# Application of Analytics In HR Influences Employee Performance

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**ABSTRACT**

Performance management has long been an important function of HR. Performance management helps employees know if they are meeting their goals and gives them clear indicators of what parts of their performance could be improved.

Purpose of this paper aims to explore the role of human resource HR analytics in influencing on employees performance. In doing so, the paper examines various topics and modules under performance management system which may influence employee's performance and how HR analytics can be a potential solution to deal with.

The paper proposes that the use of HR analytics will be negatively related to subjectivity bias during the review and appraisal system in the PMS process, thereby positively affecting employees' perceived accuracy and fairness. This further positively affects employees' in their performance. The paper provides implications for both researchers and practitioners in the performance management area for improving employees' performance by applying HR analytics as a strategic tool in influencing employee overall performance during PMS process. The paper offers insights into how the use of HR analytics in various process in PMS – Performance planning, Performance coaching, Performance review and Career advancement can deal with issues of subjectivity bias in the entire PMS process and how the usage of evidence based data and historic data influence employee performance.

The data is collected data through primary research to propose recommendations and suggestions which will be showcased through a model helping organizations to take strategic decisions during employee performance management process.

**Keywords:**

Analytics, HR Analytics, Performance, PMS, Historic Data

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## INTRODUCTION

Different people term HR analytics in different ways. By HR analytics we mean, the process of systematically reporting the different HR functions like Selection, Recruitment, Compensation, Training & Development, employee engagement, Succession Planning through HR analytics. There can be much smoother flow of relationship between employer & employees and how the productivity of each employee can be measured, this can happen with the effective application of analytics in the field of performance management. In the field of Human Resources management, HR analytics is relatively a new concept. It is the combination of employee data and technology to measure the routine work of HR like employee performance, engagement and remuneration. Hence, data has now become a significant role for many HR functions.

By using HR Analytics, businesses can more effectively manage and improve performance (Oracle, 2011). Organizations identify these human drivers for the purpose of organizational success (Smeyers, 2010).

By successfully adopting HR technology tools the organizations show that they perform better than the others who don't adopt technology. This raises questions like understanding the meaning of analytics and also to know how adoption of HR analytics can improve organizational performance. Large parts of HR analytics, however, are not new and people have discussed about HR metrics, utility analysis, HR scorecards, HR ROI (return on investment), personnel economics, and evidence-based management for years without a large noticeable step change in the business impact of HR (Thomas Rasmussen, Dave Ulrich, 2015)

The advanced internet and technology have brought in immense changes in the existing business of today's world. We all live in the world of information, where all business entities would want to create a competitive edge in the elevating global market (Hitt, Wu &Zhou, 2002). New innovative methods have to be adopted by any organization to match with the competitive world

today. The success of organizations depends on the learning and adoption of new process and techniques in all departments of the business. Apart from the existing system, organizations are showing an immense development with inculcating the information technology (IT), especially in the area of human resources.

The various internal and external forces have made an impact on the business today for adopting new systems and technology in various departments in an organization, hence this has led to increased pressure on human resources department to adopt new technologies and to match with the increased competition and rapid economic development.

With the adoption of human resource analytics and various metrics, an organization can achieve better progress and also can create an competitive edge in the society when the decisions are based on data driven and evident based. The main focus of HR Analytics on PMS process is to ensure fairness and transparent system of employee goal setting, review and appraisal.

We can find extreme development in the field of human resources for more than a decade, With the application of HR Analytics and Data driven process, the organizational HR activities like Recruitment, training, performance appraisal are gaining momentum in terms of transparency in process, clear defined goals and on time review of employees.

Still application of Analytics in the HR function is one such area which has lagged behind. There is huge challenge involved in adoption of analytics in organizations in the function of human resources. At individual levels there are lots of differences in opinions and interest in embracing any such new techniques, but to enhance the overall performance of any organization it becomes a basic necessity to understand the efficiency and effectiveness in adopting such tools and techniques in any organization.

The adoption of any such metrics will support the HR activities in any organization pertaining to any sector with the support of technology and automation (Ruel et al., 2004). IT services and department will surely play a major part in adoption of any technology in any functional departments of any organization (Ruel et al., 2004). This can be one among the major challenges in any organization during adoption of any such metrics.

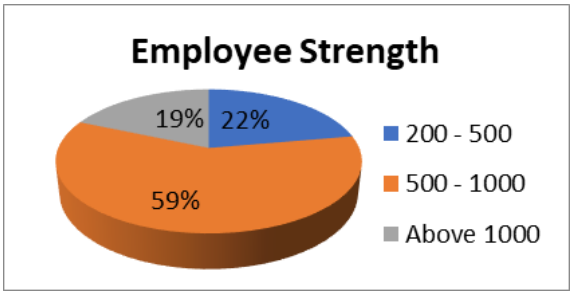
Any new automation brought into an organization should be treated as an investment rather than expenditure(Gardner et.al, 2003). There is a huge cost involved at the initial stages in adoption of these metrics, but then the benefits derived out of it can be very high,

Some firms lacks in examining previous data and some firms fails in forecast the future. This is because of the lack of availability of HR professionals. In India, experience for an analytics professionals are just 7.2 years (Bhasker Gupta, 2013). Most of the professionals are only Master degree holders. Hence there is risk of profitability, supply and demand of commodity, workforce trends, income and revenue. This leads to wastage of cost and time.

Present study makes an attempt to understand the relevance of Human Resource Analytics in Organizations and the level of Adoption relating to the extent of its usage in PMS process. This study will also explore the challenges faced by the organizations towards the implementation of HR Analytics and its role in decision making process at employee levels.

## Material and Method

A survey is conducted to study the performance management process in randomly selected 508 industry of IT sector. The employee strength of the selected industries are 200 – 500 employee 113 industries, 500 – 1000 employee 301 industries and above 1000 employees 94 industries. The percent of employee strength is shown as follows.



From the above it is observed that more than half (59%) of the respondent is in 500 – 1000 employee and 22% above employee and 19% 200 – 500 employee. The number of working analytics No is 85 industries, Yes is 234 industries and HR responsibility is 179 industries. The percent of working analytics is shown as follows.

In the survey Performance Planning, Employee Coaching, Timely Performance and Employee Performance Development are measure by structure questionnaire method. The response of the questionnaire is measured as strongly disagree (1), disagree (2), neutral (3), agree (4) and strongly agree (5).

The Performance Planning is measured with the questionnaire Setting Goal, Benchmark Goal, Employee Future, Individual Judgment, Reporting Expertise, Employee Drive and Future Job. The response number of Performance Planning in each questionnaire is shown as follows.

| Performance Planning | Strongly Disagree | Disagree | Neutral | Agree | Strongly Agree | Total |
|---|---|---|---|---|---|---|
| Setting Goal | 1 | 9 | 10 | 19 | 24 | 63 |
| Benchmark Goal | 3 | 16 | 16 | 156 | 317 | 508 |
| Employee Future | 6 | 34 | 22 | 226 | 220 | 508 |
| Individual Judgment | 6 | 15 | 65 | 206 | 216 | 508 |
| Reporting Expertise | 3 | 18 | 50 | 233 | 204 | 508 |
| Employee Drive | 3 | 15 | 69 | 210 | 211 | 508 |
| Future Job | 1 | 2 | 9 | 34 | 17 | 63 |

The Employee Coaching is measured with the questionnaire Skill Gap, Training Program, Evaluate Skill, Efficiency Job, Customized Training, Reporting Decision, Future Training, Job Role and Feedback Reporting. The response number of employee coaching in each questionnaire is shown as follows.

| Employee Coaching | Strongly Disagree | Disagree | Neutral | Agree | Strongly Agree | Total |
|---|---|---|---|---|---|---|
| Skill Gap | 7 | 7 | 32 | 207 | 255 | 508 |
| Training Program | 6 | 10 | 42 | 268 | 182 | 508 |
| Evaluate Skill | 2 | 4 | 12 | 30 | 15 | 63 |
| Efficiency Job | 2 | 16 | 88 | 215 | 187 | 508 |
| Customized Training | 6 | 20 | 66 | 251 | 165 | 508 |
| Reporting Decision | 1 | 10 | 17 | 26 | 9 | 63 |
| Future Training | 3 | 12 | 64 | 235 | 194 | 508 |
| Job Role | 2 | 20 | 59 | 233 | 194 | 508 |
| Feedback Reporting | 3 | 20 | 52 | 235 | 198 | 508 |

The Timely Performance is measured with the questionnaire Transparency Appraisal, Appraisal Review, Future Performance, Outcome Employees, Feedback Employee, Influence Employee and Job Role. The response number of timely performance in each questionnaire is shown as follows.

| Timely Performance | Strongly Disagree | Disagree | Neutral | Agree | Strongly Agree | Total |
|---|---|---|---|---|---|---|
| Transparency Appraisal | 3 | 8 | 28 | 208 | 261 | 508 |
| Appraisal Review | | 2 | 10 | 32 | 19 | 63 |
| Future Performance | 4 | 27 | 51 | 258 | 168 | 508 |
| Outcome Employees | 1 | 4 | 16 | 32 | 10 | 63 |
| Feedback Employee | | 1 | 7 | 38 | 17 | 63 |
| Influence Employee | 3 | 39 | 86 | 216 | 164 | 508 |
| Job Role | 2 | 5 | 15 | 30 | 11 | 63 |

The Employee Performance Development is measured with the questionnaire Career Development, Career Growth, Employee Performance, Job Role and Career Path. The response number of employee performance development in each questionnaire is shown as follows.

| Employee Performance Development | Strongly Disagree | Disagree | Neutral | Agree | Strongly Agree | Total |
|---|---|---|---|---|---|---|
| Career Development | 7 | 15 | 51 | 229 | 206 | 508 |
| Career Growth | 2 | 24 | 36 | 293 | 153 | 508 |
| Employee Performance | 6 | 40 | 86 | 199 | 177 | 508 |
| Job Role | 0 | 3 | 16 | 31 | 13 | 63 |
| Career Path | 8 | 69 | 72 | 216 | 143 | 508 |

The percentage of performance planning, employee coaching, timely performance and employee performance development for each questionnaire are calculated. Now the response of each questionnaire is converted into numeric form as strongly disagree (1), disagree (2), neutral (3), agree (4) and strongly agree (5).

After converting the response data into numeric form a scale reliability test is conducted and result is s shown as follow.

| **Reliability Statistics** | | |
|---|---|---|
| Variables | Cronbach's Alpha | N of Items |
| Performance planning process | 0.863 | 7 |
| Historic data and pattern in Training process | 0.895 | 9 |
| Performance review process | 0.783 | 7 |
| Performance reward process | 0.825 | 5 |

Now the Cronbach's Alpha value of all the calculated response questionnaire data is greater than 0.7. So, the scale of response questionnaire data are reliable.

The Performance Planning process of employees consists of the following employee performance questionnaire: (a) Analytics uses historic data during performance planning which set employee

goals and target (b) Analytics uses Historic Data of highly successful and performing employees which is used as a benchmark for setting employee goals (c) Analytics gives Real time and timely feedback to employees on their performances which influence their future performance (d) Data driven analytics define performance indicators and KRA of employees than depending on individual judgment (e) Reporting managers expertise is used to set employee goals and target (f) Existing KRA and Target for employees drive his performance and (g) Employees KRA and KPI drives his future job performance. So, average all of the above employee performance questionnaire response values are calculated to determine the value of Performance Planning of employees. Now t-Test test is conducted with response value of 3 (as 4 is Agree and 5 is Strongly Agree) to determine the performance planning process has significant influence on employee performance.

The Employee Coaching and Training consists of the following employee performance questionnaire:

(a) Historic training data generated from Analytics help understand new employees training needs and skill gaps

(b) Historic data of successful employees brings more specific training programs

(c) Data from predictive analytics is used to evaluate and identify required skill

(d) Analytics applied to L & D function is used to build highly interactive, customized learning experience module for employees which influences their efficiency on the job

(e) Analytics identify individual who have benefitted the most from a training program and who are promoted in the shortest time, based on which customized training program is designed for employees

(f) Reporting manager decision to nominate employees for training

(g) Reporting Manager understand employee skill gap and requirement for future training needs (h) Future job role decides employee training needs and

(i) Feedback from reporting manager decides employee training needs. So, average all of the above employee performance questionnaire response values are calculated to determine the value of Employee Coaching and Training.

Now t-Test test is conducted with response value of 3 (as 4 is Agree and 5 is Strongly Agree) to determine the Employee Coaching and Training has significant influence on employee performance.

The performance review process consists of the following employee performance questionnaire: (a) Real time performance data and feedback to employees on their performance brings transparency during appraisal (b) Real time employee data, is used during final appraisal review (c) Analytics throw result on employee behavior, traits and performance gap on employees at an earlier stage, which influences their future performance (d) Predictive data used during review, anticipate possible performance outcome of employees (e) Reporting manager uses On the job observations and feedback to influence employee performance (f) Reporting manager feedback on employee during appraisal can influence employee performance (g) Intuition of reporting manager on employee future job role influences performance. So, average all of the above employee performance questionnaire response values are calculated to determine the value of performance review process. Now t-Test test is conducted with response value of 3 (as 4 is Agree and 5 is Strongly Agree) to determine the performance review process has significant influence on employee performance.

The performance reward process consists of the following employee performance questionnaire: (a) Historic and Real time data provide road map to employees in career development (b) Analytics brings Powerfull visuals and better prediction which helps forecast employee career growth, (c) Career development plans and reward suggested by reporting manager influences employee performance (d) Prediction by reporting manager on employee new job role can influences his performance (e) Reporting managers uses his

intuition and experience to plan future career path for employees. So, average all of the above employee performance questionnaire response values are calculated to determine the value of performance reward process. Now t-Test test is conducted with response value of 3 (as 4 is Agree and 5 is Strongly Agree) to determine the performance reward process has significant influence on employee performance.

The descriptive statistics of Employee Performance Development, Performance Planning, Employee Coaching Training and Timely Review Feedback is calculated. To determine the difference of employee performance development, performance planning, employee coaching training and timely review feedback value for employee strength one-way ANOVA is calculated. Also to determine the difference of employee performance development, performance planning, employee coaching training and timely review feedback value for working analytics one-way ANOVA and Duncan Multiple Range Test (DMRT) is calculated. The correlation coefficient between Employee Performance Development with Performance Planning, Employee Coaching Training and Timely Review Feedback are calculated to determine the significant relation. Finally, a regression model is developed to determine the value of Employee Performance Development from the known values of Performance Planning, Employee Coaching Training and Timely Review Feedback.

## Conclusion

It is observed that the highest percentage of strongly agree and agree for performance planning is in benchmark goal 93% and the lowest is in setting goal 68% (38% + 30%). The highest percentage of strongly agree and agree for employee coaching is in skill gap 91% and the lowest percentage is in reporting decision 55%. The highest percentage of strongly agree and agree for timely performance is in transparency appraisal 92% and the lowest percentage is in outcome employees 67%. Similarly, the highest percentage of strongly agree and agree for employee performance development is in career growth 88% and the lowest is in job role 70%.

The result shows that performance planning process has a significant influence on employee performance. It also observed that historic data and pattern in Training process has a significant influence on employee performance. Result also shows that performance review process has a significant influence on employee performance. It is concluded from the result that performance reward process has a significant influence on employee performance

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