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Digital HR Analytics with Sustainability to Drive Organizational Effectiveness

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ABSTRACT:

In this article, we will take a closer look at the synergistic capabilities of combining Augmented Reality (AR) and Digital HR Analytics with Sustainability efforts for maximizing organizational effectiveness in higher education. It provides an exploration of the way that AR acts to facilitate cognitive engagement and learning productivity, drawing attention to issues of technology availability, level of system design innovation and task value. Moreover, Digital HR Analytics provides evidence-based options to improve human resource practices that can help educational institutions link workforce capabilities with the strategic goals and sustainable development. Integrating AR to offer a hands-on approach can create immersive learning experiences for students and enable them with digital literacy that is indispensable in the upcoming digital economy. Incorporating Sustainability into these academic practices helps students develop a greater awareness and appreciation of the environment. At the same time, Digital HR Analytics reinforces this by uncovering skills gaps and forecasting future workforce needs in line with sustainability objectives so talent management strategies are being filtered accordingly. In conclusion, the synergy of AR, Digital HR Analytics & Sustainability will foster an enriched learning experience for students and also contribute to a next-generation sustainable mind among both the students as well as educators culminating into an even more effective organization in higher education. In this article, we will be discussing Augmented Reality (AR) in Digital HR Analytics to Identify Skill Gaps and making data-driven decisions.

Keywords : Augmented Reality (AR), Digital HR Analytics, Skill Gaps, Data-driven decision

I. INTRODUCTION :

With orgnizations depending more & more on data-driven decisions to drive strategic imperatives, the role off innovative technoloogiesis becomming increasingly important. HR Analytics is one of such advances — a combination of statistics and data modeling that allows us to make better strategic decisions on talent management. The myth HR Analytics helps in decreasing recruitment cost and time may not be true, it only depreciates the reputation of this field, by analyzing data regarding employees HR professionals can gain insight into how a company recruits new hires, maintains the workforce to keep them at their optimal performance levels which does affect revenue.Similarly, the field of education has become a hub for technological revolution in many ways as well — one of those is by bringing into effect Augmented Reality (AR). AR has the potential to revolutionize how we teach and learn engaging students in immersive interactive experiences from their personal space. It is a multi-sensory tool that supports multiple learning styles and promotes cognitive engagement by using multimodal approaches—visual, auditory (talking), kinesthetic (feel). By implementing this hybrid of theory and real-world AR experience, students are better equipped to meet the challenges they will face in their professional lives. A review of the graduate text at HR Analytics and its fit with Augmented Reality in contributing to educational & organizational effectiveness. This goes on to analyse the contributing factors responsible for effective implementation and operation, such as individual characteristics of student-users, pedagogical strategies or technological features. The insights provided are designed to help educators, HR experts and organizational leaders apply these technologies for better results in both educational contexts as well as business environments. For one, pedagogical strategies that are well-designed to bring AR into education effectively. Studies indicate that using the AR technology can enhance motivation and improve social interaction —however, their success considerably relies on students with relevant teaching strategies. It is a way to ensure that students are, in fact, digitally activated and more importantly learn.AR content only expands the horizon for comprehension towards application of the educational course. This includes the obvious support and scaffolding need for students who do particularly well with AR technologies or difficult

material. Personalizing activities to accommodate an array of learner requirements results in enhanced cognitive engagement and learning outcomes.

The term HR Analytics is often used interchangeably with People, Talent and Workforce analytics. Although Activity, Submission and Connection are terms that get thrown around often interchangeably but they shed light on smaller new focus areas or in other words variation at different levels the same core concept. This clearly shows that HR Analytics and people analytics are very important big data trends of the future & here is a supporting video where Google gauged this trend from 2004 to 2016. HR Analytics is the collection of data points to support specific decisions that relate back to effective HR operations and results. In comparison, People Analytics and Talent Analytics mine the kinds of data about individuals that also reflect how people are succeeding in an organization as indicated by employee engagement, performance or development. On the other hand, many professionals prefer Workforce Analytics as it recognizes automation and AI in recent workplaces where robotic entities are considered a part of workforce. Such an expanded notion also serves to combat the changing landscape of work, enabling analytics strategies continually relevant and incorporating all dimensions of a workforce. Although they sound slightly different from one another, both refer to the deployment of data intelligence in strategic decision-making and workforce management improvements illustrative — which is germane to organizational excellence.

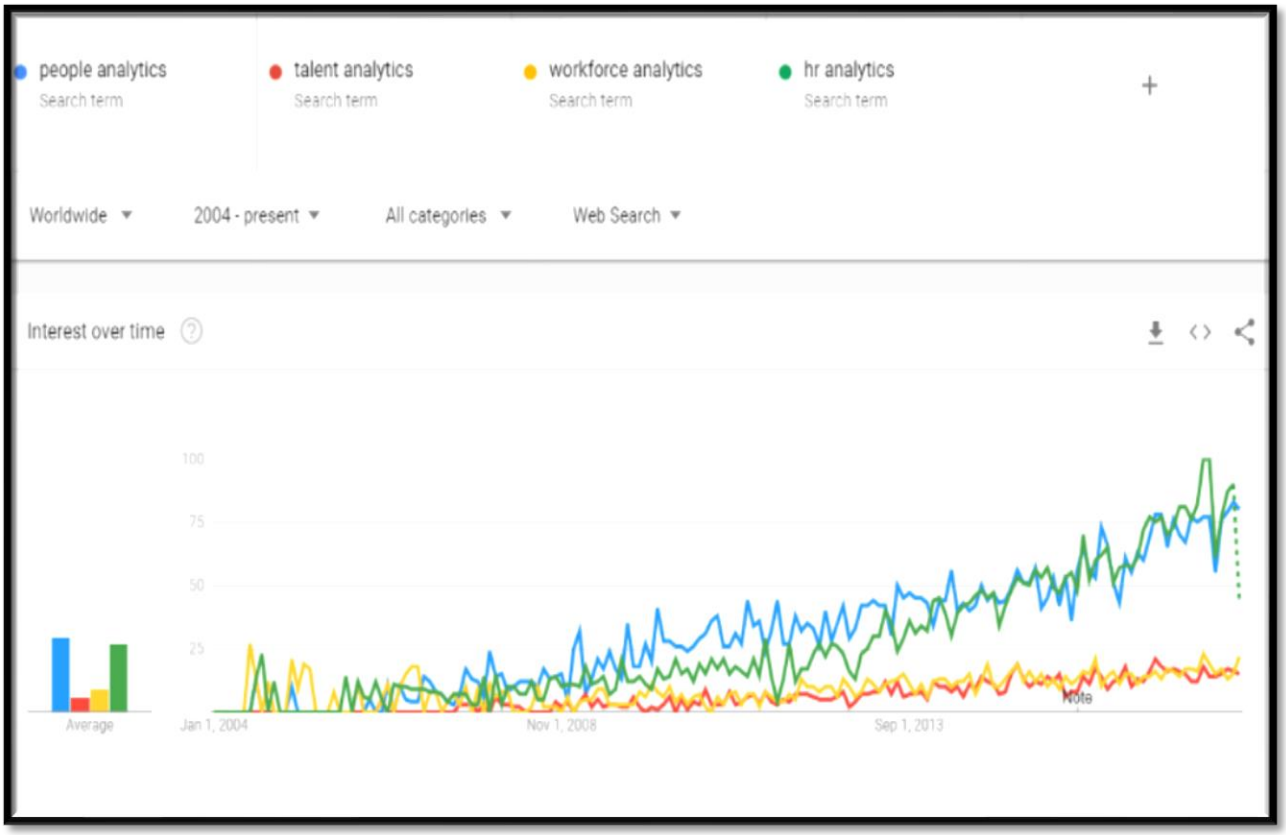

Figure 1 : Growth of HR Analytics over the years

Importance of HR Analytics :

Another term which is used interchangeably for HR Analytics, People Analytics, Talent analytics or Workforce-analytics seems like more of draught to this sinking boat when measured on Google trends. There are many overlapping terms in this space — HR Analytics is used to characterize all forms of HR-related data, People and Talent Analytics specific focus on the individual-behavior-performance insight piece, whereas Workforce analytics includes automation & AI components which naturally represent how work has evolved. Nevertheless, each of these analyses references improving decision-making and enhancing workforce management in an organization.

Figure 2: Usage of HR Analytics

II. LITERATURE REVIEW :

Integration of digital HR analytics and sustainability initiatives delivers strategic value at organizational level. This review combined the literature on HR analytics as well other perspectives and studies emphasizing their uses, functions (i.e., strategic), roles (e.g. those affecting CSR) within sustainable practices to increase contributions of human resource strategies for an organizational outcome through a high level goal or more specific social or environmental ones; using structured query strings on different databases available from 2007 up until March 2020 based also on phenomenon that has been increasingly recognized by many recent scholars concerning not only matters but spheres of action closely related with quadruple bottom lines: people-development-analysis-decision-implementation-evaluation-actions-environment approach

- **Digital HR Analytics**
- HR Digital analytics is the use of data and technology to optimize human resource services. From predicting Employee Turnover all the way to better Talent Acquisition and Performance Management Through the application of big-data and machine learning, organizations are able to discern ways in which they can improve decision-making (Marler& Boudreau, 2017). Literature underlines its significance in turning HR from being an operational function to a strategic partner of organizational development.
- **Sustainability in Human Resources**
  In the case of sustainable HR practices, this means incorporating environmental or social friendly activities into traditional human resources functions rather than simply adhering to regulation. This consists of nurturing a culture which commits to corporate sustainability, investing in employee well being and ethical management (Ehnert 2009). HR as a cornerstone for Endurance It is important to recognize the role that HR plays in sustainable development; it makes economic strategies more effective, especially by including their express objectives within themselves on an ongoing basis in terms of both society and our environment.
- **HR Analytics and Sustainability at the crossroads**
  The combination of HR analytics and sustainability provides a way for companies to monitor how effectively sustainable HR practices work in practice. Analysis can give data-sponsored point of view on diversity, equity and inclusion efforts to supply proof-based decision-making that helps develop well guidelines for a sustainable labor place (Boudreau & Ramstad, 2005). In relation to HR decisions, big data is used in measuring the

environmental implications of their policies such as remote working and flexible work hours that will help reduce a company's carbon footprint by reducing energy usage.

- **Improving the performance of an organization·**

By fusing HR analytics with sustainability initiatives, organizations benefit from better resource and talent optimization to be more efficient and operate longer term. Sustainable HR practices that are evidence-based using data analytics, improve satisfaction and retention of employees but also reputation by built trust with stakeholders (Rousseau, 2018). In addition, analytics reveal what new skills are needed three+ years into the future and if these meet sustainability targets which drives strategic workforce planning.

Classifying HR Data sets :

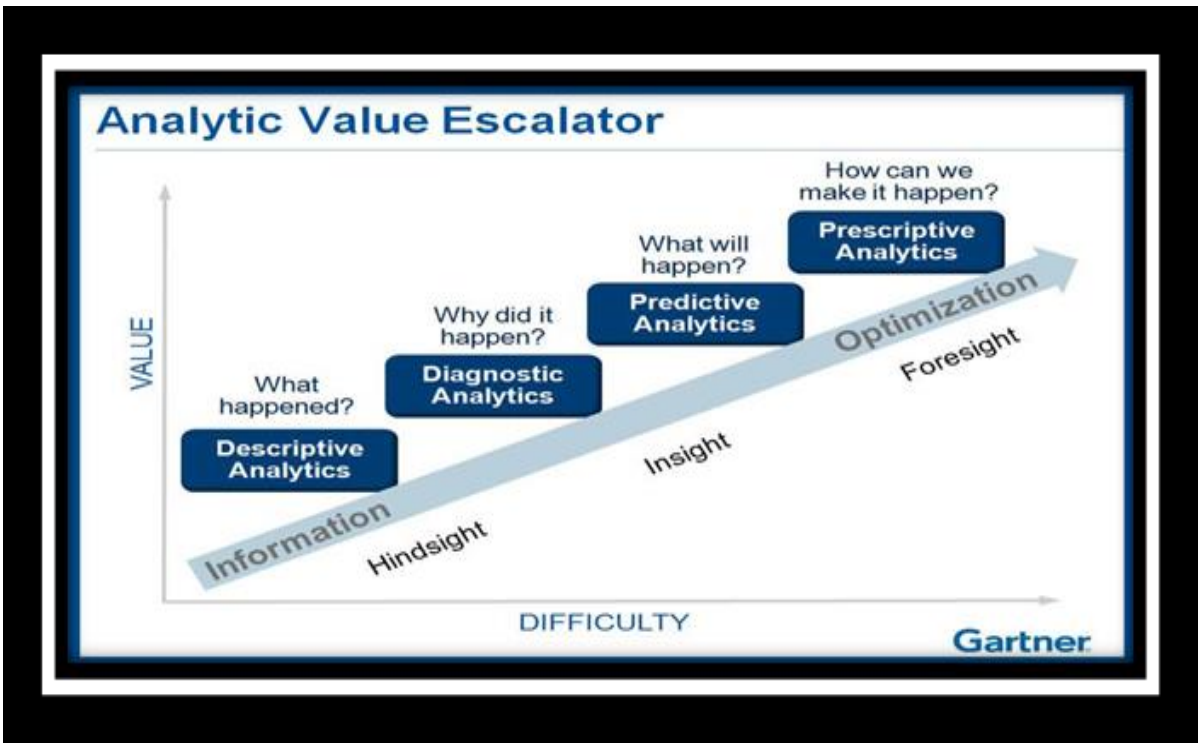

Figure 3 : Analytical Value Escalator

Workforce Management with an HR Data Analytics Strategy

In the ever-changing world of human resource management (HRM), data analytics are imperative to guide better decision-making and strategic planning. The type of HR data comes in different forms that are classified into 4 categories: Descriptive, Diagnostic, Predictive and Prescriptive Analytics.

Descriptive Analytics

Descriptive analytics analyzes past data what was happened. Illustrative — This kind of analytics helps us to look back and understand patterns or trends. Descriptive: An example of a descriptive sales department analytics would be the percentage of sales people who have left in-year. Additional layers of data can be applied, suchjsonn as by business unit or product line to identify areas with high attrition rates contributing in more specific problem identification.

Diagnostic Analytics

Descriptive analytics tells a story of what is happening by ascertaining certain patterns or trends whilst diagnostic analytics seeks reasons behind these stories. This analysis type gives insight into what causes employees to leave the company—competitive offers from other firms, no carrer progression, job dissatisfaction. Being able to identify these root causes among individual departments gives HR professionals the ability to create more specific solutions.

Predictive Analytics

Predictive analytics takes that one step further which predicts future events from historical data. For example, a sales centric HR Manager can get data on: Which of the sales employees is most likely to resign within 90 days so that they

are ready? Armed with this insight, managers can get involved early and often with employees who are a flight risk to explore their concerns/underlying issues so that appropriate corrective action is taken before they leave.

Prescriptive Analytics

Last but not least, prescriptive analytics offers actionable advice on what users can do to get the best results moving forward. It is based on inputs from descriptive, diagnostic and predictive analytics to recommend how the processes or systems of businesses can be improved. For instance, if sales reps may resign soon, prescriptive analytics can identify that a new training program is needed for increased engagement and retention to improve output. This is where HRM, through the help of accurate, meaningful and relevant data can transform from handling people to strategic HR- decisions no longer dependent on a hunch but driven by insights backed up solid info.

The Role of HR Analytics in Sustainability

1. **Driving Sustainable Practices:**

   HR has moved away from being a standard administrative in keeping with permitting smooth sustainability. It also allows HR to track how employees interact and engage with sustainability initiatives. This can be used to help devise methods of reducing the environmental footprint that organizations have, for instance by emitting less carbon and utilizing resources more efficiently.

2. **Recruitment and Onboarding:**

   Analytics tools can help in evaluating whether or not candidates share the sustainability values during recruitment. When new hires are made in alignment with the commitment to sustainability within an organisation, a culture of environmental responsibility is established from Day 1.

3. **Measuring Impact:**

   It enables firms to compile and assess data regarding other sustainability indicators such as energy utilization and waste cut back through HR analytics. This capacity supports being checked out just how effectively all of those programs influenced organizational sustainability performance with time for the sake of continuous improvement.

Enhancing Organizational Effectiveness

1. Data-Driven Decision Making:

The combination of HR analytics with business strategies lead to better decision making. By combining that information to what we (Cognisess) know, organisations are able to tap into writing on the wall about employee trends and most importantly; optimizing their talent management processes.

2. Employee Engagement:

Involved workers are more prones to work in a positive way contributing towards organisational objectives as well sustainability. Sentiment analysis can help HR to figure out how employees respond to sustainability initiatives, meaning they know what kind of programs would excite the workforce — which leads in turn to improved morale and productivity.

3. Strategic Alignment:

HR analytics is an enabler of ensuring human resource practices are integrated with the wider organizational objectives. Making these business outcomes explicitly depend on how staff behave rewards desired behaviour; particularly volatile directed towards eking out sustainability targets.

III. Recruitment metrics :

Source : Daash, et Al, IMPORTANCE OF HR ANALYTICS IN THE ERA OF 2020 POST COVID-19 ,Journal of Critical Reviews, ISSN- 2394-5125, 2020

Daash, et Al, HR Analytics With Artificial Intelligence: Transforming The Workforce,Journal of BOLETÍN DE LITERATURA ORAL, 11 (2024), PP. 1096-1116

RecruitmentMetrics are simply numbers that present all the quantitative measures representing efficiency and effectiveness of hiring processes implemented. They provide recruiting performance metrics and other forms of oversight for understanding different elements around recruitment, identifying ones needing improvement and ensuring you are hitting targets your talent acquisition strategy is aiming at.

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Here are some of the key recruitment metrics:

Time to Fill: The average number of days it takes to fill an open position from the time the job requisition is opened until an offer is accepted. This metric helps identify bottlenecks in the hiring process.

- Start Date – Date of Interview
- Start Date – Date of Joining
- 1st interview - Date of Joining

Figure 4 : Time to Fill Metrics

Time to Hire: The duration from when a candidate enters the selection process (e.g., applies or is sourced) until they accept the job offer. This metric provides insights into the efficiency of the recruitment team.

Cost per Hire/ Sourcing Channel Cost: The total cost associated with hiring a new employee, including advertising, recruiter fees, employee referral bonuses, travel costs, and administrative expenses. It helps assess the financial efficiency of recruitment efforts.

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

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

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- Before a financial year budget on recruitment is given by the management to the HR Department. Then HR predicts from the last year and prescribes.
- Focus on low cost source

Quality of Hire: Measures the value new hires bring to the organization, often assessed through performance ratings, productivity metrics, and retention rates within a set period after hiring.
Quality of Hire = (Number of hired candidates considered satisfactory / Total Number of candidates hired) *100

Offer Acceptance Rate: The percentage of job offers extended that are accepted by candidates. A low rate may indicate issues with compensation, the recruitment process, or employer branding.

$$Offer\ acceptance\ rate\ (OA) = \frac{number\ of\ offers\ accepted}{number\ of\ offers\ made}$$

Candidate Experience: Assessed through surveys and feedback, this metric measures the satisfaction of candidates with the recruitment process. Positive experiences can enhance brand reputation and decrease candidate drop-off rates.

Recruitment funnel effectiveness: Yield Ratio:

It is a funnel which starts from sourcing of candidates and ends with signed contract. If we measure the effectiveness at each stage of the recruitment funnel, we can get the yield ratio step wise.

$$Yield\ ratio = \frac{Number\ of\ applicants\ who\ successfully\ competed\ the\ stage}{Total\ number\ of\ applicants\ who\ entered\ this\ stage}$$

Offer acceptance rate:

The offer acceptance rate compares the number of candidates who successfully accepted a job offer with the number of candidates who received an offer.

$$Offer\ acceptance\ rate\ (OA) = \frac{number\ of\ offers\ accepted}{number\ of\ offers\ made}$$

Diversity Hiring Metrics: Tracks the diversity of candidates at various stages of the recruitment process to ensure diversity and inclusion goals are being met.

Retention Rate of New Hires: Monitors the percentage of new employees who remain with the company for a specific period, often indicating the success of the hiring process and cultural fit.

By monitoring these metrics, organizations can refine their recruitment strategies, reduce hiring costs, improve candidate quality, and enhance overall recruitment efficiency.

Attrition Metrics

Attrition in human resources refers to the gradual loss of employees over a period of time. (New hires cannot adjust with organization culture). High attrition is troublesome for companies. HR professionals take a leadership role in formulating company compensation programs, work culture and motivation systems that help the organization retain top employees.

1. Employee Retention:

It refers to strategies used to strategies used to revamp the workplace so that the employees are satisfied, qualified to excel in the current job.

(Total number of employees - number of employees who have departed)/ Total number of employees

2. Gallup Survey Score / Employee Survey Score:

Source: https://q12.gallup.com/public/en-us/Features

The Gallup Q12 score represents the average of the scores of 12 items that Gallup has consistently found to measure employee engagement as linked to business outcomes.

Measurement That Means Something:

- Employees answer 12 simple questions, available in over 30 languages including Arabic, Chinese, Spanish, French, German and more, that tie directly to performance outcomes.
- Scores are on a 1 to 5 scale, which clearly highlights strengths and opportunities.
- Scoring : 1 to 5 point scale statements; 1 : Strongly Disagree to 5 : Strongly agree. Score between 1 to 3 : Not attached to the company.
- When improvement efforts focus on the essential elements of engagement, those measured by the Q12 survey, team performance

Gallup Q12 Questions Case:

1. Do you know what is expected of you at work?
2. Do you have the materials and equipment to do your work right?
3. At work, do you have the opportunity to do what you do best every day?
4. In the last seven days, have you received recognition or praise for doing good work? Scale : 4 /5 = 4/5*100 = 80%
5. Does your supervisor, or someone at work, seem to care about you as a person?
6. Is there someone at work who encourages your development?
7. At work, do your opinions seem to count?
8. Does the mission/purpose of your company make you feel your job is important?
9. Are your associates (fellow employees) committed to doing quality work?

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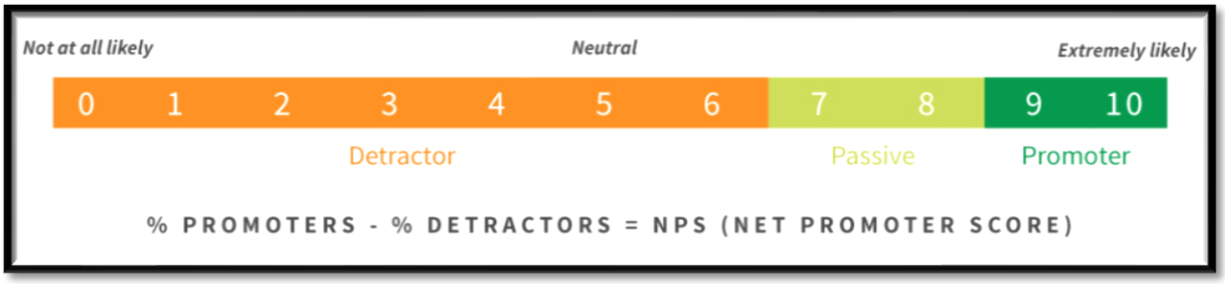
10. Do you have a best friend at work?
11. In the last six months, has someone at work talked to you about your progress?
12. In the last year, have you had opportunities to learn and grow?

3. NET PROMETER SCORE: NPS:

Source: netpromoter.com

Net Promoter Score (NPS) is a management tool that can be used to gauge the loyalty of a firm's customer relationships. It serves as an alternative to traditional customer satisfaction research and is claimed to be correlated with revenue growth. NPS has been widely adopted with more than two thirds of Fortune 1000 companies using the metric.



Respondents are grouped as follows:

- Promoters (score 9-10) are loyal enthusiasts who will keep buying and refer others, fuelling growth.
- Passives (score 7-8) are satisfied but unenthusiastic customers who are vulnerable to competitive offerings. (Neither support nor against)
- Detractors (score 0-6) are unhappy customers who can damage your brand and impede growth through negative word-of-mouth.

- The more the NPS the more customers are liking the company/ product
- NPS should be around 75% standardised

4. Absenteeism Rate:

Highly motivated and engaged employees take in general fewer sick days (up to 37% less, according to Gallup). Additionally, absent employees are less productive and high absence rates throughout an organization is a key indicator of lower organizational performance.

Absenteeism: [(Avg no. of employees * Missed working days) / Avg. No. of Emp* Total working days]*100

By regularly monitoring these metrics, organizations can gain valuable insights into their recruitment and retention strategies, allowing them to make data-driven decisions to enhance organizational effectiveness and employee satisfaction.

Conclusion :

Artificial Intelligence AI HR Analytics : This Crisscross marks the Paradigm Shift in Human Resource Management. This shift enables organizations to move beyond the old-school, intuition-based decision-making and toward factors supported by data that will lead both better organizational performance and happier employees. Using AI in HR Analytics makes data processing more advanced, predictive modeling possible and you will be able to obtain personal insights about your employees.

The integration of digital HR analytics into sustainability initiatives also outweighs massively on company performance in the current business climate. Using data insights, HR can lead projects to make sure automations will streamline operations instead of championing quick-fixes that could compromise long-term sustainability. This type of alignment is

vital as it ensures that one company's success means the other company made some progress on environmental responsibility and therefore reducing its corporate social responsibilities at all levels.

What we are seeing is that organizations with investments in advanced analytics and AI capabilities will be better positioned to address changes as they happen both within the marketplace -and what society expects. Proactively manage workforce dynamics, optimize resource allocation and spearhead initiatives that contribute to long-term sustainability goals—cementing their leadership and helping companies perform better as responsible environmental stewards.

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