HRM USING AI & DATA SCIENCE

DIPLOMA WALLAH

CSE

Jharkhand University Of Technology (JUT)

UNIT 4: Performance Management

11 Ways HR Can Use AI in Performance Management

AI in goal-setting

Seek out platforms that employ the SMART goal-setting method, and guide employees on how to use GenAI suggestions as a starting point.

AI in performance review automation

Help managers make full use of AI-enhanced performance management features.

AI in skills gap analysis

Forecast future skills requirements using skills assessments, considering industry trends, and using AI to recognize patterns in skill development and usage.

AI in personalized development plans

Empower managers to create efficient, data-driven development plans, and ensure they take advantage of all available AI capabilities.

AI in employee data analysis

Capitalize on employee performance data insights for projects, such as recognizing and rewarding top performers, and discerning training needs.
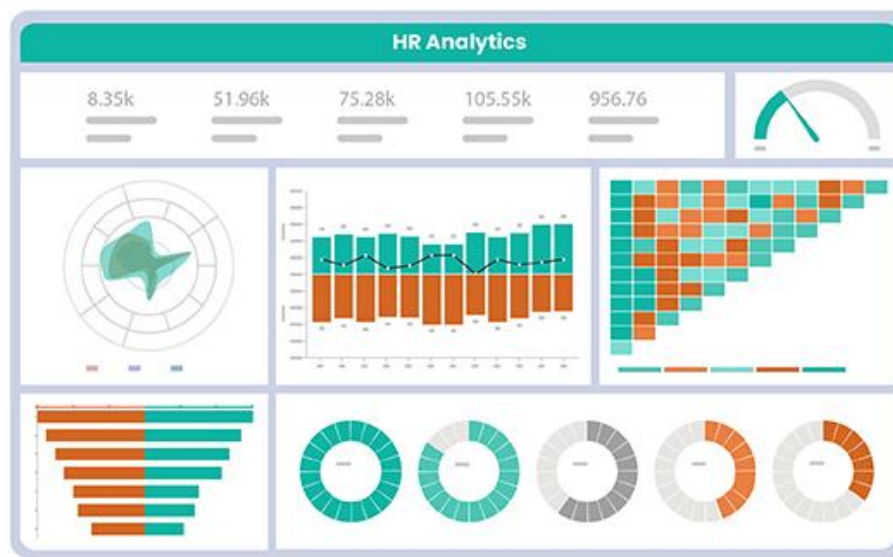
Plus 6 more applications!

57% Employees are 57% less likely than leaders or managers to consider performance management processes successful. *(according to Betterworks)*

DID YOU KNOW?

AIHR | ACADEMY TO INNOVATE HR

HR Analytics Helps You Attract and Retain the Best Talent

4.1 Introduction

- Performance management = process of monitoring, evaluating and improving employee performance in alignment with organisational goals.

- In engineering/technical organisations (manufacturing, automation) key metrics like machine downtime, defect rate, throughput are critical.

- Traditional annual/manual reviews are slow, subjective and may miss real-time issues.

- With AI & Data Science, performance management becomes **continuous, data-driven, real-time**, supporting strategic decision-making. (AIHR)

- Benefits: more accurate evaluation, faster feedback, better alignment of individual with team/organisation, improved engagement and development.

4.2 Compilation of Data from Performance Metrics & Peer Feedback using AI

Key exam points:

1. Define relevant performance metrics for technical roles: e.g., machine uptime, defect rate, cycle time, first-time fix rate.

2. Gather peer/manager/self feedback (qualitative data): teamwork, initiative, communication, technical skill. (HR analytics trends)

3. Use AI/data science to integrate multiple data sources: operational logs, HRIS, feedback systems, LMS.

4. Automate data processing: cleaning, merging, normalising so that AI-driven insights can be generated.

5. Use AI to draft performance reviews: compile metrics + feedback, summarise strengths/weaknesses, suggest development actions. (AIHR)

6. Trend & anomaly detection: alert when performance declines, defect rate rises, or feedback worsens.

7. Benchmarking and fairness: compare employees across shifts, roles, teams to ensure consistent evaluation.

8. Link individual goals to organisational goals and monitor via AI dashboards.

9. Feedback frequency increases: moving from annual to real-time or quarterly check-ins enabled by AI. (macorva.com)

10. Engineering example: A technician whose machine downtime is higher than target and peer feedback indicates slow response; AI suggests additional training + mentor assignment.

4.3 Analytics of Sentiment, Workload & Communication for Engagement & Culture

Key exam points:

- Sentiment analysis: AI tools analyse surveys, chat logs, feedback to detect employee mood, stress, engagement levels.

- Workload pattern analysis: AI reviews hours worked, overtime, task assignments, responsiveness → identifies overload/under-utilisation.

- Communication analytics: network analysis of who collaborates with whom, frequency of chat/email, isolates bottlenecks or isolated employees.

- Combined analytics give holistic insight: e.g., workload high + communication low + negative sentiment = risk of disengagement or performance drop.

- Targeted interventions: e.g., assign mentor, rotate shift, provide additional support/training for flagged employees.

- Engineering/technical context: Operators on night shifts with frequent overtime and limited peer communication flagged for burnout risk, leading to reassignment or peer-buddy support.

- Ethical & privacy issues: Must ensure transparency, employee consent, data protection when analysing communication/sentiment.

- Outcome: Improved job satisfaction, lower attrition, stronger performance culture, better alignment between human and technical factors.

4.4 Implementation & Best Practices

Key exam points:

- Build robust data infrastructure: integrate HR systems, machine/operational systems, communication platforms.

- Define and communicate clear metrics and performance expectations for each role.

- Use AI tools to support (not replace) human judgement — final decisions and coaching still need managers.

- Encourage a culture of continuous feedback (not only annual review). AI enables frequent check-ins and timely interventions.

- Use dashboards/visual tools for HR & managers to monitor performance, engagement, workload signals.

- Ensure transparency, fairness and ethics: employees must understand what data is used and how AI insights are generated.

- Provide training to managers and employees on interpreting AI insights, using dashboards, engaging in meaningful feedback.

- Pilot the system first with a department (e.g., automation engineers) before full rollout.

- Regularly review and update the system: metrics, data sources, AI algorithms must evolve as roles/technology change.

- Link performance management to learning & development: insights from analytics should feed into training plans, skill-development, career progression.

4.5 Summary

- Performance management in the AI era evolves from a static, annual event to a **continuous, integrated, data-driven process**.

- By compiling performance metrics + peer feedback + analytics of sentiment/workload/communication, organisations gain deeper insights into how employees perform, feel and work — especially relevant in technical/engineering contexts.

- For engineering organisations, this means linking operational metrics (machines, defects) with human data (feedback, engagement) to form a complete view.

- The key aim: not just measure, but **develop** — enabling managers to coach, support, and build a high-engagement, high-performance culture.

- Remember: Technology augments human judgement, it doesn't replace it.

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