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Comparative Analysis of Performance Appraisal Systems in India's Steel Sector: A Study of Tata Steel and MECON Limited

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Abstract: This research investigates the effectiveness of performance appraisal systems (PAS) in India's industrial sector, focusing on Tata Steel Limited (private sector) and MECON Limited (public sector), both based in Jharkhand. Using a mixed-methods approach, the study integrates structured surveys (n H" 350), semi-structured interviews, and organizational documents to assess HRM practices, leadership support, managerial competence, employee involvement, and technological integration. Findings from exploratory analysis, CFA, and SEM reveal that HRM practices (â = 0.526, p < .001), leadership support (â = 0.376, p < .001), and managerial competence (â = 0.197, p < .05) significantly drive PAS effectiveness, while technology integration shows negligible or negative impact. Results highlight dissatisfaction with traditional systems and underline the need for transparent, participatory, and leadership-driven frameworks. The study proposes a strategic blueprint for redesigning appraisal systems to enhance employee motivation, fairness, and organizational growth in both public and private industrial enterprises.

Keywords: Performance Appraisal Systems, HRM Practices, Leadership Support, Managerial Competence, Employee Involvement, Technology Integration

I.INTRODUCTION

Performance appraisal systems have long been a cornerstone of human resource management, serving as a tool to evaluate employee performance, provide feedback, and drive organizational growth. Yet old-fashioned performance appraisal systems have in recent years been under attack: As everything else, they have been painted as outdated, too bureaucratic and not fit for purpose in a contemporary workplace. Such traditional systems, usually based on yearly reviews and inflexible performance criteria, are ill equipped to capture the real time, varied contributions that employees make in a constantly shifting work world [1]. Moreover, systems like these all too often lead to disengagement through their emphasis on past performance over future potential, and on judgement rather than on growth. As companies need to stay competitive and agile, particularly in the new age of technology and new generation workforce expectation, there is a broader realization that these systems need to change. Today's performance management methods focus on flexibility, continuous feedback, coaching, and

alignment with the organization's goals. Through combining best industry practices, promoting a culture of collaboration and growth, and using technology to improve accuracy and transparency, companies can design performance appraisal systems that not only gauge employee performance accurately, but take the long-view of growth and employee satisfaction. This general principle holds true for all types of organisations, but also implies its own set of challenges and opportunities for large businesses, the public sector, and SMEs, which need bespoke strategies to make their appraisal systems context-specific [2]. Understanding and addressing these challenges, in addition to embracing an integrated and flexible framework, is essential to maintain the pertinence and effectiveness of performance appraisal in facilitating organisational success. The study "*Attitude in Management*" written by Dr. Shree Raman Dubey offers a valuable foundation for understanding the role of attitude, behavior, and leadership in shaping effective management practices. His central argument that leadership and management must intersect at the level of attitude directly impacts the present research. Further his research asssited in theoritical investgation on attitude, behavior, and ethics for effective management and leadership [21]. This research focuses on analyzing and comparing performance appraisal systems within India's steel sector, with special reference to Tata Steel Limited [16], Jamshedpur and MECON Limited [17], Ranchi. Tata Steel, a global leader in steel production, represents the private sector, while MECON, a premier engineering consultancy under the Ministry of Steel, symbolizes the public sector. Both institutions have played pivotal roles in shaping India's industrial growth.

II. RESEARCH METHODOLOGY

2.1 Research Design

The present study adopts a comparative case study design to investigate the performance appraisal (PA) systems employed within large industrial business organizations in India, focusing specifically on contrasting the public and private sectors. This design allows an extensive examination of how PA systems function within different organizational contexts including structural and process variance. The approach is as much descriptive to characterize existing practice as exploratory to identify it, to discover where existing systems may be (deceptively) unsatisfactory, and where opportunities exist for improvement. The comparative aspect is important to understand sectoral differences in institutional and cultural contexts of public and private firms. This design enables us to capture fine-grained information contextually in ways that extend beyond mere statistical comparisons [3-7]. This study aims to transform performance appraisal (PA) systems in large Indian corporations by examining how HRM practices and technological integration drive organizational growth. Focusing on Mecon Limited and Tata Steel in Jharkhand, we will assess the impact of a newly designed PA framework on performance metrics and retention, identify critical HRM factors such as training, reward linkage, and career development, review existing PA processes for design rigor and strategic alignment, and compare employee perceptions of fairness, effectiveness, and engagement across public and private contexts. Adopting a mixed-methods approach, we will collect data from over 350 respondents through structured surveys and in-depth interviews. We will conduct exploratory data analysis to uncover underlying factor structures, apply Confirmatory Factor Analysis (CFA) to validate measurement models, and use Structural Equation Modelling (SEM) to test hypothesized relationships among HRM practices, PA design elements, and outcomes. The resulting validated framework will offer actionable guidance for aligning appraisal systems with strategic objectives and enhancing employee engagement.

2.2 Research Approach

To achieve the above objectives, a mixed-methods research approach has been adopted, integrating both quantitative and qualitative techniques. This combination is particularly effective in organizational research because it balances the breadth of data (quantitative) with depth and context (qualitative):

- The quantitative one is the collection of measurable info (operationalized through

structured questionnaires), which can be statistically treated on how the relevant perceptions, attitudes and results about the PA process range.

- The qualitative part features semi-structured interview of HR practitioners and stakeholders and the analysis of organizational documents aiming at providing thicker, context-dominant lessons in the working dynamics, implementation constraints and transformative potential of PA systems.

This dual approach ensures that the findings are robust, comprehensive, and actionable. This study will employ a mixed-methods design, integrating qualitative and quantitative approaches to investigate HRM practices and performance appraisal (PA) systems. Initially, an exploratory phase involving document reviews, stakeholder interviews, and observations will identify existing appraisal processes and underlying transformation factors. Subsequently, a descriptive phase will quantify system effectiveness through structured surveys, performance metrics, and HR records analysis. Exploratory data analysis will reveal preliminary insights, while descriptive statistics will detail relationships among variables. Finally, in-depth interviews will enrich quantitative findings, providing context. This approach ensures robust understanding of PA transformation drivers and supports framework development for strategic, technology-enabled appraisal systems [8-13].

2.3 Population and Sampling

The target population for this research includes employees and HR managers within large industrial business organizations located in India, specifically those operating in the public sector (such as public sector undertakings like Bharat Heavy Electricals Limited (BHEL), Steel Authority of India Limited (SAIL)) and the private sector (such as Tata Steel, Reliance Industries).

- The sampling method is purposive at organisational level and the size of the organisations are large top companies that are well-established whose formal performance appraisals systems are in place and representative of their industry sector.
- Membership within these agencies and programs will use a stratified random sampling technique to pick individuals at different managerial tiers and across different departments to ensure a broad sampling in considering roles, years of service, and responsibilities.
- The anticipated sample size is around 300 respondents although will be split evenly between the public and private sectors (circa 150 each). This is enough of a sample size to provide for some valuable claims via statistical analysis and more importantly, comparisons.

2.4 Data Collection Methods

Primary data for this study will be collected through a structured survey using a five-point Likert scale to assess employees' and managers' perceptions of performance appraisal systems in terms of fairness, feedback quality, reward linkage, and career development. To complement this, semi-structured interviews with HR managers, supervisors, and senior management will provide deeper insights into operational challenges and readiness for change that cannot be captured through closed-ended survey items. Secondary data will be gathered from organizational documents such as formal appraisal policies, procedural manuals, previous appraisal reports, and training materials, offering contextual validation and supporting triangulation of primary findings.

2.5Sample Size and Techniques

The sample size for this study will consist of over 350 respondents drawn from two selected companies, Tata Steel and MECON, both based in Jharkhand, India. The sample will include a diverse group of participants, such as HR professionals, managers, employees, and key decision-makers within these organizations. Stratified random sampling will be employed to ensure representation from different departments and roles. The goal is to capture a broad range of perspectives on performance appraisal systems and HRM practices to provide a

comprehensive analysis of the factors influencing these systems and their potential for transformation. The study will use stratified random sampling to ensure diverse representation across departments and roles within Tata Steel and MECON. Data will be collected through surveys for qualitative data. Statistical methods like descriptive and inferential analysis will be applied for data interpretation.

2.6 Research Instrument

The questionnaire will be developed based on a thorough review of existing literature on performance appraisal and HRM best practices, adapted to fit the Indian industrial context. To ensure reliability and validity:

- A small-sample pilot on 20 respondents from organizations of the kind will test the instrument. Feedback from the site will be used to develop more precise qualitative questions.
- Consistency testing through Cronbach's Alpha will be used to check internal consistency of scales of the questionnaire. Items with low reliability will be revised or deleted.
- The questionnaire will be translated in local languages if required for ease of understanding.

2.7 Data Analysis Techniques

Quantitative Data Analysis

The quantitative data collected through questionnaires will be subjected to the following analyses:

- Descriptive statistics (mean ratings, standard deviations, frequency distributions) will be used to present the respondent's appraisal perceptions.
- Comparative statistics such as independent samples t-tests and ANOVA will be used to determine the statistical differences between public and private sector respondents in terms of effectiveness of appraisal and HRM practices. Correlation exploration between the effectiveness of appraisal and the outcomes (like motivation, and job/career) would also be a 1.2.
- Factor analysis can be employed to discover latent factors or dimensions on appraisal effectiveness constructs and to reduce complex data into understandable factors.

Qualitative Data Analysis

Interview transcripts and organizational documents will be analysed using thematic analysis techniques. This process involves:

- Transcribing the interviews and coding the data to extract themes, patterns and categories in relation to the challenges of appraisals, HRM practices and strategies of change.
- Two-timing interviews, documents and other sources of information with quantitative results to verify insights.
- Qualitative research software (e.g., AMOS) could be used to assist in organizing and systematizing the analysis of large amounts of text data.

Limitations of the Methodology

While every effort will be made to ensure rigor, certain limitations are acknowledged:

- These purposively selected organizations may not represent all the respondents across all Indian industrial organizations, particularly smaller SMEs or informal ones, so the generalizability of such findings is limited.
- The self-report questionnaires might induce response bias, e.g., social desirability bias, or selective reporting.
- Sensitive internal documents or blunt insights in interviews could remain secret for reasons of confidentiality.
- There may be time or resource constraints, which restrict the breadth or depth of the qualitative data collected.

III. DATA ANALYSIS AND RESULTS

Performance appraisal systems play a pivotal role in the effective management of human resources, directly influencing employee motivation, productivity, and organizational growth. In the vibrant industrial atmosphere characterized by India, public as well as private sector enterprises encounter exclusive set of issues in developing and operating appraisal systems that are fair, open and that are matched with strategic goals. This is the gap we intend to address in our study by reviewing the current practices of performance appraisal and its effectiveness in the large corporates in the two sectors, in order to come up with a solid framework to redesign the systems for the benefit of the organisation. The rationale of the study, was the growing awareness that traditional methods of performance appraisal do not always satisfy new expectations of employees and their organisations. Fast technological development, changing work force expectations, and the need for rewarding meritocratically put pressure on making a serious reconsideration and re-shaping of the personnel evaluation systems. This study does not only examine the perceptions of employees and managers, but also applies structure equation modelling to explore the influence of different people management practices, leadership, managerial capacity, and technical integration in appraisal effectiveness.

3.1 Exploratory analysis

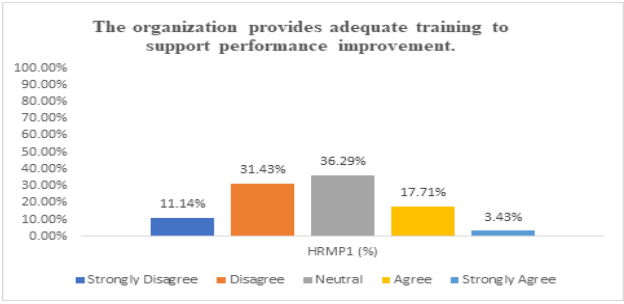

Figure: HRM Practices (HRMP1)

The bar chart illustrates the distribution of responses to an HRM practice-related statement (HRMP1) based on a percentage scale. Most of the respondents, 36.29%, scored the midpoint, neither agreeing nor disagreeing. That seems to be an ambivalence or at least unsettledness about the claim. Subsequently, 31.43% of the respondents disagreed, whereas 17.71% agreed, clearly indicating a gap of perceptions, as discrepancy surpassed convergence by far. A minority, 11.14%, strongly disagreed, and only 3.43% strongly agreed, suggesting strong views are not so frequent amongst respondents. The overall data suggests that although a large proportion remain neutral, there is a significant bias towards disagreement as opposed to agreement from the respondents concerning the HRM practice depicted by HRMP1. This dispersion indicates the possible dissatisfaction or concerns of employees with respect to this HRM issue and a further drilling to find causes and appropriate adjustment in HRM practice is justified.

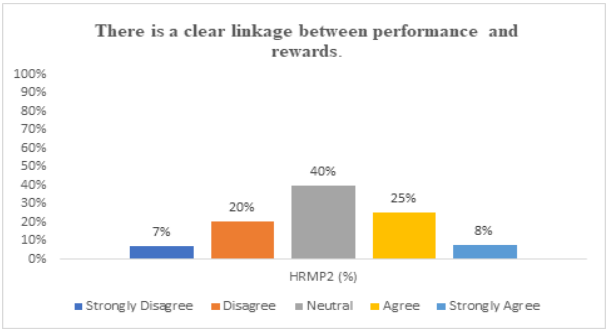

Figure: HRM Practices (HRMP2)

The bar chart represents respondents' views on the HRM practice labelled HRMP2, showing the percentage distribution of agreement levels. The highest number of respondents (40%) chose the middle option, which represented uncertainty or neutrality with respect to the

statement. Agree - 25 percent The positive conception of HRM practice was confirmed by one quarter of the participants. In contrast, 20% disagreed and 7% strongly disagreed, that is, almost a quarter participants have doubts or are unhappy with this HRM aspect. Moreover, 8% agreed very strongly, showing ironically a smaller yet still considerable base of intense backers. The findings generally indicate a varied perception about HRMP2 among the employees with a significant inclination towards neutrality and agreement, along with a sizable proportion expressing disagreement as well. Such a mixed reaction suggests that it is important for HRMP2 use to be further scrutinised, how it is deployed, how well it is perceived in the organisation and how it is accepted.

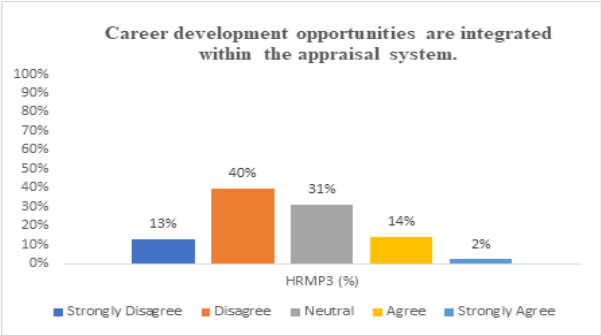

Figure: HRM Practices (HRMP3)

The bar chart depicts the distribution of responses regarding HRM practice HRMP3 among respondents. The majority (40 per cent) of the respondents disagreed with the item, hence, in significant disagreement or dissatisfaction with the HRM practice. There was a large with or uncertainty/ambivalence (31%). By contrast, 14% agreed only 2% strongly agreed, indicating notably low positive endorsement. However, 13% strongly disagreed, revealing a relatively large fraction of strong dissent. In sum, the statistics suggest a mostly negative or neutral view of HRMP3, with more dissenting voices than that of assent. This 53% disagreement (strongly disagree + disagree) suggests that there are problems, and/or barriers in the acceptance and the use of this HRM practice. This implies that organisations should explore whether there is a legitimate cause for this negative perception and consider improvements that could improve employee satisfaction and the effectiveness of HRMP3 as part of HRM.

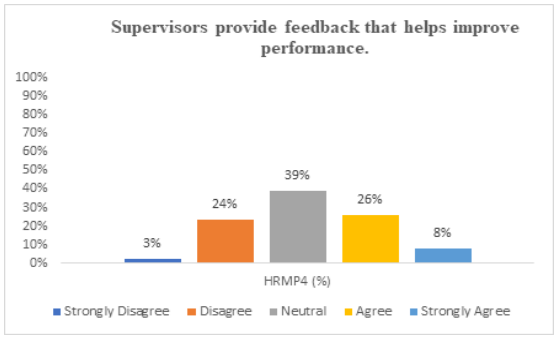

Figure: HRM Practices (HRMP4)

The bar chart displays respondents' opinions on HRM practice HRMP4, illustrating a varied distribution of agreement levels. The majority of respondents (39%) were neutral (not sure/ neutral), meaning that people are unsure or indifferent in relation to this HRM dimension. Slightly more than one-fourth of the sample agreed(26 percent) demonstrating moderate levels of support. Another 24% felt differently, indicating significant dissatisfaction or concern. A smaller fraction – 8 per cent – strongly agreed, suggesting a dedicated grouping of supporters, while 3 per cent strongly disagreed, implying relatively little strong opposition. In general, the data shows an even distribution of positions with a slight tilt towards neutral or agree. The substantial neutral response could be an indication of poor information or communication about HRMP4. Such a distribution, also illustrates the necessity of looking into ways of making

this HRM practice more explicit, more efficient, and clearly communicating it for employees to understand, accept, and get involved in.

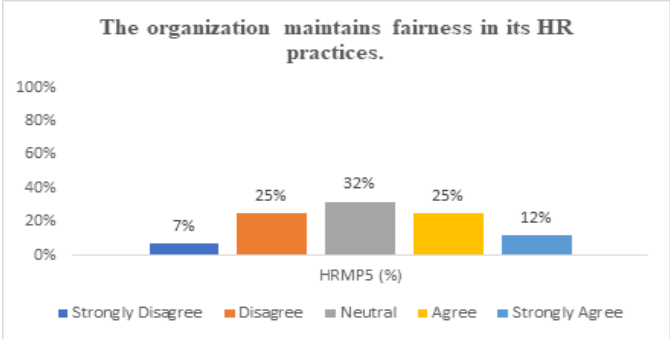

Figure: HRM Practices (HRMP5)

The bar chart presents the distribution of responses regarding HRM practice HRMP5. The most numerous categories, at 32 percent, specified a neutral attitude, suggesting oneself as being non-judgmental or indifferent about the behaviour. Sympathy among employees was evenly divided, with as many respondents agreeing (25 percent) as disagreeing (25 percent). Furthermore, 12% agreed strongly, indicating a strong wild crowd of positive response, and 7% disagreed strongly, a small but vocal opposition. Taken as a whole, the data shows mixed and somewhat evenly split according to positive and negative HRMP5 sentiment, with a sizeable neutral camp. This mixed feedback reflects that though the practice has its proponents, there is also some scepticism or discontent where the practice fits, which raises the possibility for organisational leaders to examine the underlying issues, better communicate about them, and perhaps refine the practice to make it more accepted and effective for the workforce.

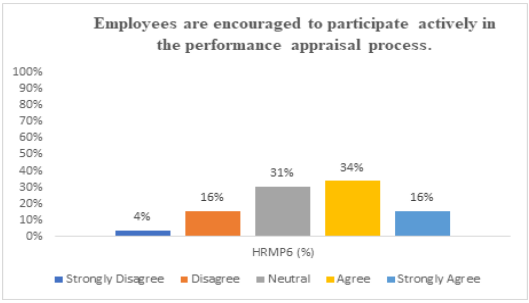

Figure: HRM Practices (HRMP6)

The bar chart presents the distribution of responses to HRM practice HRMP6, illustrating varied employee opinions. The highest percentage, 34%, responded positively to the statement. Another 16% of respondents agreed very strongly, adding to a positive impression. Still, 31% were neutral, meaning either agnostic or ambivalent. On the flip side, 16% disagreed for some, but not much, dissatisfaction and a mere 4% strongly disagreed for little strong opposition. In general, the evidence indicates that most respondents tend towards agreement with HRMP6; few remain neutral, however a minority dissents. Thus, while HRM is relatively well accepted, there is certainly scope for improvement, at least with regard to the concerns of those who were neutral and negative towards HRM. Organizations may consider improving communication and design of this HRM practice in order to enhance employee acceptance and the effectiveness of the practice.

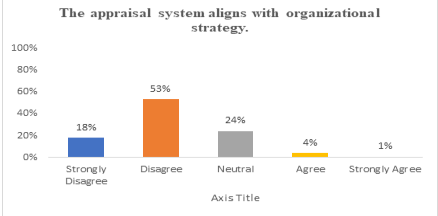

Figure Performance Appraisal System Effectiveness (PASE1)

The bar chart displays respondents' opinions on PASE1, showing a predominantly negative perception. 53% opposed, signalling substantial dissatisfaction or disagreement with this prefix. And 18% strongly disagreed, emphasizing this largely downward sentiment. Only 4% agreed and only 1% strongly agreed with an item representing minimal endorsement of the positive side. Another 24% were neutral, indicating a significant portion were unsure or could not care less. In general, the data shows that a great majority of responders are critical of PASE1, disagreement surpasses agreement by far. This reveals issues or gaps related to PASE1 that could have a negative effect on job satisfaction and organisational productivity. These findings highlight the importance of management investigating reasons why such a negative belief exists and develop appropriate measures to enhance ICW of PASE1 within the organisation.

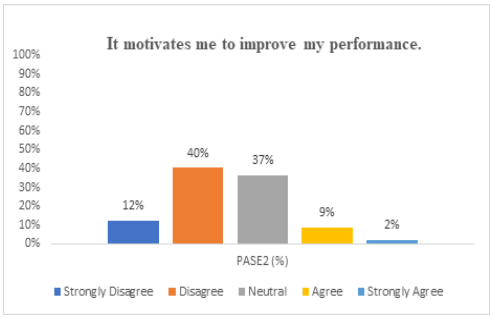

Figure: Performance Appraisal System Effectiveness (PASE2)

The bar chart illustrates the distribution of responses for PASE2, highlighting a varied range of opinions among respondents. A very high 40 denials was among those who did not agree at all, it revealed more concern or frustration. Not far behind 37% were neutral (uncertain or ambivalent) regarding the subject. There were only 9% and 2% in agreement and strong agreement respectively which represented low level of endorsement. In contrast, 12% strongly disagreed, indicating a significant level of strong disagreement. Collectively, the data shows the majority of participants either slightly disagree or remain neutral to PASE2, and the level of agreement is relatively low. This implies that PASE2 may be experiencing resistance or ineffectiveness at the organisational level. The substantial neutral class also suggests possible vagueness and uncertainty of PASE2. Such observations suggest that more investigation into and a potential strengthening of this practice is required in order to increase employee attitudes and organisational results.

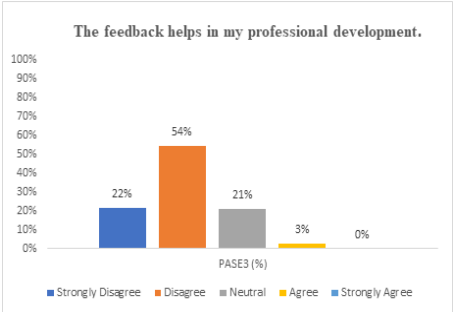

Figure Performance Appraisal System Effectiveness (PASE3)

The bar chart presents respondents' views on PASE3, revealing a predominantly negative perception. Most Swing meter users (54%) thought the statement was untrue, in other words they were extremely dissatisfied or did not go along with this practice. In addition, there were 22% who very much disagreed, to confirm a large number who were strongly opposed. Only 3% agreed, and none strongly agreed, indicating little positive feedback. And 21% stayed neutral, which could reflect either uncertainty or indifference. Taken together, the findings demonstrate a substantial lack of satisfaction with PASE3 as most reported disagreement. This would imply that PASE3 is a failure or not well-accepted by the organization and may negatively influence the employees moral and performance. The lack of high levels of agreement

indicate management should be urgently investigating the reasons employees are dissatisfied, reassess the design and / or implementation of PASE3 and make the necessary improvements to reflect employee expectations and the organisation's requirements.

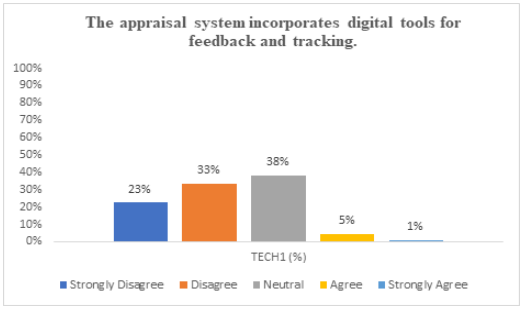

Figure Technological Integration (TECH1)

The bar chart displays responses regarding TECH1, showing a diverse range of opinions among respondents. The majority, 38.7%, were neutral with doubt and/or not sure about this technical issue. And a whopping 33% disagreed – they were dissatisfied or had misgivings. Twenty-three per cent strongly disagreed, indicating such a stance was strongly held by almost a quarter of respondents. Only 5% of people agreed and 1% strongly agreed – so there are not hordes of you out there offering any positive backing. Taken together, the data indicate a comparatively more negative or indifferent sentiment towards TECH1 with an overwhelming majority supporting disagreement or neutrality. The poor agreements reflect potential problems related to the adoption, success, or communication of this technological procedure. Firms could conduct gap analysis with oral grievances, raise awareness, provide training, or better integrate the technology to increase employee acceptance and usage, thus improving effectiveness and satisfaction.

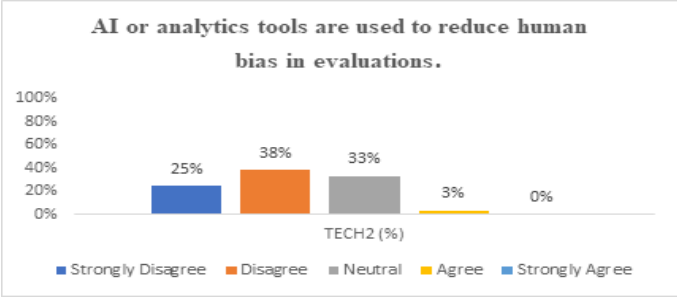

Figure Technological Integration (TECH2)

The bar chart presents respondents' perceptions of TECH2, revealing a predominantly negative or neutral attitude. The biggest group, 38%, did not agree with the statement, showing a lot of dissatisfaction or distrust in this technology. Coming in slightly behind that, 33% were neutral, expressing ambivalence or uncertainty. A further 25% disagreed very much which suggests that a large minority of the women antagonised by the images expressed a very strong attitude towards them. Only 3% indicated that they agreed and not one respondent indicated either of the top two agreement options, which alluded to little, if any, positive feedback. In general, the data is indicative of very low acceptance or endorsement of TECH2, with disagreement and neutrality including the larger proportion of responses. This phenomenon may reflect certain barriers to its application, utilization and communication. 1.4 Organizations might consider exploring the roots of this negative attitude towards TECH2 and how to mitigate it with e.g. better, training, more features, or increased alignment with user needs to increase the uptake and impact of TECH2 among employees.

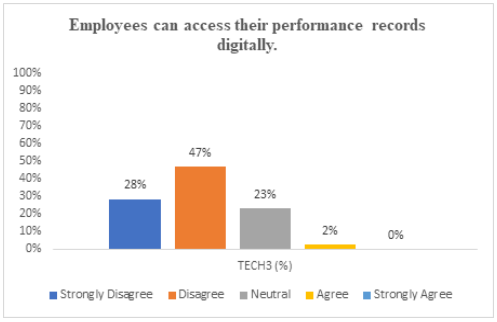

Figure Technological Integration (TECH3)

The bar chart reflects respondents' attitudes towards TECH3, showing a predominantly negative perception. A total of 75% of respondents disagreed (47%) or strongly disagreed (28%) with the statement, reflecting a high level of unhappiness or outright refusal to engage in this technological action. Just 2% agreed (none did so forcefully), indicating very widespread opposition or rejection. At the same time, one quarter of respondents neither agreed nor disagreed, suggesting they were uncertain or indifferent. Overall, the data indicates a major hurdle to acceptance or confidence in TECH3 among employees. The strong controversy suggests something about usability, relevance, or even disconnects in communication. Organisations might conduct more detailed analyses to learn what the specific issues are and develop tailored strategies such as better training, system refinements, and or better communication to deal with the concerns and enhance TECH3 acceptance and efficacy in the workplace.

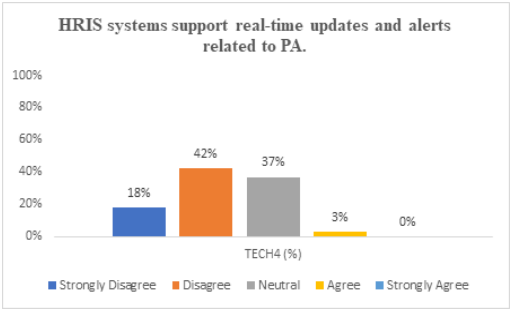

Figure Technological Integration (TECH4)

The bar chart presents the distribution of responses related to TECH4, showing a predominance of neutral and negative perceptions among respondents. The next highest cohort represented was 42% who disagreed indicating high dissatisfaction or concern with this technology related item. Not far behind, 37% were neutral – just as equally reflecting ambivalence or indecision regarding TECH4. A smaller proportion, 18%, strongly disagreed, reinforcing the fact that a considerable fraction of respondents opposes it. Only 3% reported that they strongly agreed, and in no case did they say that they strongly agreed, showing very low positive feedback. In the end, the findings give an overall negativity or passiveness of the attitude towards TECH4, with the disagreement and the neutrality being the largest part of the reported responses. This can be interpreted as indicating the existence of acceptance problems, usability problems and/or communication problems of the TECH4. Organizations may need to explore the reasons for dissatisfaction, upgrading training needs or systems' capabilities, and facilitating communication, which are key to acceptance and the practice's benefits.

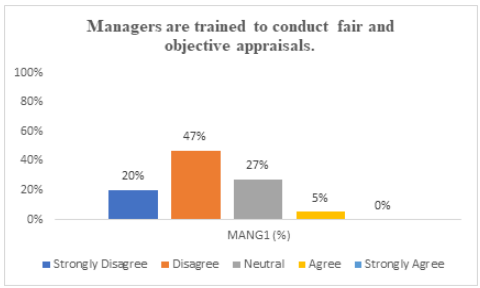

Figure Managerial Competence (MANG1)

The bar chart reflects employee perceptions of MANG1, revealing a predominantly negative or neutral stance. Most 47% disagreed with the phrase, which signifies a widespread discontent or ambivalence toward this management intervention. 20% also indicated strong opposition to the tax – indicating a great deal of opposition. Few felt this way — only a scant 5% agreed and none strongly agreed — demonstrating little positive enthusiasm for the idea. At the same time, 27% was neutral, which means that some were not informed about it, or they didn't care. 12 149 Regarding MANG1 in general, the pattern of the data is more negative than positive, with disagreement outweighing agreement by far. This indicates a possible problem of implementation, relevance, or dissemination of the applied management practice in the organization. To remedy these concerns, organizations may investigate the underlying sources of dissatisfaction and work to improve areas such as leadership training, clearer communication, or policy changes to promote MANG1 acceptance and effectiveness among the employees.

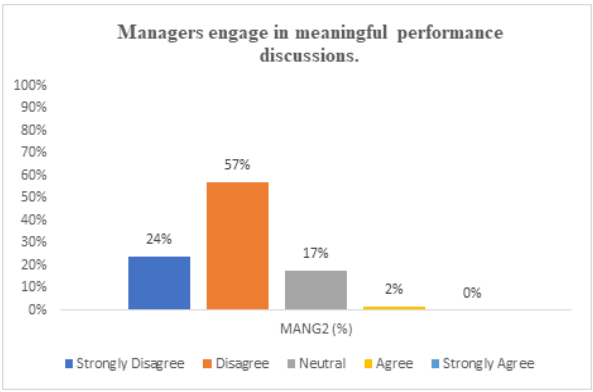

Figure Managerial Competence (MANG2)

The bar chart presents respondents' opinions on MANG2, highlighting a predominantly negative perception. This management have been resolutely disagreed by 57%of the respondents, A considerable part of them are not satisfied or disagree with the management. 24% also said they strongly disagreed, indicating a high level of opposition. Only 2% agreed and no-one strongly agreed, such that there was little in the way of general support. Some 17% were neutral, indicating a sort-of unsure or even noncommittal stance. Taken altogether, the results show massive disapproval or mistrust to MANG2 as disagreement prevails. This may indicate that there are possible deficiencies in the implementation, applicability, or dissemination of this management approach. Organizations might want to explore the root causes of dissatisfaction, potentially within the design, implementation or communication of MANG2 to increase acceptance and effectiveness. Dealing with these issues might improve morale and organisational effectiveness.

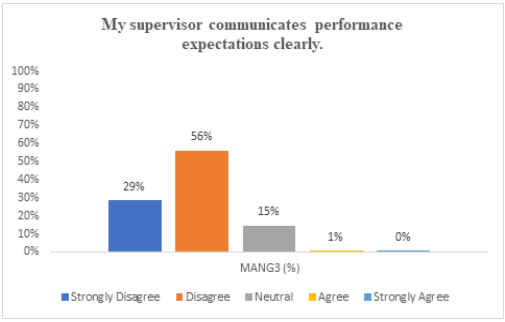

Figure: Managerial Competence (MANG3)

The bar chart illustrates employee responses to MANG3, revealing a predominantly negative sentiment. Disagreement in the direction of disagreement (56% and 29% Strong Disagreement), with the overall dissenting percentage of 85% is indicative insufficient adoption or rejection of this management option by most of the farmers. Only 1% of respondents agreed to do this, and none strongly agreed, indicating marginal feedback. And 15% said they didn't know or that they neither supported nor opposed it, indicating some uncertainty or apathy. Generally, this data emphasizes a particular difficulty for institutions in getting MANG3 accepted or adopted by staff. This vast disagreement suggests that problems with either the relevance, conduct or reporting of the practice are likely. Organizations can do this by performing an investigation to determine what's going on and see where they can leverage change in the form of leadership training, policy changes or better lines of communication. Efforts of this kind can contribute to boosting employee morale, allaying acceptance and potential improvement of management methods such as MANG3 in the company.

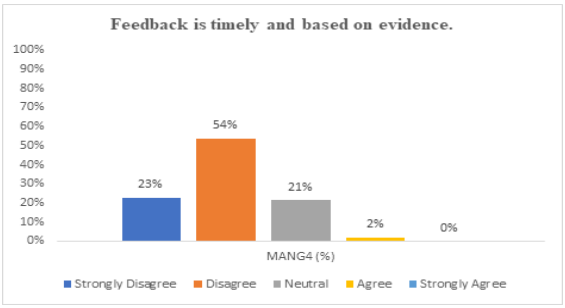

Figure Managerial Competence (MANG4)

The bar chart depicts respondents' opinions on MANG4, illustrating predominantly negative or neutral perceptions. As many as 54% disagreed with the statement, which reflects considerable disapproval or concerns about this form of management. Another 23% strongly disagreed, pointing to strong resistance by many of the respondents. Only 2% agreed, and no respondents answered strongly agree, indicating very little to no positive response. At the same time, 21% reported that they were undecided or indifferent. Overall, a trend of non-support or no salience for MANG4 is apparent, with disagreement being the most prevalent. This was indicative of barriers to the implementation, communication or appropriateness of this management approach. The causes of dissatisfaction should be examined, and ways to increase acceptance and effectiveness should be investigated (e.g., leadership development, policy refinement, better communication). Attending to these issues could contribute towards enhancing employee engagement and performance at the level of the organization in connection with MANG4.

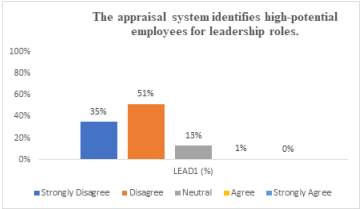

Figure Leadership and Succession Planning Support (LEAD1)

The bar chart illustrates respondents' perceptions of LEAD1, showing a predominantly negative sentiment. A majority of 51% disagreed with the assertion, a significant degree of unhappiness or disagreement in this leadership dimension. Another 35% strongly disagreed, reflecting strong opposition from a large portion of employees. 1% agreed and none of the responders said that they strongly agreed, which showed that there was almost no positive acceptance. Another 13% were neutral, expressing a certain uncertainty or indifference. Taken together, the response shows broad disapproval or ambivalence regarding LEAD1, and a lopsided dominance of disagreement on the same. This means that there are probably issues around leadership, communication, or trust within the organization. To do so, companies would do well to dig deep to identify the source of the problem and take action through focused developmental programmes, improved communication and engagement strategies to create a better cadre of leaders and more confident employees.

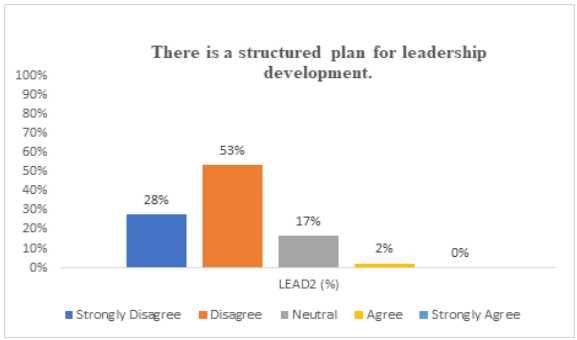

Figure Leadership and Succession Planning Support (LEAD2)

The bar chart represents respondents' views on LEAD2, reflecting a predominantly negative or neutral perception. 53% disagreed with it and were significantly dissatisfied or disagreed about this aspect of leadership. Also, 28% strongly disagreed, confirming strong resistance from a sizable share of staff. For very few did (2% agreed and there were no strong agreements evident that portray the tattoos positively). Seventeen percent were neutral, suggesting some lack of clarity or indifference. In general, the results demonstrate extensive criticisms and doubt towards LEAD2, outweighing agreement by far. This may reflect leadership effectiveness, communication or trust issues within the organisation. To rectify this, organizations need to find the reasons behind employees running off and work on improving leadership training, communication, and engagement. Investing in these types of initiatives can help increase the confidence of employees, and foster a more supportive and productive leadership environment.

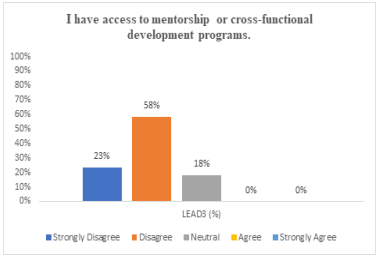

Figure Leadership and Succession Planning Support (LEAD3)

The bar chart presents respondents' opinions on LEAD3, revealing a predominantly negative perception. The majority, 58% disagreed (42% were neutral, unhappy with, or rejected this aspect of this style or leadership). And 23 per cent strongly disagreed, indicating significant resistance among many of the company's employees. There was no respondent that agreed nor strongly agreed, indicating zero level of positive receptions. At the same time, 18% kept a distance, either expressing some uncertainty or remaining indifferent. Taken together, the findings reveal a high level of discontent and doubt as regards LEAD3, with disagreement far prevailing. That points to a significant issue of not enough effective leadership, communication

or trust in the organisation. To tackle these challenges, leadership needs to undertake an in-depth diagnosis to determine the underlying causes and need-driven strategies (e.g., leadership-development programs, better communication, engagement) of the various stickiness problems. This work can lead to better leadership, increased morale among employees and more effective organizations.

Figure Leadership and Succession Planning Support (LEAD4)

The bar chart shows respondents' perceptions of LEAD4, indicating a largely negative or neutral outlook. 51% disagreed with this, indicating significant dissatisfaction or concern over this aspect of leadership. A further 28% strongly disagreed, indicating strong resistance from a substantial minority. Only 1% agreed and none strongly agreed, which is very low positive agreement:). By contrast, 19% responded neutrally (i.e., uncertain or indifferent). In general, the data indicate that LEAD4 is widely disliked, with far more people disagreeing with than agreeing with it. This finding suggests that leadership efficiency, communication or trust within the company could be sources for concern. Programme organisations can seek to address underlying issues to improve perceptions and performance of the LEAD4 by: implementing targeted initiatives, such as leadership development, improved communication and employee engagement; Such initiatives could help in enhancing leadership practice, morale among employees, and the based organizational performance.

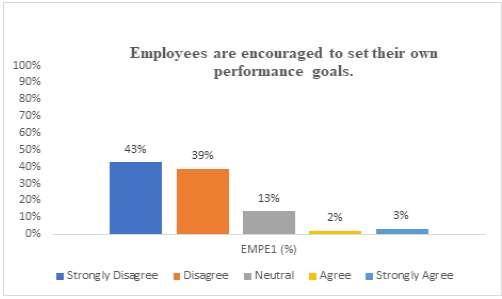

Figure Employee Involvement (EMPE1)

The bar chart displays responses to EMPE1, revealing a predominantly negative perception among respondents. Both strong disagree and disagree 43% strongly disagree and 39% disagree was derived to report dissatisfaction or dissatisfaction with the employee concerned. Merely 2% agreed and 3% strongly agreed offering very low level of positive endorsement. Thirteen percent were neutral (uncertain or indifferent). In summary the data illustrates a major hurdle in the acceptance or approval of EMPE1 by the organisation. Such a strong disagreement indicate a misunderstanding or a problem in practice, communication or incentives, if not in the tool itself. To attenuate these concerns, organisations might plan further investigation to spot the specific issues and look at the possibility of improvement with better communication, education or policy modifications. Improving employee engagement and working through discontent can result in improved morale, engagement and organisational performance.

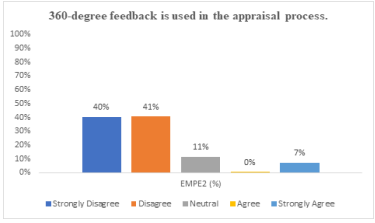

Figure Employee Involvement (EMPE2)

The bar chart reflects employee perceptions of EMPE2, indicating a predominantly negative sentiment. A majority (81%) of responders 40% stating strongly and 41% stating they disagreed indicated a great deal dissatisfaction on this topic to do with the employee. Only 7% agreed strongly while no participant agreed, suggesting little positive endorsement. 11%, meanwhile, were neutral, indicating some doubt or indifference among respondents. In general, the data indicates that there are clear acceptance or approval barriers of EMPE2 in the organisation. The universal controversy is indicative of problems regarding how it has been implemented, communicated or how effective this use is. If an organisation is looking to enhance employee engagement and satisfaction, the organization must identify the issues that cause dissatisfaction and work to improve on them such as communication, changes in polices, and provide more personalized training. Solving these problems might create a better working climate and enhance organisational performance.

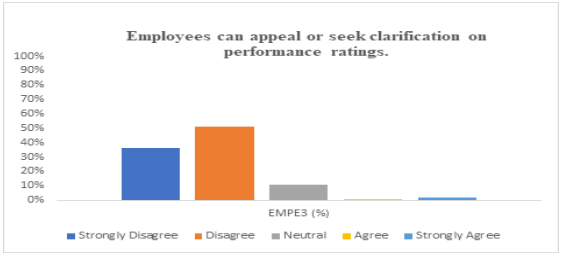

Figure Employee Involvement (EMPE3)

The bar chart illustrates responses to EMPE3, showing a predominantly negative or neutral perception among participants. Disagreement was predominant with 51% (36%, strongly disagree and 15%, disagree) after which there was, in the employee field, a significant proportion of dissatisfaction or rejection. Very few positive sentiments Only 2% strongly agreed. In contrast, 11% were undecided, saying that respondents were in doubt or had no opinion. No parent agreed to that statement, indicating a lack of moderate positive feedback. On the whole, the numbers read discontent and scepticism with EMPE3 as disagreement far outweighs agreement. This may indicate problems associated with the execution, communication, or impact of this activity. Organizations may benefit from probing satisfaction determinants to develop interventions, e.g., increased communication, training, or policy changes, to enhance employees' engagement and acceptance promoting a more favourable and productive working environment.

SEM Analysis

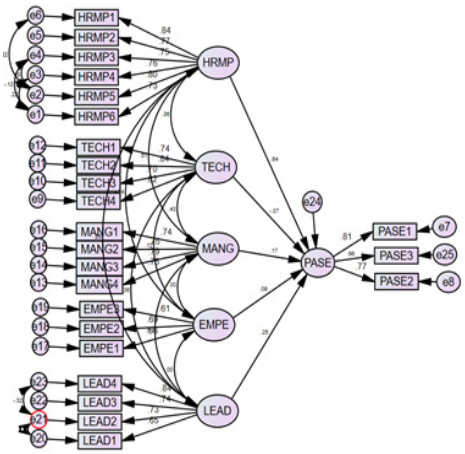

Figure Proposed SEM Model

This SEM (Structural Equation modelling) path diagram represents the relationships among five latent variables—HRM Practices (HRMP), Technological Integration (TECH), Managerial Competence (MANG), Employee Involvement (EMPE), and Leadership Support (LEAD)—and their impact on Performance Appraisal System Effectiveness (PASE). Each latent variable is measured by multiple observed indicators (e.g., HRMP1 to HRMP6 for HRM Practices),

with factor loadings indicating the strength of the relationships between latent variables and their respective indicators. All loadings are fairly strong (most above 0.7); that is, the indicators possess good convergent validity and are reliable in capturing the concepts.

And the directions of arrows from the five predictors to PASE provided some clue to their effect size and direction to appraisal effectiveness. HRM Practices (HRMP) has the highest positive effect to PASE (0.64) meaning that the quality of HRM policies and practices leads to the effectiveness of performance appraisal system. Leadership Support (LEAD), also is significantly positively related (0.25), suggesting that leadership factors are considerable in determining appraisal outcomes. Management Quality MANG has a moderately positive effect (0.17) indicating that quality decision making has a moderately positive rather than very strong positive impact. Employee Involvement (EMPE) also has a fairly small impact (0.09), even though it would seem to be rather effective, and may warrant more attention. Interestingly, the negative ("0.07) impact of TECH on PASE indicates that current levels of technology use may not be adequately supporting appraisal effectiveness and may need to be reassessed or strengthened. In general, the model indicates that human factors HRM practices, leadership and managerial capability are important for the effectiveness of evaluation, whereas technological integration only plays a subordinate or adverse role so far. The model is clear in terms of where organizations need to be focusing in order to make their appraisal systems more effective.

Computation / Result	**Value**
Number of distinct sample moments	300
Number of distinct parameters estimated	69
Degrees of freedom (300 – 69)	231
Chi-square (χ^2)	459.308
Degrees of freedom (df)	231
Probability level (p)	.000

Model Fit Summary

CMIN

Model	NPAR	CMIN	DF	P	CMIN/DF
Default model	69	459.308	231	.000	1.988
Saturated model	300	.000	0		
Independence model	24	4288.639	276	.000	15.539

Regression Weights: (Group number 1 - Default model)

	Estimate	S.E.	C.R.	P	Label
PASE <--- HRMP	.526	.055	9.530	***	par_18
PASE <--- TECH	-.071	.055	-1.276	.202	par_19
PASE <--- MANG	.197	.096	2.063	.039	par_20
PASE <--- EMPE	.119	.069	1.737	.082	par_21
PASE <--- LEAD	.376	.108	3.474	***	par_22

Exploratory Analysis and Findings

HRM Practices (HRMP1 – HRMP6): There is a mixed perception of HRM practices evident from the data. More striking patterns are that a considerable number of respondents are facing neutrality or willing to discharge with some HRM practices such as HRMP1, HRMP3 and HRMP5, which signals ambivalence or dissatisfaction with these practices. For HRMP6, a majority agreed/strongly agreed showing that the HRM practice are less negatively received. In general, the data suggest areas of concern that require additional study to enhance employee perceptions and HRM effectiveness.

Efficiency of Performance Appraisal System (PASE1 to PASE3): For these indicators, most respondents expressed negative attitudes with agreement rates of more than 50% for most of them. Both PASE1 and PASE3 exhibit relatively high dissatisfaction, indicating the key challenges for the adoption and effectiveness of the appraisal system. The high level of disagreement indicates that the methods for performance assessments in use today may be inadequate or not being executed properly, thus having negative consequences for employee morale and organizational results.

Technology (TECH1 to TECH4): According to the interpretation, attitudes in regard to technology integration within the organization are in most statements (except one) either negative or neutral. High levels of disagreement, including at TECH3 where 75% disagreed or strongly disagreed, suggest that there was resistance to or disappointment with technology-based efforts. This finding could arise from problems such as insufficient training, bad system usability or ineffective communication about technological tools and suggests the necessity for better approaches in order to elevate technology adoption and satisfaction.

Managerial Competence (MANG1 to MANG4): Results indicate predominant dissatisfaction and scepticism towards managerial competences with disagreement percentages from 54% to 85%. The lack of consensus suggests very serious questions about leadership effectiveness and communication. This perception can impact adversely on employee engagement and organizational climate, highlighting the necessity of management development and improved leadership communication.

Leadership and Succession Planning Support (LEAD1 to LEAD4): The results indicate a strong rejection and doubt of leadership and succession planning support, with disagreement percentages in the range of 50% to above. Such negative views indicate possible lack of leadership, trust and communication in the companies. Specific interventions to develop leadership capacity and succession planning are necessary to rebuild trust and provide organizational stability.

Employee Involvement (EMPE1 to EMPE3): The employee involvement measures show a considerable level of dissatisfaction with disagree rates reaching over 80% for EMPE1 and EMPE2 and over 50% disagreement for EMPE3. These findings underscore the need for more employee-centric approaches to the question of employee involvement and membership in organizational affairs. Given this backdrop, it is essential to address these concerns in order to increase employee engagement, morale and performance.

Structural Equation modelling (SEM) and Findings

The SEM model shows a **good fit** with a Chi-square to degrees of freedom ratio (CMIN/DF) of 1.988, indicating an acceptable model fit.

Regression Weights and Relationships

HRM Practices (HRMP) ! Performance Appraisal System Quality of life (PASE): A moderate and significant positive correlation was found (estimate = 0.526, $p < 0.001$). This so signifies that enhancements in HRM practice is correlated moderately with performance appraisal system effectiveness.

Technological Integration (TECH) ! PASE: The estimated path coefficient was negative and non-significant (estimate = -0.071, p = 0.202), indicating that technological integration that is presently being used does not significantly contribute to enhancing performance appraisal effectiveness.

Managerial Competence (MANG) ! PASE A positive and significant relationship was observed (estimate = 0.197, p = 0.039), meaning that managerial competence fosters better outcomes of the appraisal system.

Employee Involvement (EMPE) ! PASE: A positive but weakly non-significant (estimate = 0.119, p = 0.082) finding is that the relationship between employee involvement and appraisal

effectiveness may be positive but this also needs further exploration.

Leadership and Succession Planning Support (LEAD) ! PASE

A significant positive effect was found (estimate = 0.376, $p < 0.001$), which reiterates the importance of leadership for performance appraisal system effectiveness.

Overall Interpretation

The data and SEM analysis collectively reveal that **HRM practices, managerial competence, and leadership support are key drivers** of performance appraisal system effectiveness in the studied organizations. Technology integration, nonetheless, does not do a great deal as things stand, and it might require to reposition or to improve it strategically so that it influences on valuation results. Employee participation appears to be promising but deserves further scrutiny. The widespread negative to neutral perceptions in a variety of HRM, managerial, technological and leadership dimensions highlight important deficiencies for organizations to address. Such interventions of direct significance to leader development, HRM practices, and the levels of employee engagement on the job, along with technology adoption -oriented strategies, may significantly increase the acceptance and the effective use of the appraisal system.

IV. CONCLUSION AND SUGGESTION

This research set out to investigate the current state of performance appraisal systems within large industrial organizations in India's public and private sectors and to develop a comprehensive framework for their transformation. Through way of extensive exploratory and Structural Equation modelling analysis, the research empirically tested the positive effects of HRM practices, technological integration, management competency, employee involvement and leadership support on to the success of performance appraisal systems [14]. The results suggest that HRM practices, particularly those that encourage the adoption of fair, transparent and developmental styles, have the strongest positive influence on the appraisal system effectiveness. Leadership backing and managerial skill were also reported as key elements influencing the performance of a positive holistic performance appraisal, highlighting the importance of effective management and motivated leadership in establishing such a culture [15-18]. Organizational service orientation had a small positive relationship, suggesting the value of increasing service orientation in the involvement of employees in appraisals. On the other hand, technological integration did not have a significant or even negative effect on APP-EASEL in the present organizational setting. This indicates that, while technology offers potential, the actual application of technology and its alignment with HR activities needs to be dramatically enhanced if it is truly to have an impact on the success of performance management. The research also raised extensive ambivalence and dissatisfaction of employees in various human resource management (HRM) practices, managerial skills, leadership, and technology accordingly indicating an imperative call for reforms in the organizations. These findings illustrate the necessity to take a balanced and human-cantered approach in re-designing appraisal systems that is a coherent set of proper HRM practices, strong leadership, managerial ability, active employee involvement, and deliberate technology use. In sum, the study presents a strong evidence-based blueprint for revamping performance appraisal practices in the complex and unique environment of industrial organizations in India [19-20]. It is only by improving HRM practices and leadership by optimising use of technology that organisations can achieve increased appraisal acceptance, accuracy, and overall effectiveness to not only increase employee motivation and performance, but to also ensure the future success of the organisation.

Author's Declaration:

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