the data without the final structure of the model.

12.8 How Data Transformation Works

The goal of the data transformation process is to extract data from a source, convert it into a usable format, and deliver it to a destination. This entire process is known as ETL (Extract, Load, Transform). During the extraction phase, data is identified and pulled from many different locations or sources into a single repository.

- Data extracted from the source location is often raw and not usable in its original form. To overcome this obstacle, the data must be transformed.
- This is the step in the ETL process that adds the most value to your data by enabling it to be mined for business intelligence. During transformation, a number of steps are taken to convert it into the desired format. In some cases, data must first be cleansed before it can be transformed.

Example:

Nonprofit Save the Children UK protects and saves lives by preparing for and

responding to natural disasters and humanitarian crises. In order to fulfil their goals, the organization must effectively manage huge volumes of data related to donors, volunteers, and compliance initiatives. By employing a data management platform, Save the Children can integrate data from multiple CRM sources to create unified databases that enable them to find the information they need quickly.

12.9 Transformation Process

Data discovery. The first step in the data transformation process consists of identifying and understanding the data in its source format. This is usually accomplished with the help of a data profiling tool. This step helps you decide what needs to happen to the data in order to get it into the desired format.

Data mapping. During this phase, the actual transformation process is planned.

Generating code. In order for the transformation process to be completed, a code must be created to run the transformation job. Often these codes are generated with the help of a data transformation tool or platform.

Executing the code. The data transformation process that has been planned and coded is now put into motion, and the data is converted to the desired output.

Review. Transformed data is checked to make sure it has been formatted correctly.

In addition to these basic steps, other customized operations may occur.

- Filtering (e.g. Selecting only certain columns to load).
- Enriching (e.g. Full name to First Name , Middle Name , Last Name).
- Splitting a column into multiple columns and vice versa.
- Joining together data from multiple sources.
- Removing duplicate data.

Case Study: 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.

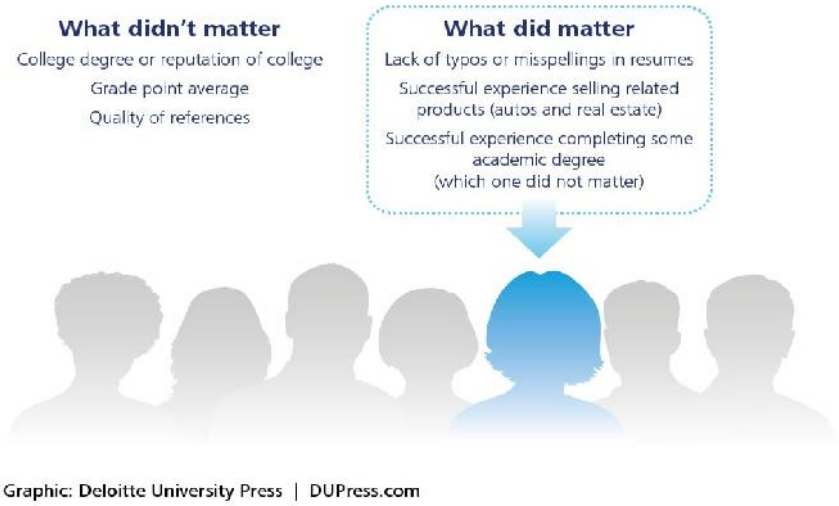
The team hypothesized that there were hidden factors that might be causing these patterns, so they built a model to try to predict sales representative performance and retention.

Traditionally this company sourced its sales team from top universities and recruited . 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.

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



Graphic: Deloitte University Press | DUPress.com

12.10 Benefits of Data Transformation

Whether it's information about customer behaviors, internal processes, supply chains, or even the weather, businesses and organizations across all industries understand that data has the potential to increase efficiencies and generate revenue.

The challenge here is to make sure that all the data that's being collected can be used. By using a data transformation process, companies are able to reap massive benefits from their data.

Getting maximum value from data: Forrester reports that between 60 percent and 73 percent of all data is never analyzed for business intelligence. Data transformation tools allow companies to standardize data to improve accessibility and usability.

Example:

RingCentral provides cloud-based telecommunication, messaging, and collaboration solutions to small businesses and enterprise customers. With over 100 different systems in use, streamlining and standardizing data processes is critical for their success. By using a data integration solution including ETL, RingCentral has automated key HR processes so that their employees can spend more time on strategy and less time on administrative tasks.

12.11 Data Transformation Tools

It's tempting to use hand coding to accomplish data transformation functions, but it is often more cost-effective and efficient to use a data transformation tool or platform. Hand coding increases opportunities for errors and is not easily replicable. Codes must be often being rewritten each time the process takes place. As a result, the costs of hand-coding are often much higher than the costs of implementing an ETL tool.

- ETL tools offer additional benefits beyond cost savings. They can generate visual representations of a data flow to make them easier to understand, and ETL tools often incorporate parallelization, monitoring, and failover features.
- Finally, custom code inhibits scaling and innovation because the skills needed to work with custom-coded integrations are hard to find. Any upfront savings achieved by hand coding is typically canceled out by the vast increase in maintenance costs and an inability to scale.

12.12 Understand Transforming Data into Business Value

Data alone is not a competitive differentiator. A recent survey from Harvard Business Review Analytic Services found that while most organizations are gathering and attempting to use increasing volumes of internal and external data,

Characteristics of Effective Organization

- Empower everyone to develop insights without limits
- Optimize business outcomes with real-time intelligence, and
- Maximize value from data with a flexible, open and multi-cloud platform

Need for Datafication

- **Customer Service**:Organizations around the globe are looking to data to drive better outcomes. They want to better serve their customers. They want to develop better products. They want to run more efficiently. They want to expand their businesses and develop competitive advantages.
- **Harnessing Data**:Seemingly everyone knows that data has a role to play in today's highly digitized environment, but too many organizations think data alone will light their path. In reality, data is just the raw material needed to generate the insights that can change a business. So, how do we harness the data in a way that generates insights that, in turn, create value? What do industry leaders do differently in this space compared to other businesses?

Summary

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.

Keywords

Datafication, Tools, business value, data.

Self Assessment

1. Datafication of human resources

A. Qualitative
B. Quantitative
C. Geographical
D. All of above

2. Data can be measure in some quantity is called

A. Quantitative data
B. Qualitative data
C. Both of above
D. None of above

3. Qualitative data

A. Which has some attributes
B. Which has some numeric elements

C. Which is non metric
D. Both A and C

4. Once you have collected and analyzed your data and turned it into information, you should assess what matters to your _____
A. Decision
B. Visualization
C. Datafication
D. Business value

5. ETL tools offer additional benefits
A. They can generate visual representations of a data flow to make them easier to understand, and ETL tools often
B. incorporate parallelization,
C. monitoring, and failover features.
D. All of above

6. Data mapping.
A. During this phase, the actual transformation process is planned
B. During this phase, the actual collection process is planned
C. During this phase, the actual datafication process is planned
D. During this phase, the actual cleaning process is planned

7. Choose the odd one out
A. Empower everyone to develop insights without limits
B. Optimize business outcomes with real-time intelligence, and
C. Maximize value from data with a flexible, open and multi-cloud platform
D. Data is difficult to manage by the organisation

8. Before collecting data, take a step back and ask the fundamental question:
A. Can I turn this data into information or knowledge to help me make decisions that will improve services and reduce costs?
B. When you understand the answer to that question, you will be in a better position to establish
C. What data to collect?
D. All of above.

9. What is raw data
A. Unanalysed
B. Unprocessed data
C. Primary data
D. All of above

10. Gathering data is easy, but gathering information is hard
A. True
B. False

11. By using a data transformation process, companies are able to reap massive benefits from their data

A. True

B. False

12. Filtering data means

A. Selecting only certain columns to load

B. Splitting a column into multiple columns and vice versa.

C. Joining together data from multiple sources.

D. Removing duplicate data.

13. Organizations around the globe are looking to data to drive better outcomes.

A. True

B. False

14. Businesses and organizations across all industries understand that data has no potential to increase efficiencies and generate revenue.

A. True

B. False

15. Data can create wonders in the company by generating

A. Business value

B. Customer satisfaction

C. data into information

D. All of above

Answers for Self Assessment

1.	D	2.	A	3.	D	4.	A	5.	D
6.	A	7.	D	8.	D	9.	D	10.	A
11.	A	12.	A	13.	A	14.	B	15.	D

Review Questions

1. Do you think data resolves business problem? Ifyes, justify your answer with relevant example.
2. How data can be an important factor for the decision making in Business value
3. What are the characteristics of effective organizations?
4. Datafication is necessary in the company. Do you agree with this statement? Opine your views
5. List out the tools that has been used in the companies for the datafication.

Further Readings

- Educational Case Studies and Initiatives from Across the World
- Datafied Society, http://library.oapen.org/handle/20.500.12657/31843

Web Links

- https://www2.deloitte.com/us/en/insights/deloitte-review/issue-14/dr14-datafication-of-hr.html
- https://www.forbes.com/sites/joshbersin/2013/07/19/the-datafication-of-human-resources/?sh=567a25893318

Unit 13: Phases of HR Predictive Modeling

CONTENTS

Objectives

- know the Phases of HR Predictive Modeling
- understand Operational Reporting

Introduction

Predictive modeling is a mathematical process used to predict future events or outcomes by analyzing patterns in a given set of input data.

It is a crucial component of predictive analytics, a type of data analytics which uses current and historical data to forecast activity, behavior and trends.

Examples of predictive modeling include estimating the quality of a sales lead, the likelihood of spam or the probability someone will click a link or buy a product.

These capabilities are often baked into various business applications, so it is worth understanding the mechanics of predictive modeling to troubleshoot and improve performance.

Although predictive modeling implies a focus on forecasting the future, it can also predict outcomes (e.g., the probability a transaction is fraudulent).

In this case, the event has already happened (fraud committed).

The goal here is to predict whether future analysis will find the transaction is fraudulent.

Predictive modeling can also forecast future requirements or facilitate what-if analysis.

13.1 Top Types of Predictive Models

- **Unsupervised models**use traditional statistics to classify the data directly, using techniques like logistic regression, time series analysis and decision trees.
- **Supervised models**use newer machine learning techniques such as neural networks to identify patterns buried in data that has already been labeled.

13.2 Models

The biggest difference between these approaches is that with supervised models more care must be taken to properly label data sets upfront.

"The application of different types of models tends to be more domain-specific than industry-specific," said Scott Buchholz, government and public services CTO and emerging technology research director at Deloitte Consulting.

- In certain cases, for example, standard statistical regression analysis may provide the best predictive power.
- In other cases, more sophisticated models are the right approach.

For example, in a hospital, classic statistical techniques may be enough to identify key constraints for scheduling, but neural networks, a type of deep learning, may be required to optimize patient assignment to doctors.

Once data scientists gather this sample data, they must select the right model.

Linear regressions are among the simplest types of predictive models.

Linear models take two variables that are correlated -- one independent and the other dependent -- and plot one on the x-axis and one on the y-axis.

The model applies a best fit line to the resulting data points. Scientists can use this to predict future occurrences of the dependent variable.

13.3 Operational Phase

Operational reporting is a reporting procedure that details the ins and outs of a company's day-to-day deliverables, often concerning production.

Definition

Operational reporting focuses on producing detailed reports of day-to-day organizational operations. These reports include data pertaining to production costs, records, resource expenditures, in-depth examinations of processes, and even accounting.

These reports come in different time intervals, but generally focus on the short-term.

Operational reports can also be modified by specific stakeholders and tailored to their needs to provide clearer insights.

The last 50 years have seen considerable changes in the delivery of human resourcesHR has developed from the traditional role of industrial relations specialists negotiating terms and conditions of work to business partners working with managers to add value to the company.

HR now delivers two distinct functions: transformational HR, delivering strategy and change, and transactional HR, dealing with administrative and operational tasks.

Operational reports provide a precisely formatted, ready-to-analyze view of an organization's operational activities such as sales performance, manufacturing productivity, or patient care efficacy.

13.4 Phases of Predictive Modeling

I. Operational Phase
II. Advanced Reporting Phase
III. Analytics
IV. Predictive Analytics

Case Study

Now that Jen's team is on board, they just need to dive deeper into the data.

They start by talking about what they each already know well.

The HRBP mentions that they routinely send out exit surveys and that employees have the option to do an exit interview.

She points out that they also have performance ratings

The organizational effectiveness specialist mentions the engagement survey.

It's only administered annually, but there may be something the team can learn from it.

The talent acquisition manager mentions that his team enters some data into the system during the recruiting and hiring process.

For example, they use rationale codes to keep track of why candidates turn down a job offer.

Salary is one of the rationales included in the codes.

Jen's team is off to a great start! Jen gives assignments to each of them to dig around and see what they have.

She also asks the compensation and benefits manager to put something together to show their salary ranges relative to the market.

She poses a question to the group: "How can we learn more?

Q:What would be more compelling to R&D managers?" The compensation and benefits manager offers a suggestion.

If the team can give her a list of everyone who's leaving the organization in the last few years, she can look up their pay history.

She can see not just where they were in the salary range, but also what other kinds of rewards they'd gotten during their tenure.

All of these data sources make Jen think that looking at turnover alone isn't enough.

The team can't just look at the employees who left.

They'd be neglecting a huge pool of information by ignoring the current employees.

Moreover, the team can't link anonymous engagement survey data with specific separations.

The organizational effectiveness specialist mentions that there are turnover intent questions on the engagement survey.

A section of the survey asks employees about their likelihood of leaving in the near future.

Jen notes that turnover-intent data would be a great leading indicator of turnover in R&D.

Jen congratulates the team on contributing such good ideas.

She shares that she has been reading a lot about the power of storytelling and thinks being able to talk about specific cases of departure will be a great way to capture the managers' attention.

Everyone agrees to regroup once they've had a chance to do some homework.

As Jen moves along in the data collection process, it's time to think about how her team moves forward.

In applying these practices at your own organization, this will require an honest assessment of your team.

Your approach to analytics will vary depending on the kind of data you have and the level of your team's analytics expertise.

Bersin by Deloitte developed a widely used HR analytics maturity model.

It features four levels, each representing increasing complexity in the type of analytics used.

13.5 When to Use Operational Reporting

1. Daily, or even hourly, operational reports can help workers in fast-paced industries react to situations quickly, be proactive about improving business processes, and measure their success as situations change.
2. High-level executives might only need monthly reports to track the company's progress and assimilate broad-based performance overviews for specific departments.
3. Businesses in industries such as the financial sector, technology, retail sales, advertising, marketing, and healthcare, among others, rely on BI insights generated in operational reports and dashboards to showcase their successes, improve sales or customer satisfaction, and find better ways to execute their core competencies.
4. Operational reporting provides a structural and tactical view of an organization.
5. It details the daily aspects of operations, focusing on delivering BI insights that are immediately actionable.
6. These reports provide a detailed view of the present and immediate necessities, highlighting key areas of need.
7. In most organizations, operational reports are used as the support basis for rapid decision-making.

Think about Jen's turnover situation in R&D. (Case above mentioned)

Essentially, she wants to know if pay is causing the spike in turnover. If it isn't, what is?

Now think about the HR analytics maturity model.

Let's work through it. If Jen were addressing this question from each level of the model, what data would she need? What might she investigate? What results might she report?

13.6 Predictive Analytics in Practice

Day#	Forecast	Humidity	Play Outside
Day 1	Sunny	High	Yes
Day 2	Sunny	High	Yes

Day 3	Cloudy	High	Yes
Day 4	Rainy	High	No
Day 4	Rainy	Normal	No
Day 5	Cloudy	Normal	Yes
Day 6	Sunny	Normal	Yes
Day 7	Sunny	High	Yes
Day 8	Rainy	Normal	No
Day 9	Sunny	Normal	Yes
Day 10	Cloudy	Normal	Yes
Day 11	Cloudy	High	Yes
Day 12	Rainy	Normal	No
Day 13	Cloudy	High	Yes
Day 14	Rainy	High	No

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?

- 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?

13.7 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.

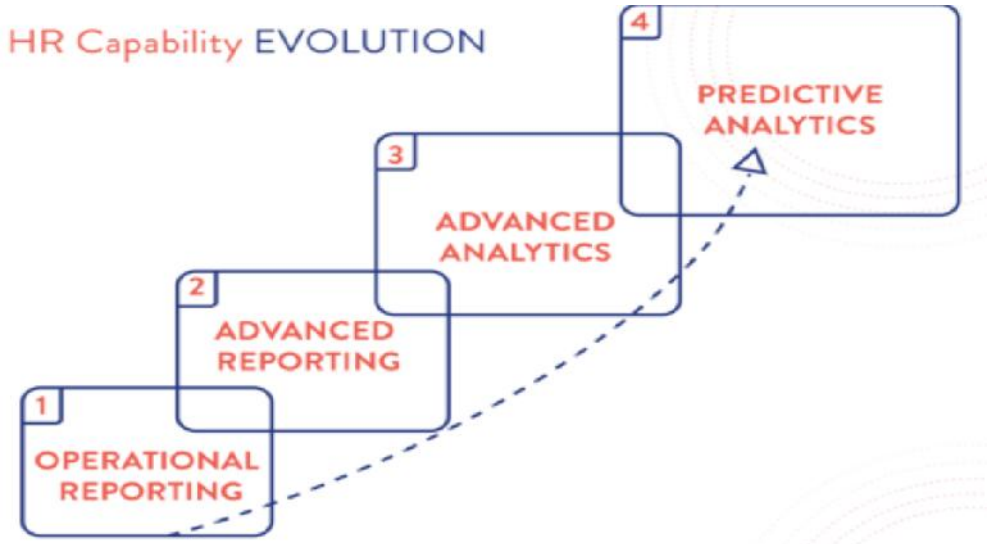


Fig 13.1: HR capability Evolution

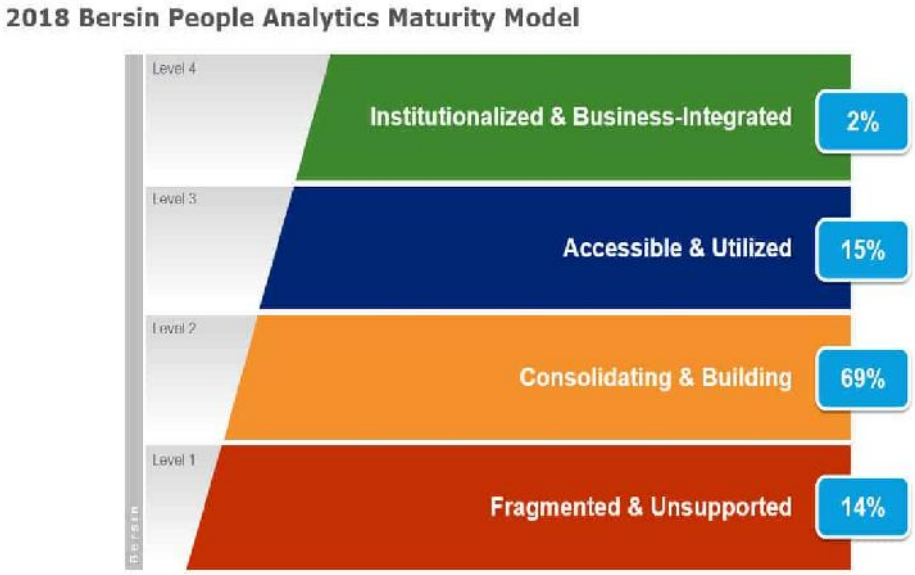


Fig 13.2: Analytics maturity Model

13.8 Advanced Reporting

Advanced reporting: is more detailed descriptive reporting that often uses the same data as operational reporting but with the addition of tracking trends or the progress towards goals. This reporting usually still reflects only the current or historical situation for various HR measures of interest. It might provide insights useful for benchmarking and decision-making and be delivered in static or interactive digital dashboards. This is also 'must-have' reporting for most organizations, so, again, it's important that the data is prepared efficiently and displayed.

- Advanced Reporting and analytics to adjusters to help make an immediate impact on claim decisions, claims organizations should also be implementing advanced reporting and analytics to support their operations.

Understand Internal Claim Operations

- Internal reporting and analytics can help give managers at claims organizations insight into how their claims departments are operating. Specifically, there are a few key metrics that claims organizations can track constantly at the bill review level to help them make real-time adjustments and improvements, including: bill inventory, pend aging, number of bills a specific team works per day and average time per bill. Providing managers with insight into this type of reporting can allow them to fully understand how their department is operating and influence them to make key decisions to improve business outcomes.

Analyze Trends and Compare to Industry

- Advanced reporting and analytics can help a claims organization to analyze trends within its own claim data in addition to comparing that data to industry metrics. This kind of insight will support claims organizations in interpreting what is going on in their claims processes so they understand if they are overpaying or underpaying for certain treatments compared to the industry and allow them to make adjustments within their operations.

Effectively Leveraging Reporting & Analytics in Claims

- In order to make investment in reporting and analytics worth a claims organization's time, it's important to focus in on deriving actionable insights that can help make a tangible difference in operations and claim outcomes. By implementing both analytics that can surface information in the claims process and internal reporting that can help managers spot operational trends and make business improvements, organizations can begin to cultivate improved return on analytics investment.

13.9 Advanced Analytics

Advanced analytics is a data analysis methodology that uses predictive modeling, machine learning algorithms, deep learning, business process automation and other statistical methods to analyze business information from a variety of data sources.

Meaning

- Advanced analytics uses data science beyond traditional business intelligence (BI) methods to predict patterns and estimate the likelihood of future events. This in turn can help an organization be more responsive and significantly increase its accuracy in decision-making.
- Often used by data scientists, advanced analytics tools both combine and extend prescriptive analytics and predictive analytics while adding various options for enhanced visualization and predictive models.
- ***Deep learning***: Deep learning is a type of machine learning and artificial intelligence (AI) that imitates the way humans gain certain types of knowledge.
- Deep learning is an important element of data science, which includes statistics and predictive modeling.
- It is extremely beneficial to data scientists who are tasked with collecting, analyzing and interpreting large amounts of data; deep learning makes this process faster and easier.
- At its simplest, deep learning can be thought of as a way to automate predictive analytics. While traditional machine learning algorithms are linear, deep learning algorithms are stacked in a hierarchy of increasing complexity and abstraction.
- Computer programs that use deep learning go through much the same process as the toddler learning to identify the dog.

- Each algorithm in the hierarchy applies a nonlinear transformation to its input and uses what it learns to create a statistical model as output. Iterations continue until the output has reached an acceptable level of accuracy.
- The number of processing layers through which data must pass is what inspired the label deep
- To understand deep learning, imagine a toddler whose first word is dog. The toddler learns what a dog is -- and is not -- by pointing to objects and saying the word dog. The parent says, "Yes, that is a dog," or, "No, that is not a dog."
- As the toddler continues to point to objects, he becomes more aware of the features that all dogs possess. What the toddler does, without knowing it, is clarify a complex abstraction -- the concept of dog -- by building a hierarchy in which each level of abstraction is created with knowledge that was gained from the preceding layer of the hierarchy.

Deep Learning and Model building

- Initially, the computer program might be provided with training data -- a set of images for which a human has labeled each image dog or not dog with metatags. The program uses the information it receives from the training data to create a feature set for dog and build a predictive model.
- In this case, the model the computer first creates might predict that anything in an image that has four legs and a tail should be labeled dog.
- Of course, the program is not aware of the labels four legs or tail. It will simply look for patterns of pixels in the digital data. With each iteration, the predictive model becomes more complex and more accurate.

13.10 Why is Advanced Analytics Important?

- Advanced analytics is a valuable resource to enterprises because it enables an organization to get greater functionality from its data assets, regardless of where the data is stored or what format it's in. Advanced analytics also can help address some of the more complex business problems that traditional BI reporting cannot.

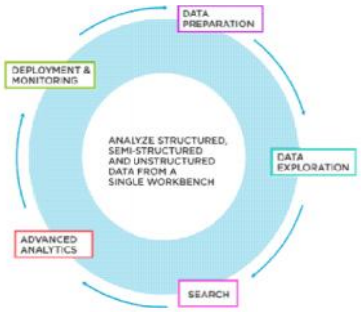


Fig 13.3 Advanced Analytics

For example, to create a contextual marketing engine, a consumer packaged goods manufacturer might need to ask the following questions:

- When is a customer likely to exhaust their supply of an item?

- What time of the day or week are they most receptive to marketing advertisements?
- What level of profitability is achievable when marketing at that time?
- What price point are they most likely to purchase at?

13.11 Benefits of Advanced Analytics

- In addition to enabling greater use of data assets and providing decision-makers with greater confidence in data accuracy, advanced analytics offers the following benefits:
- **Accurate forecasting**. Using advanced analytics can confirm or refute prediction and forecast models with a greater level of accuracy than traditional BI tools that still carry an element of uncertainty.
- **Faster decision-making**. With predictions that feature a high level of accuracy, executives can act more quickly, confident their business decisions will achieve the desired results and that favorable outcomes can be repeated.
- **Deeper insight**. Advanced analytics offers a deeper level of actionable insight from data, including customer preference, market trends and key business processes, which empowers stakeholders to make data-driven decisions that can directly affect their strategy.

13.12 Advanced Analytics Techniques

Advanced analytics can help provide organizations with a competitive advantage. Some commonly used advanced analytics techniques include the following:

Data mining. This process sorts through large data sets to identify patterns and establish relationships to solve problems through data analysis.

Sentiment analysis. This technique uses natural language processing, text analysis and biometrics to identify the emotional tone behind a body of text.

Cluster analysis. This process matches pieces of unstructured data based on similarities found between them.

- **Predictive Analytics**: Data analytics used to make predictions concerning future business outcomes, based upon historical data and using statistical modeling (regression models) and machine learning (ML) techniques.
- **Calculation**s: Different calculation tools like aggregations on visualizations, expressions, and more can be used in advanced analytics.
- **Statistical Features**: It's important to have statistical features in order to perform advanced analytics, including clustering, box plots, comparison circles, and relationships between categorical variables (Chi-square).
- **Machine learning**: Machine learning algorithms learn from the data to produce detailed models that can identify complex patterns and make highly accurate predictions. They are well suited to use cases such as micro-segmentation, personalization, root cause analysis of complex processes, fraud detection, and customer churn
- **Complex event processing**. This technique uses technology to predict high-level events likely to result from specific sets of low-level factors.
- **Big data analytics.** This is the process of examining large volumes of structured, semi-structured and unstructured data to uncover information such as hidden patterns, correlations, market trends and customer preferences.

- **Machine learning**. The development of machine learning has dramatically increased the speed at which data can be processed and analyzed, facilitating disciplines like predictive analytics.
- **Data visualization**. This process of presenting data in graphical format makes data analysis and sharing more accessible across organizations.
- Open source tools
- Open source tools have become a go-to option for many data scientists doing machine learning and prescriptive analytics. They include programming languages, as well as computing environments, including Hadoop and Spark. Users typically say they like open source advanced analytics tools because they are generally inexpensive to operate, offer strong functionality and are backed by a user community that continually innovates the tools.
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- Proprietary tools

On the proprietary side, vendors including Microsoft, IBM and SAS Institute all offer advanced analytics tools. Most have required a deep technical background and understanding of mathematical techniques.

In recent years, however, a crop of self-service analytics tools has matured to make functionality more accessible to business users. Tableau, in particular, has become a common tool. While its functionality is more limited than deeper technical tools, it does enable users to conduct cluster analyses and other advanced analyses.

Case Study: Liberty Mutual Insurance Investigates Turnover

A department with high-volume positions was experiencing elevated turnover at Liberty Mutual Insurance and sought help. Leaders turned to the talent analytics department to understand

Why employees were leaving ?

To predict future turnover rates

Although it was important to predict how many hires would be required to replace separations, the primary goal was to identify actionable drivers of turnover and take action to reduce turnover going forward.

Talent analytics gathered data from a variety of sources. They talked to stakeholders and studied exit interviews to identify key variables. Once they gathered the data, they developed turnover models to understand which variables were most predictive of voluntary turnover.

One of the variables found to be associated with increased turnover was applying for positions within the company. These data were gathered from the internal ATS.

The ATS is a rich data source that includes variables such as where in the company the employee applied, the outcome of the application (hired or declined), and what stage(s) of the interview process the employee completed.

A series of descriptive analyses and t-tests were performed to investigate the internal application issue. By comparing the quarterly turnover rates for those who applied for other jobs within the company and those who did not, Liberty Mutual confirmed that internal job searching was associated with an increased risk of turnover.

Further, by comparing the turnover rates of successful and unsuccessful internal applicants to other employees,

Liberty Mutual discovered that unsuccessfully applying for internal positions was

uniquely associated with subsequent voluntary turnover: those who applied from within and were rejected turned over at approximately twice the rate of other employees.

Those rejected before receiving a phone screening were especially at risk, while employees who completed a phone screening before the rejection had turnover rates similar to employees who did not participate in any internal job searches.

Additional analyses revealed that the pattern persisted for employees whose performance met or exceeded expectations.

Talent analytics developed a hypothesis that phone screening all internal applicants could provide employees with critical feedback for career development and soften the blow of rejection. Talent analytics used this information to connect with the talent acquisition and the talent management departments to better understand the rejection process as well as what could be done to improve the employee experience.

A cost-benefit analysis revealed that Liberty Mutual could phone screen all internal applicants with only a modest increase in the number of full-time recruiters.

Given the high cost of turnover, the additional costs associated with recruiter salary would still result in cost savings for the company.

Summary

Data-driven decisions are more accurate than those made based on intuition alone. Using predictive analytics to make better decisions allows businesses to save money, increase productivity, and improve customer satisfaction.

Keywords

Operational reporting, Advanced Reporting, Open source, Predictive analytics

SelfAssessment

1. Cost benefit analysis in any company can be achieved via

A. Data analytics
B. Advanced analytics
C. Big data
D. HR analytics

2. With huge amounts of data being generated every day, businesses are looking for new ways to take advantage of all that data by utilizing

A. Advanced analytics
B. HR Analytics
C. People analytics
D. Data analytics

3. Open source tools have become a go-to option for many data scientists doing machine learning and _____ .

A. Prescriptive analytics.
B. Predictive
C. Descriptive
D. Data analytics

4. Theprocess of presenting data in graphical format makes data analysis and sharing more accessible across organizations.

A. Data visualization
B. Data analysis
C. Data presentation
D. None of the above

5. Operational reporting

A. focuses on producing detailed reports of day-to-day organizational operations.
B. Using advanced analytics can confirm or refute prediction and forecast models with a greater level of accuracy than traditional BI tools that still carry an element of uncertainty
C. Using advanced analytics can confirm or refute prediction and forecast models with a greater level of reliability.
D. Using advanced analytics can confirm or predict and forecast models with a greater level of accuracy

6. _____use traditional statistics to classify the data directly, using techniques like logistic regression, time series analysis and decision trees

A. Supervised Models
B. Analytical model
C. Unsupervised Models
D. Predictive model

7. _____use newer machine learning techniques such as neural networks to identify patterns buried in data that has already been labeled.

A. Unsupervised Models
B. Supervised models
C. Operational Risk
D. Not Applicable

8. This process matches pieces of unstructured data based on similarities found between them.

A. Pattern analysis
B. Cluster analysis.
C. Descriptive analysis
D. Exploratory analysis

9. Advanced analytics tools both combine and extend

A. prescriptive analytics and
B. predictive analytics
C. Both A& B
D. None of above

10. This technique uses natural language processing, text analysis and biometrics to identify the emotional tone behind a body of text.

A. Descriptive analysis
B. Sentiment analysis
C. Content analysis
D. Thematic analysis.

11. Operational reporting
A. focuses on producing detailed reports of day-to-day organizational operations
B. focuses on producing detailed reports of organizational operations
C. focuses on producing employees reports
D. focuses on producing detailed reports of anually organizational operations

12. Data analytics used to make predictions concerning future business outcomes, based upon historical data and using statistical modeling (regression models) and machine learning (ML) techniques.
A. True
B. False

13. Cluster analysis is the process matches pieces of unstructured data based on similarities found between them
A. True
B. False

14. Predictive analytics is all about
A. Predicting sales
B. Predicting turnover
C. Predicting revenue
D. All of above

15. Once data scientists gather this sample data, they must select the_____
A. right model.
B. Right tool
C. Right technique
D. Right approach

Answers forSelfAssessment

1.	B	2.	A	3.	A	4.	A	5.	A
6.	C	7.	B	8.	B	9.	C	10.	B
11.	A	12.	A	13.	A	14.	D	15.	A

Review Questions

1. How does predictive analytics work in a HR consultancy?
2. What are the benefits of predictive analytics?
3. Discuss some situation in the organization where operational reporting is required.

4. List out the methods of advanced reporting techniques.
5. Write a note on predictive modelling.

Further Readings

- Intro to HR Metrics and Workforce Analytics 29 Pages · 2017 · 2.87 MB · 3,572 Downloads · English by Jeremy A. Mendoza
- The New HR analytics by Jacfitzenz(Predicting the economic value of capital investment)

Web Links

- https://forms.workday.com/content/dam/web/en-us/documents/ebooks/workforce-reporting-analytics-ebook-enus%20(1).pdf
- https://www.oracle.com/a/ocom/docs/hr-analytics-report-ipaper.pdf
- https://www.aihr.com/resources/The_Basic_principles_of_People_Analytics.pdf

Unit 14: Data for HR Predictive Analysis

CONTENTS

Objectives

- Understand HR data base
- Know the benefits of database
- Importance of Employee Survey data
- Reasons for conducting Surveys

Introduction

Is all of your data stored on one database or do you have multiple pieces of software where data is stored? Have you listed all of the requirements you need from a system or listed the gaps that your current system has that need rectifying? Doing this regular exercise makes sure that the system is fit-for-purpose. If it isn't then it might be best to start looking for a new HR software provider.

Decision-making can be more complicated than it first appears because, with so many systems available in the marketplace, there is the added pressure of making the correct choice for long-term

investment. To give a helping hand, the following guide talks through everything that should be considered when choosing an HR database that can really work for an organization.

14.1 Need of HR Database

Who would need an HR database? Most businesses need to store HR data and run reports on it. The simplicity of the software makes many HR systems easy-to-use.

Businesses need data to be recorded. Having employee data to hand is perfect to monitor sickness/absence/grievance/disciplinary cases etc. Who would need software to manage/handle their database? Any size of business may well want to record their data and have it available to report on.

14.2 What is an HR Database?

- HR databases are used by HR professionals (or the person responsible for HR in smaller businesses) to store personal information relating to their employees. There are often many areas to an HR database, as there is a wealth of tasks that they can help with, such as recording training details or managing recruitment.
- Data stored can include everything from employee details to manager information, holiday and absenteeism, or standard working hours, clocking on and off times, timesheets and expenses, plus any other information that can assist HR with workforce management.

HR database

- Employee details (such as name, address, contact details, emergency contact name and number).
- Absenteeism rates
- Holiday details.
- Information about your managers.
- Your work schedule.
- Standard working hours.
- Clocking in and out times.
- Timesheets to keep track of employees' working hours.
- Business expenses.
- Any other information that assists with workforce management.

14.3 Ownership of Database

- Secure databases are the best option because that way staff only have access to the data that is applicable for their job role. With so many legal considerations to think about when handling data, having a system that has all of the relevant security measures in place takes it off the dreaded
- Simply Personnel's core modules – Personnel Manager, Training Manager and Recruitment Manager – are designed to be accessed by HR or management staff, whereas Employee Self Service is a module dedicated to allowing staff to contribute to their own HR admin – reducing the burden on the HR team.
- Also assisting HR teams is the reporting functionalities that are available in HR databases. Running reports for yourself or senior management is extremely important particularly as HR needs can change, as well as employee data changing due to new starters/leavers/promotions/annual pay reviews etc.

- Whether weekly, monthly or annual reports are needed; ideally one system can be used to produce all of these and export them easily for presentation to line managers, senior management or whoever requires the visibility.

ExampleWhat information can be determined from the data? Having a warning system to flag on a red/amber/green system for things to watch out for with an employee is important.

Example

For example, if an employee reports in sick many single days in a year, this can be flagged and investigated.

Data is beneficial for a company, as they can ensure that staff are being paid correctly (or managed correctly in the instance of disciplinary or grievance issues).

Why use software to manage data? It is much easier to use software than having hard copies of data because searching for the desired information is a lot faster and data is less likely to get lost or destroyed.

14.4 Employee Databases

- What information is stored about employees in employee databases?
- Holidays
- employee personal details such as
  i. address,
  ii. date of birth,
  iii. job title,
  iv. length of service,
- salary,
- recruitment details,
- qualifications held,
- timesheets,
- training courses attended

An employee may log certain data themselves, such as what work they have completed each day or the hours they arrived/finished.

Team leaders may also be able to access the information that relates to the staff who report to them but other confidential data, like salary, can still be kept private.

- There may then be one or more members of the HR team who have a Big Brother-type view of the system with access to all of the data, in order to produce reports or make any necessary changes at top level.

14.5 Storing Data Ethically

- As HR records are very rarely going to be anonymized, there is a major need for them to be held securely and only shared with pertinent people. Legal obligations are also vitally important, such as compliance with the Data Protection Act 1998, Freedom of Information Act 2000 (if you are a public authority) and, in very limited circumstances, the Statistics and Registration Services Act 2007 – which govern the use of certain types of data.
- Questions that you need to think about include, have employees been informed as to how and for what purposes their data will be held? Where appropriate have they consented for their

data to be used in a particular manner? Can the data be reused or archived – or will further permissions be needed? How will the data be reviewed and updated?

14.6 How Can DatabaseHelp Business?

- Efficiency: After launching the software and getting your staff up to speed with it, it'll streamline overall HR team's productivity, accuracy, and skill in completing tasks.
- Enhance the employee experience: The technology provides with a chance to process employee data in line with existing laws, but also in a fast and effective way.
- Cost-effectiveness: In the long-term, the software will save your business money—one can put employees onto other projects as the HR database manages many duties.
- Increase accuracy: Improve the clarity, meaning there will be fewer errors in HR.
- Improve regulatory compliance: It can store all the data in one place, so it's easier to manage the likes of GDPR compliance.

One of the key aspects of keeping your employees happy is understanding them – their needs, challenges, perceptions, and what they truly want – and the best way to do this is by hearing it directly from the horse's mouth!

You could have a dialogue with your employees to find out more about their needs and challenges, but most people are apprehensive about being open and honest in a face-to-face conversation, more so with their management. Hence, an anonymous survey is most likely your best chance of getting your employees' most candid thoughts about your organization.

14.7 Employee Survey Data

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A carefully designed and conducted survey can disclose oodles of information about employees' perceptions, that your HR team can use to better different departments in your organization and manage them more effectively

14.8 Importance of Survey Data

- Create an open dialogue with employees
- Keep your retention rates high
- Assess your organizational values
- Improve employee morale
- Gain valuable data and insights
- Improve productivity
- Analyze the current state of your organization

14.9 Why to conduct Employee Survey?

Remote working has made a lot of communication and feedback go unattended

It goes without saying that COVID-19 has profoundly affected people and forced them to make enormous adjustments in their professional lives.

The transition to a remote working culture has not been easy or smooth. Because very few companies offered Work from Home (WFH) before the pandemic, it has been quite a struggle for both employees and management to adjust to hurriedly implemented strategies.

Knowing what your employees are thinking and saying at this time is even more critical. It will give you crucial insights into how your employees are coping with the situation and how to effectively support them. But your employees may not be willing to express what they are feeling or going through for fear of being isolated or criticized.

A survey will help you gain insight and make better operational decisions for your employees based on the data you have gathered.

Financial burdens, burnout, depression, negative emotions, apathy, medical issues, the fear of contracting COVID-19, additional household responsibilities, etc. can all have a profound psychological effect on professional performance.

Surveys can be a goldmine for good ideas that your company may otherwise overlook, like ideas for cutting costs, creating revenue, improving your company's culture, etc.

They can also be a good indicator of your employees' mindset and their engagement with their work.

Working from home has increased employee productivity but also elevated stress levels and mental health issues.

Thus, giving your employees a voice matters now more than ever. A survey gives them an avenue to express themselves. It is a critical element in ensuring your workforce is happy, productive, engaged, and well adjusted. But more importantly, it also helps to build a company culture of respect and shared values.

Organizations that make their employees feel heard are often more successful than those that don't. In fact, studies show that employees perform 4.6 times better when they know that their voice is being heard.

When employees feel safe sharing their views, they feel a sense of ownership and responsibility towards the company.

Popular studies have shown that employees appreciate having a say, even if every idea they put forth is not implemented. Hence, it is apparent that people want to contribute to change.

14.10 Measure Engagement Level

Engaged employees work hard, set a positive tone, and are your most passionate brand ambassadors. Conversely, disengaged or dissatisfied employees have a negative effect on your organization and result in lost productivity and, worse still, spread dissatisfaction.

Knowing which of your employees are engaged or disengaged and the reasons for their disengagement can help you remedy the situation.

By having an anonymous survey, employees have a channel for honest communication and feedback, and frustrated personnel can express themselves without the fear of being judged.

Studies show that employees are 2.5 times more likely to be engaged when they see career development and professional growth opportunities in the company, they work for than those who do not.

However, while growth is important to younger employees, more experienced employees might be looking for other types of opportunities.

Employees need clarity regarding their careers. If they do not see growth in your organization, they are likely to go searching for it elsewhere.

Hence it is crucial to find out if your organization is offering the right opportunities for your employees. A survey can help you understand what your employees are looking for in terms of career growth and how they view your company's opportunities.

14.11 Benefits of Employee Survey Data

Employee surveys are a powerful tool to help in employee engagement efforts. In fact, 95 percent of organizations defined as "engaged," in a survey conducted by Quantum Workplace, use annual employee surveys, compared with 45 percent in disengaged organizations.

Conducting an employee engagement survey isn't as simple as sending around a survey link to the organization and encouraging participation. The most challenging, and impactful, part of the employee engagement survey is ensuring that the data received is actionable.

Employee engagement refers to how happy, motivated, and satisfied an employee is in their role at work. According to Gallup, engaged employees outperform unengaged employees by a staggering 147%, hence why monitoring and improving employee engagement plays a vital role in the success of any organization.

An engaged employee is likely to be more productive, positive, and committed to their work and go above and beyond their job description.

1. Start with Key Numbers

Trying to make sense of all the data at once can be daunting. Begin with the data points that matter to your organization and its current objectives and vision. A good place to start digging into the data is employee participation, overall engagement scores, and manager/leadership scores.

While the number of employees who participated in the survey may seem like a minor data point, it is quite important. If only a handful of employees participated in the survey, it may mean that you need to review your survey program branding, culture of open communication, and outreach strategy.

2. Look for Connections

Focus to the most important data, it's time to start looking for connections. Look at data points together to see if any are related and point to trends and deeper insights.

For example, you might look at employee satisfaction alongside tenure. You could find that the longer employees have been with the company, the more satisfied they are, or vice versa. Now your data has context, and you're looking at trends to dive deeper into the feedback.

Example is to link participation rates with tenure. If you find that newer employees were more likely to participate, that's a sign your team is doing a great job of engaging fresh talent, but that you need to put more energy into sustaining that engagement in the long-term. This process of connecting data to uncover trends can be made easier when all of your HR info is in onespot, on a human resources information system (HRIS). At Namely, we are able to easily pull the biographical and demographic information about our employees into a survey platform.

3. Analyze Open-Ended Feedback

You're starting to make sense of the numbers, and the open-ended responses from employees provide incredible color into the employee experience. Closely reading through many responses is time-consuming, and it can feel impossible to consider each one individually and apply the feedback.

This is where a lot of HR departments get stuck. You have paragraph after paragraph to go through—how do you pull out themes?

Instead of reading each open-ended question as a separate piece of data, consider them together using content analysis. Divide open-ended responses among team members, and read through them to identify overarching topics. Scan through them, looking for and highlighting key words. Then, sort them by positives and negatives.

4. Compare to Previous Results

There's still one more set of results to review: those from previous surveys. Compare the current dataset with past surveys to see what has changed, what has improved, what continues to be an issue, and any new problems that have come up.

This is a great opportunity for HR to show just how impactful these employee engagement surveys are in driving effective strategy over time. Look at the biggest trends and issues from previous years and compare them with your current results to show that you listened to employee feedback and made changes that mattered.

While survey administration, data, and follow up can be overwhelming at first, engagement surveys and corresponding actions can yield valuable results. Ultimately, the efforts can help improve the experience for all employees.

14.12 How to Interpret Survey Data?

You've analyzed all the data, but you're not done just yet. There's still one more set of results to review: those from previous surveys. Compare the current dataset with past surveys to see what has changed, what has improved, what continues to be an issue, and any new problems that have come up.

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Use relevant metrics to analyze your employ survey results

- You can only make sense of the data you collate using the correct metrics. They are the lens you wear to measure the success of your HR initiatives.
- To find your metrics, HR teams should reflect on what their goals are. Jeff Bladt and Bob Filbin argue in Forbes that we need to differentiate between 'vanity metrics' and 'meaningful metrics'. Your team might be flattered by the popularity of an internal social media initiative. However, if job satisfaction and wellbeing are plummeting, consider the relevance of this success.
- HR teams' ultimate goal is often to improve employee engagement. Focus on metrics associated with high engagement, for example, a long-term interest in working for the company, belief in the organization's values, productivity and satisfaction. Collate data relevant to these indicators and start evaluating from there.
- Employee surveys can measure a particular area of employee experience. For example, HR runs pulse surveys on employee engagement, wellbeing or diversity and inclusion. These areas speak volumes about how your organization aligns with its culture and values.
- Consider the data in terms of company culture. Group together the survey questions or sections that relate to company trust, work-life balance or employee satisfaction. Use a reporting system to visualize this data.

Questions to Ask When Choosing Metrics

- What are the company's objectives and key results?
- What are HR's priorities for this year?
- How do the results tally with the organization's values and culture?

Check the employee participation rate

- Don't forget to measure the employee participation rate of your survey. This helps you to see how effectively your internal communications are working. Maybe your survey was too long? Take notes to improve for the next survey

- Collate your data using a survey reporting system. Make sure the results are easily visible for your team.
- With your results grouped into metrics, trends will emerge. Maybe employee engagement decreased this year?
- Think about the different tenures and company levels represented by your survey. Do lower level employees experience burnout more regularly?
- Instead of looking at KPIs or other indicators in isolation, e.g. through a 'wellbeing' section and an 'employee relations' section, compare and contrast these areas.

For example, manager relationships have a domino effect on other aspects of employee experience. According to Gallup, managers account for 70% of the variance in employee engagement.

- To cross compare, make sure you use HR software to translate your results into easy to interpret graphics. Our brains process images 60,000 times faster than text. Organize your data into teams if you have this information, or company levels. Are there overlaps in your data that reveal an underlying issue?

14.13 Customer Survey Data

Customer Satisfaction Surveys measure how happy customers are with a company's products and services.

Survey analysis provides companies with feedback about everything from products to the buying process to support.

Most organizations combine this powerful data with other forms of customer feedback to create actionable intelligence about the entire customer journey.

Why is Survey Analysis important?

To understand the true Voice of the Customer, you must ask the right questions, informed by what you already know about each customer's experiences. Next, you need to accurately interpret the customer feedback, using both structured statistical feedback and open-ended feedback, to inform your actions.

Best-in-class businesses survey their customers regularly and allow customers to voice their experiences in their own words. Multiple-choice surveys measure only the areas that the business determines are important. With free-form surveys, companies can uncover what is important to their customers.

14.14 Types of Survey Data Based on Deployment Methods:

1. Online Surveys
2. Telephonic Surveys
3. Face-to-face Surveys
4. Paper Surveys

Online Surveys

Online surveys are the most cost-effective and can reach the maximum number of people in comparison to the other mediums. The performance of these surveys is much more widespread than the other data collection methods.

In situations where there is more than one question to be asked to the target sample, certain researchers prefer conducting online surveys over the traditional face-to-face or telephone surveys.

Online surveys are safe and secure to conduct. As there is no in-person interaction or any direct form of communication, they are quite useful in times of global crisis.

For instance, many organizations moved to contactless surveys during the pandemic. It helped them ensure that the employees are not experiencing any COVID-19 symptoms before they come to the office.

Face to face

Gaining information from respondents via face-to-face mediums is much more effective than the other mediums because respondents usually tend to trust the surveyors and provide honest and clear feedback about the subject in-hand.

Telephone Surveys

Telephone surveys require much lesser investment than face-to-face surveys. Depending on the required reach, telephone surveys cost as much or a little more than online surveys. Contacting respondents via the telephonic medium requires less effort and manpower than the face-to-face survey medium.

If interviewers are located at the same place, they can cross-check their questions to ensure error-free questions are asked to the target audience.

The main drawback of conducting telephone surveys is that establishing a friendly equation with the respondent becomes challenging due to the bridge of the medium.

Paper Surveys

The other commonly used survey method is paper surveys. These surveys can be used where laptops, computers, and tablets cannot go, and hence they use the age-old method of data collection; pen and paper. This method helps collect survey data in field research and helps strengthen the number of responses collected and the validity of these responses.

Example or use case of a paper survey is a fast food restaurant survey where the fast-food chain would like to collect feedback on the dining experience of its patrons.

As a marketer, one can relate to the love for numbers. Knowing exactly how many people make purchases on your website or having a clear insight into the exact numbers of returning users is a rewarding satisfaction. But what about measuring customer satisfaction?

14.15 How to Process Customer Survey Data?

The following 4 steps can help you process your survey data effectively and methodically:

1. Quality Assurance

- Quality assurance should be present in your survey process from the very start. It's especially crucial during survey data processing.
- Think of this step as the exploratory phase. It is here that you are first checking the general quality of your survey results. What you discover in this step will inform any corrections or changes you need to make in later steps -- and is likely to inform how you collect data in the first place to keep bad quality results to a minimum

This will involve taking steps to check the following

Step1:- Making sure that all respondents have answered the questions correctly.

Step2:- Reviewing for incorrect information and reliability

Step3:- Identifying mismatched data types

Step4:- Checking for missing information or fields

Step5:- Identifying data outliers.

Step6:- Depending on your data you might also want to check your sample deviation index which measures how much your sample deviates from your target population.

2.Data Cleaning

- Data cleaning is the step where you start actually changing the data to get it ready for analysis.
- It will occupy a large amount of your time when processing survey data. But, it will make your analysis run much smoother.

When cleaning your survey data, you should be looking for these key 5 areas

I. Time Spent Answering the Survey

This is important because if respondents are moving too quickly through the survey it can indicate that they are not that engaged. It can also show that they are not reading your questions properly.

Most survey tools will give you an average time respondents spent completing your survey. You should review all responses against this time and if there are any that seem suspiciously fast, take a closer look with the view to remove them.

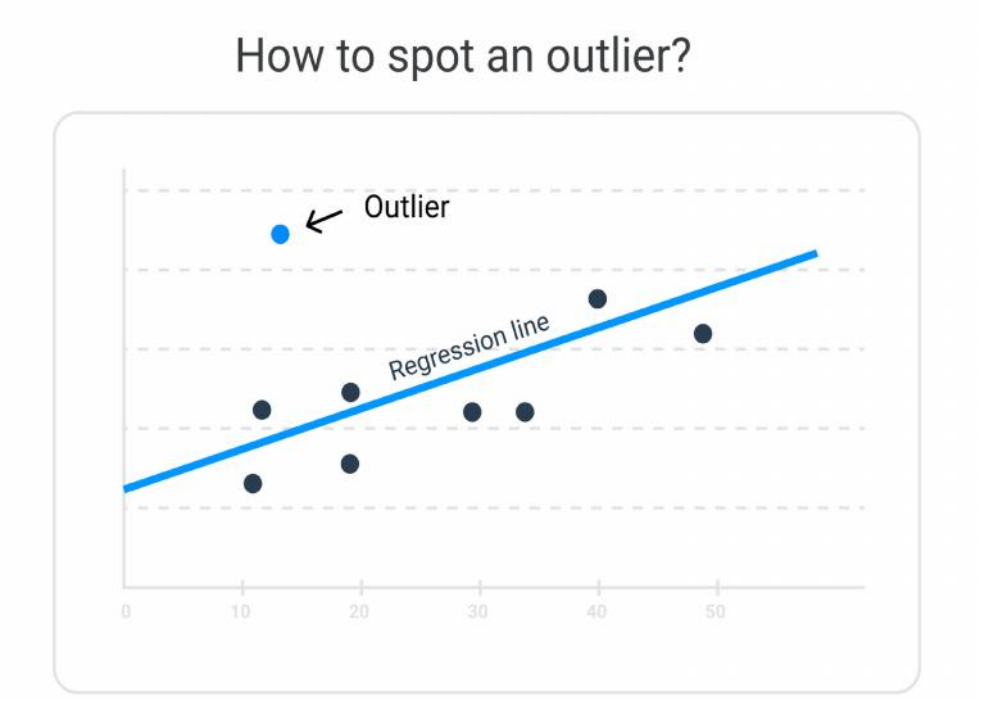
II. Duplicates

Duplicates can happen for a range of reasons. It might be that the respondent pressed submit one too many times, or the page didn't load properly.\ Duplicates can easily be identified when you filter your results. It's important to remove them, otherwise you risk inaccurately skewing your results, or just adding noise that obscure insights.

III. Outliers

Outliers are survey results that don't fall in line with the rest of the results. For instance if 9 of your survey respondents are female but 1 is male, you might need to disregard the man's answers.

Data outliers can be detected by plotting your responses on a scatter plot. This will show you which responses fall far from the majority.



- The regression line on a scatter plot shows the connection between scattered data points in a set of data. The outlier can easily be spotted because it's usually farther away from the regression line
- In this table below we can see that the majority of respondents are female and are aged between 20-30. The outlier here is the 89 year old man which would be clearly evident on a scatter plot.

Summary

HR data base is very important aspect of any business. Gentle care is required for access and managing data in the company. There are various software's that are available in the market, but the appropriateness of the software is required before adoption. Employee survey data is required for Predictive analytics. Data points are important to consider because it has huge impact on business. While framing Survey question organizational objective should be in the mind. Confidentiality is required, comparison of the survey with previous years and Industry is essential for better output of the employee survey data. Customer Data survey is required to know the results of your business inputs. The results will help you to align your business as per the objectives of the company.

Keywords

HR Database, Customer survey, Employee survey

Self Assessment

1. What is an HR database?

A. A database that contains only employee contact information
B. A database that contains only payroll information
C. A database that contains employee data such as personal details, job history, salary details, and performance metrics
D. A database that contains only employee benefit information

2. What is an employee survey?

A. A survey of customer satisfaction
B. A survey of employee satisfaction
C. A survey of product satisfaction
D. A survey of market trends

3. What is the purpose of an employee survey?

A. To evaluate the company's financial performance
B. To evaluate the company's product quality
C. To evaluate employee satisfaction and engagement
D. To evaluate the company's marketing strategies

4. What is employee engagement?

A. The level of involvement and commitment an employee has to their job and organization
B. The level of involvement and commitment a customer has to a product
C. The level of involvement and commitment a manager has to their team
D. The level of involvement and commitment a company has to its customers

5. What is the Net Promoter Score (NPS)?

A. A measure of customer loyalty
B. A measure of employee engagement
C. A measure of product quality
D. A measure of financial performance

6. What is the Likert scale?

A. A method for measuring employee satisfaction
B. A method for measuring customer satisfaction
C. A method for measuring product quality
D. A method for measuring market trends

7. What is a demographic question in an employee survey?
A. A question about the company's financial performance
B. A question about the employee's job duties
C. A question about the employee's age, gender, or other personal information
D. A question about the company's marketing strategies

8. What is an open-ended question in an employee survey?
A. A question with a limited number of answer choices
B. A question with a wide range of answer choices
C. A question that asks for a specific answer
D. A question that allows for free-form responses

9. What is the purpose of benchmarking in an employee survey?
A. To compare the company's financial performance to competitors
B. To compare the company's product quality to competitors
C. To compare **employee satisfaction and engagement to industry** standards
D. To compare the company's marketing strategies to competitors

10. What is the purpose of confidentiality in an employee survey?
A. To protect the company's financial information
B. To protect the company's product information
C. To protect employee responses **and** encourage honest feedback
D. To protect the company's marketing strategies

11. What is the next step after analyzing employee survey data?
A. Taking action based on the results
B. Ignoring the results and moving on
C. Conducting another survey
D. Focusing on financial performance instead

12. What is the primary purpose of an HR database?
A. To store employee information
B. To create reports on employee performance
C. To track employee attendance
D. To schedule employee training

13. Which of the following is a benefit of using an HR database?
A. It reduces the need for HR personnel
B. It increases employee morale
C. It ensures compliance with labor **laws**
D. It guarantees equal pay for all employee

14. How can an HR database help HR managers with workforce planning?

A. By providing information on employee salaries
B. By tracking employee performance
C. By identifying skills gaps and training needs
D. By scheduling employee training

15. Which of the following is a potential risk associated with using an HR database?

A. Data security breaches
B. Employee dissatisfaction
C. Increased payroll costs
D. Improved regulatory compliance

Answers for Self Assessment

1.	C	2.	B	3.	C	4.	A	5.	A
6.	A	7.	C	8.	D	9.	C	10.	C
11.	A	12.	A	13.	C	14.	C	15.	A

Review Questions

1. How well does the HR database facilitate the onboarding process?
2. How well does the HR database track employee performance and development?
3. How reliable is the information in the HR database?
4. How easy is it to find the information you need in the HR database?
5. Do you think so that there is a need of HR database in the companies? Ifyes, opine your views with relevant justification.

Further Readings

- Data-Driven HR: How to Use Analytics and Metrics to Drive Performance Paperback – 3 April 2018,Bernard Marr
- HR Analytics: Quantifying the Intangible: Linking People, processes and analytics, Anshul Saxena

- https://allthingstalent.org/2021/01/24/employee-survey-data-in-hr/
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