



HRM USING AI & DATA SCIENCE

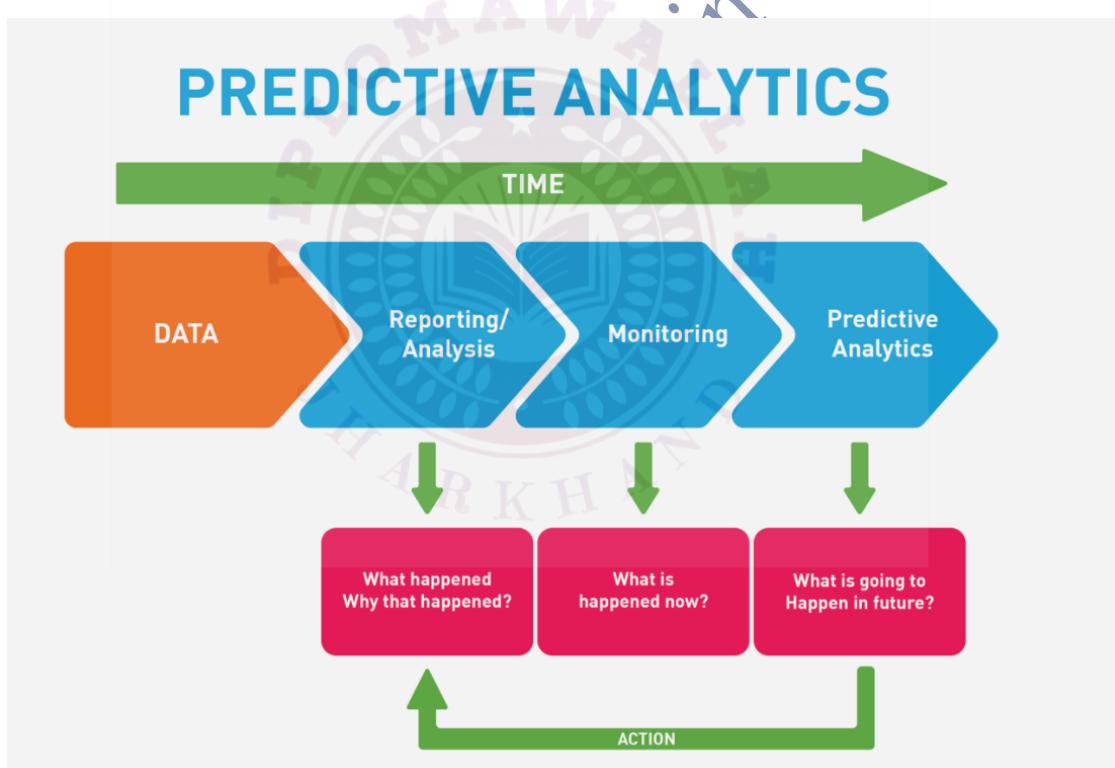
DIPLOMA WALLAH

CSE

Jharkhand University Of Technology (JUT)

UNIT – 6 (Strategic Workforce Planning and HR Process Automation)

1. Predictive Analytics & Data-Driven Insights for Forecasting Talent Needs & Organisational Design







Using Data to Forecast HR Staffing Needs: A Guide to Strategic Talent Planning



What it means

- Predictive analytics in HR uses historical and current data (employee skills, attrition, performance, external labour market trends) to forecast **future workforce needs**: how many people, what skills, what roles, when and where. ([HR Cloud](#))
- Data-driven insights enable strategic decisions: not just “we need more engineers next year” but “we will need 20 automation/data engineers in region X by Q3, skill profile Y, replacement of retirees + expansion”.
- Organisational design decisions: Based on forecasts, you might redesign team structures, shift from traditional job-roles to hybrid roles, align staffing with business strategy (e.g., automation rollout).

Key steps / process

1. Gather internal data: current workforce inventory (skills, roles, count, attrition, performance).
2. Gather external/market data: labour market trends, technology trends, skills in demand. ([myHRfuture](#))



3. Use analytics / ML models to forecast demand & supply: e.g., number of staff needed, skill gaps. ([All HR Software](#))
4. Conduct gap analysis: Demand forecast minus current supply = gap in number of people / skills / roles.
5. Develop action plans: recruitment, up-skilling/reskilling, redeployment, organisational redesign.
6. Monitor & iterate: as business/environment changes, update forecasts and adjust plans. ([Indeed Flex US](#))

Real-Life Example

- A manufacturing/engineering firm anticipating digital automation might use predictive analytics to forecast that in 2 years they will require 30 “IoT-maintenance engineers” whereas currently they have only 10; based on that they launch reskilling of 15 current technicians + hire 5 externally, redesign roles accordingly.
- Another example: A company analysed attrition patterns plus performance drop indicators and predicted that “operators aged 55+ in region Y” are likely to retire in next 18 months; they began succession planning early. ([SHRM](#))

Benefits

- More accurate staffing; fewer surprises, fewer understaffing/over-staffing.
- Aligns workforce with business strategy (especially in technical/engineering fields).
- Helps cost management: recruitment, training, turnover costs reduced.
- Improves agility: when change comes (new tech, automation, regulation) you’re better prepared.

Challenges / Things to note

- Quality of data matters: if workforce or skills data is incomplete, forecasts will be weak. ([HR Cloud](#))
- External events/unpredictables (economy, regulation, tech breakthroughs) can disrupt forecasts.

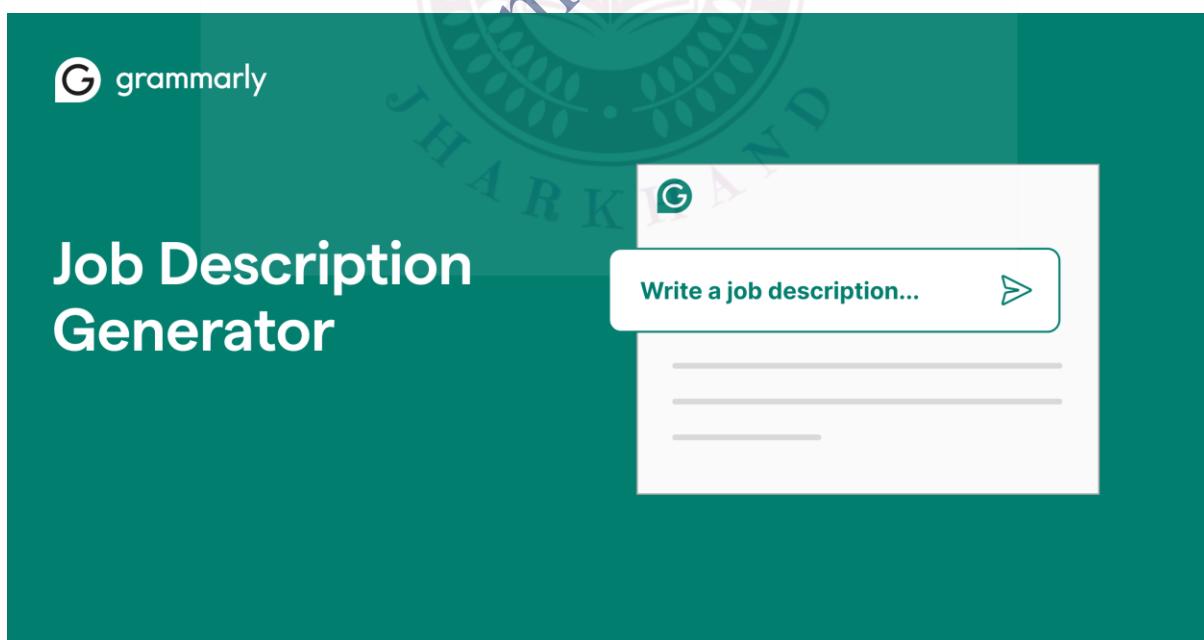


- Requires analytics capability in HR (skills, tools) and alignment with business side.
- Ethical issues: using predictive models about people must be fair, transparent.

Exam-friendly points

- Define predictive analytics in HR: using data to forecast future workforce needs.
- Explain how this informs staffing & organisation design (roles, skills, location, timing)
- Flow: current inventory → forecast demand → gap → action plan → monitor
- Mention one real-life example (e.g., engineering firm anticipating IoT skills).
- List benefits & challenges.

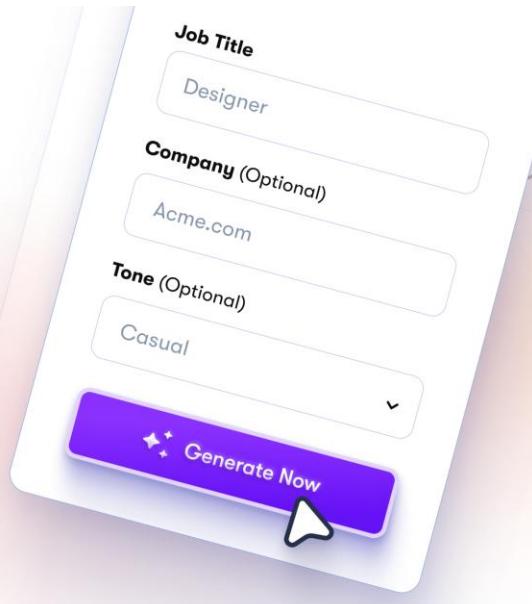
2. AI-Based Automation for Repetitive Administrative HR Tasks





FREE AI Job Description Generator

Generate tailored job descriptions effortlessly with our free JD generator. Attract top talent and build your dream team today!



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Top Benefits of HR Chatbots

1

Increased efficiency
and accuracy

2

Improved Communication

3

Enhanced Employee
Experience

4

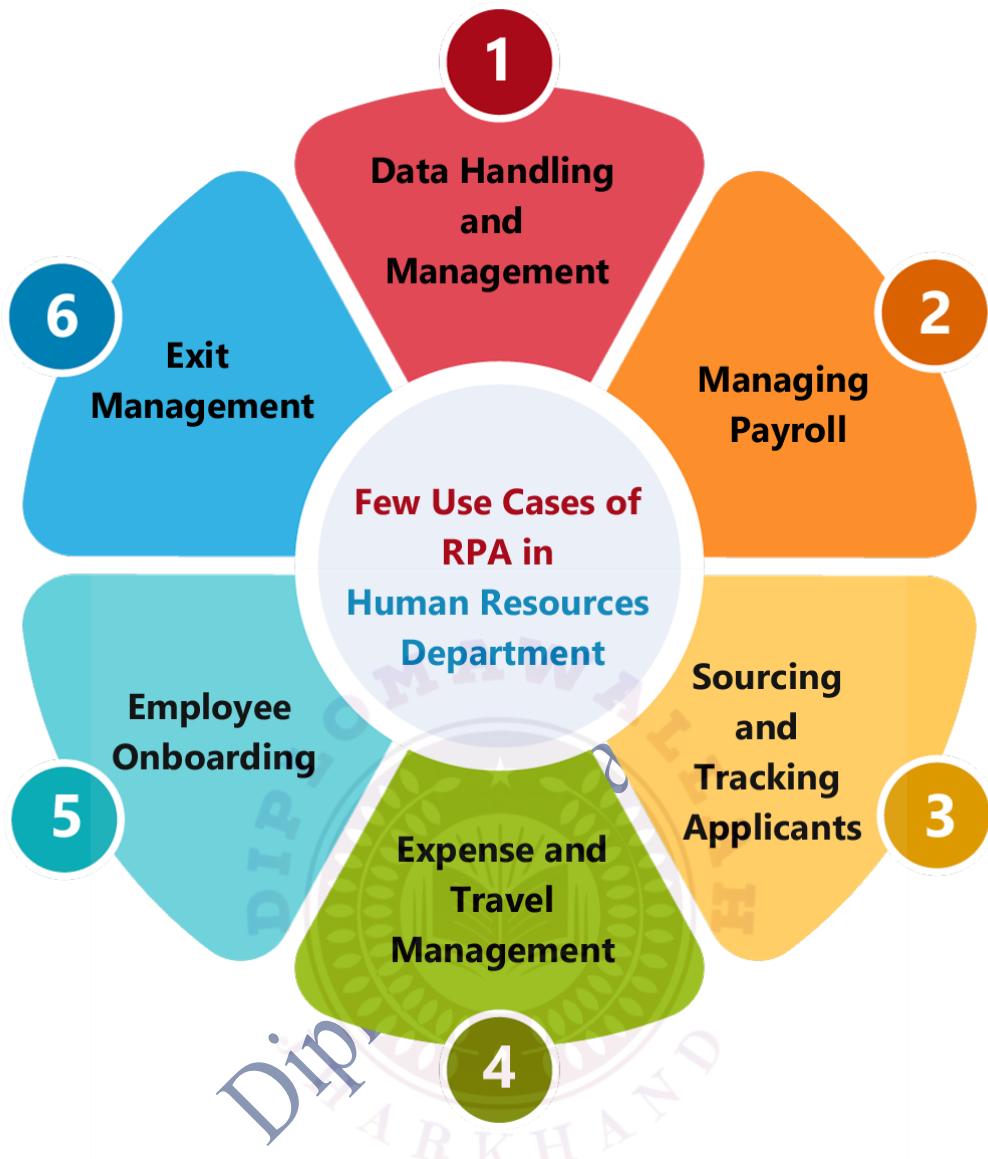
Improved Recruiting
Processes

5

Increased Engagement

capacity®

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What it means

- Many HR administrative tasks (job description drafting, responding to routine employee queries, onboarding workflows, scheduling) are repetitive and rule-based. AI & automation tools can handle these tasks, freeing HR professionals for more strategic work. ([AIHR](#))
- Example tools: AI job-description generators, chatbots for employee self-service, RPA workflows for form-filling/approvals. ([HR Lineup](#))

Key areas / applications



1. **Drafting Job Descriptions & Role Profiles:** AI analyses existing roles + market job posts and generates template draft descriptions which HR edits. ([Pragmatic Coders](#))
2. **Employee Queries & Self-Service Chatbots:** Chatbots handle FAQ's (e.g., leave balance, benefits, policy queries) which reduces HR workload.
3. **Onboarding / Offboarding Automation:** New hire forms, training assignment, reminders, document uploads – automated workflows.
4. **Routine Approvals & Administrative Workflows:** Leave approvals, travel/expense claims, data entry tasks, scheduling. ([HRMS World](#))
5. **Data Collection & Reporting:** Automated generation of certain HR reports (headcount data, turnover metrics) and feeding data into analytics.

Real-Life Example

- A tech/engineering firm used an AI job description generator: HR feeds role name + key skills; system produces a full draft description which HR then edits. This reduced time to post roles by ~40%.
- The same firm deployed a chatbot to answer common employee queries (leave, benefits, training) which handled 60% of queries previously handled by HR staff. HR freed up resources to focus on strategic workforce planning.

Benefits

- Efficiency and time-savings: HR staff spend less on admin, more on strategy.
- Standardisation and accuracy: Consistent job descriptions, fewer errors.
- Better employee experience: faster responses to queries, smoother onboarding.
- Cost reduction: Less manual work, fewer HR admin hours.
- Data generation: Automation workflows produce structured data which can feed into analytics (linking to topic #1).

Challenges / Things to note

- Implementation cost and integration: Tools must link with HRIS, LMS, other systems.
- Change management: HR team must adapt to new process & tool-use.
- Ensuring human oversight: Automation cannot replace HR judgement in strategic matters.
- Data/privacy issues: Automation involves employee data—must ensure security and compliance.
- Unintended consequences: If poorly implemented, may reduce personal touch or employee satisfaction.

Exam-friendly points

- Define HR process automation: use of AI/RPA to handle repetitive admin tasks.
- List key applications: job description generation, chatbots, onboarding, approvals.
- Explain benefits and why engineering/technical organisations especially benefit (many roles, shifts, high volume).
- Mention real-life example with numbers/time savings.
- List challenges.

3. How the Two Topics Link (For Organisational Design & HR Strategy)

- The insights from predictive analytics (Topic 1) feed the automation processes (Topic 2) – e.g., if forecast shows upcoming demand for role X, HR can use automated workflows to create job description, build internal candidate pool, automate queries about training for that role.
- Together they make HR more strategic: rather than HR being reactive (filling roles, answering queries), HR becomes proactive (planning talent pipeline, automating routine tasks, focusing on development, culture, organisational design).

- Example: Engineering firm forecasts need for 50 automation engineers in 12 months → HR uses automation to draft job roles, initiate candidate screening, auto-onboard when hired, and at the same time use analytics to track how quickly internal staff upskills to fill role.

Summary (Hinglish)

“Ab HR ka kaam sirf people hire -- done ya paperwork fill up -- nahi raha. **Predictive analytics** ki madad se hum pehle se hi dekh sakte hain ki agle 1-2 saal me kaunse skills ya roles zaroori honge, aur us hisaab se staffing aur organisation design plan kar sakte hain. Aur saath hi, **AI-based automation** administrative kaam (job-description likhna, employee queries ka jawab dena, onboarding tasks etc) sambhal leta hai — jisse HR professionals ka time strategic kaam (talent development, culture building) ke liye free ho jaata hai. Engineering/technical organisations jahan skill changes tez hote hain aur roles complex hote hain, wahan ye dono practices bahut powerful hain.”

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