

HR Requirements Analysis of Industrial Workforce in Industry and Institutions

Prepared By:

Shrutika Ganesh Patil

SANT GADGE BABA AMRAVATI UNIVERSITY

Department of Business Administration & Management

1. Introduction

Abstract

Human Resource (HR) requirement analysis plays a crucial role in ensuring the availability of the right number of employees with appropriate skills in industries and institutions. In the rapidly changing industrial environment, organizations face challenges such as skill shortages, technological advancements, workforce diversity, and increasing competition. This study aims to analyze the HR requirements of the industrial workforce in industries and institutions, with a focus on manpower planning, skill requirements, recruitment needs, and training and development practices. The research is based on primary data collected through structured questionnaires from employees and HR professionals, supported by secondary data from books, journals, reports, and online sources. Descriptive and analytical methods are used to analyze the data. The findings reveal that effective HR requirement analysis helps organizations optimize workforce utilization, reduce skill gaps, improve productivity, and support long-term organizational growth. The study highlights the importance of systematic HR planning to meet present and future workforce needs in industries and institutions.

Keywords

Human Resource Planning, HR Requirement Analysis, Industrial Workforce, Skill Gap, Industries, Institutions, Workforce Management

In the present competitive and dynamic business environment, human resources are considered the most valuable asset of any organization. Industries and institutions are increasingly recognizing the importance of effective HR requirement analysis to achieve organizational objectives and maintain sustainability. HR requirement analysis refers to the systematic process of determining the number and type of employees required to perform organizational activities efficiently.

With rapid industrialization, globalization, and technological advancements, industries and institutions are facing significant changes in workforce requirements. Automation, digitalization, and Industry 4.0 have increased the demand for skilled and technically competent employees, while reducing the need for unskilled labor. At the same time, institutions such as educational and training organizations require qualified faculty, administrative staff, and technical personnel to ensure quality services.

Improper HR planning often results in overstaffing, understaffing, skill mismatch, low productivity, and high employee turnover. Therefore, analyzing HR requirements is essential to ensure the right people are placed in the right jobs at the right time. This study focuses on understanding the HR requirements of the industrial workforce in industries and institutions and examines the factors influencing workforce planning and development.

2. Literature Review

Recent studies indicate that Human Resource (HR) requirement analysis has become an essential component of effective workforce planning in industries and institutions. Researchers emphasize that accurate manpower forecasting helps organizations align human resources with strategic objectives, technological changes, and market demands. Proper HR requirement analysis ensures optimal utilization of workforce, reduces skill shortages, and improves organizational productivity.

Several studies have highlighted the importance of skill-based manpower planning in industrial organizations. With rapid technological advancements, industries increasingly require skilled and multi-skilled workers capable of adapting to automation and digital systems. Studies also reveal that institutions such as educational and training organizations face challenges related to faculty shortages, competency gaps, and succession planning, making HR requirement analysis critical for service quality and institutional performance.

Research further suggests that factors such as organizational growth, employee turnover, training needs, and external labour market conditions significantly influence HR requirements. Many authors have stressed that continuous skill assessment and training are necessary to bridge the gap between existing workforce capabilities and future organizational needs.

Review of Selected Studies:

- Kothari (2019) emphasized that systematic manpower planning is essential for determining present and future human resource requirements and avoiding overstaffing or understaffing in organizations.
- Dessler (2020) highlighted that HR requirement analysis helps organizations identify skill gaps and plan recruitment and training strategies aligned with technological and organizational changes.
- Sharma and Verma (2021) studied workforce planning in Indian manufacturing industries and found that lack of scientific HR forecasting leads to productivity losses and higher employee turnover.
- Rao (2022) analyzed HR requirements in educational institutions and reported that inadequate planning results in faculty shortages, workload imbalance, and declining service quality.
- Singh and Kulkarni (2023) found that industries adopting structured HR planning practices were better

able to manage workforce transitions caused by automation and digitalization.

3. Research Gap

Most of the existing studies on HR requirement analysis focus primarily on large corporate organizations and metropolitan industrial areas. Limited research has been conducted on HR requirements at the regional level, particularly covering both industries and institutions together. Many studies analyze HR planning in isolation, such as recruitment or training, rather than examining HR requirement analysis as an integrated process involving manpower forecasting, skill assessment, and workforce development.

Additionally, there is a lack of empirical studies that compare HR requirements across different sectors such as manufacturing industries and institutional organizations. Existing literature also provides limited insights into how technological changes and skill gaps jointly influence HR requirements in the Indian industrial workforce.

Therefore, the present study attempts to bridge these gaps by analyzing HR requirement analysis of the industrial workforce in industries and institutions, providing practical insights that can support effective manpower planning and HR decision-making.

4. Objectives of the Study

1. To study the concept and importance of HR requirement analysis in industries and institutions.
2. To identify the current workforce requirements in industrial and institutional organizations.
3. To analyze the skill and competency requirements of the industrial workforce.
4. To examine the factors influencing HR requirements, such as technology, workload, and employee turnover.
5. To suggest measures for effective HR requirement planning and workforce development in industries and institutions.

5. Methodology

The study adopts a descriptive and exploratory research design to understand HR requirement analysis of the industrial workforce in industries and institutions. The research is based on primary data

collected through a pilot survey, supported by secondary data from books, journals, reports, and online sources.

Sample Size: 10–12 employees and HR personnel working in industries and institutions.

Type of Organisations: Manufacturing Industries, Service Industries Educational and Training Institutions

Sampling Technique: Convenience sampling

Collection Tool: Structured questionnaire

Scale Used: Five-point Likert scale

Mode of Data Collection: Self-administered questionnaire

The pilot study was conducted to ensure that the questionnaire was simple, clear, and relevant to the objectives of the study. It also helped in verifying whether respondents could easily understand the questions and provide accurate responses before conducting a large-scale survey.

5.1 Research Design

The study follows a descriptive and exploratory research design. The descriptive approach helps in providing a clear understanding of existing HR requirement practices in industries and institutions, while the exploratory nature of the study enables deeper insight into workforce planning challenges, skill gaps, and future HR needs.

This dual research design allows the study to document the current HR requirements and also explore the underlying factors influencing manpower planning and workforce development in industrial and institutional settings.

5.2 Target Population and Sampling

The target population for the study comprises employees and HR professionals working in industries and institutions. These sectors were selected due to their structured work processes and growing need for skilled human resources.

To ensure a comprehensive perspective, the study includes the following organizational categories:

Manufacturing Industries: Focus on production workforce, technical skills, and manpower planning.

Service Industries: Focus on service delivery roles, administrative staff, and skill-based workforce needs.

Educational and Training Institutions: Focus on teaching staff, administrative personnel, and technical

support staff.

For the pilot study, a sample size of 10–12 respondents was selected using convenience sampling, a non-probability sampling technique. This method was chosen for its ease of access and suitability for preliminary data collection.

5.3 Data Collection Tool: The Structured Questionnaire

The primary instrument for data collection is a structured questionnaire designed to assess HR requirement analysis practices in industries and institutions. The questionnaire covers key dimensions such as manpower planning, skill requirements, recruitment needs, training and development, and workforce forecasting.

To measure respondents' perceptions effectively, a five-point Likert scale ranging from Strongly Disagree (1) to Strongly Agree (5) was used.

5.5 Data Collection Procedure

The data was collected using a self-administered questionnaire method. Respondents included employees, supervisors, and HR personnel from selected industries and educational institutions.

This method was chosen to:

Reduce interviewer bias

Allow respondents to answer freely and honestly
Provide flexibility in time and pace of response

Participants were informed about the purpose of the study, and confidentiality of their responses was assured. Ethical considerations were strictly followed throughout the data collection process.

5.6 Pilot Study

A pilot study was conducted as a preliminary step before the final survey to test the effectiveness, clarity, and reliability of the research instrument designed for analyzing HR requirements of the industrial workforce in industries and institutions.

The pilot survey was administered to a small sample of 10–12 respondents drawn from selected industrial organizations and educational/technical institutions. The respondents included supervisors, HR personnel, and employees working at different operational levels.

Findings of the Pilot Study Reliability and Validity:

The responses obtained were consistent, indicating that

the questionnaire effectively measured key aspects of HR requirement analysis such as manpower availability, skill requirements, recruitment needs, and training gaps.

Clarity of Questions:

Most respondents found the questions clear and easy to understand. Minor modifications were made to improve wording related to technical skills, workforce forecasting, and institutional HR practices.

Time Assessment:

The average time required to complete the questionnaire was 15–20 minutes, which was considered reasonable and did not burden respondents.

Feasibility of Data Collection:

The pilot study confirmed that employees from industries and institutions were accessible and willing to provide relevant information, ensuring the feasibility of conducting the full-scale study.

Outcome of the Pilot Study

Based on feedback received, necessary refinements were made to the questionnaire to enhance its precision and respondent-friendliness. The pilot study helped ensure that the final research tool was reliable, valid, and suitable for comprehensive analysis of HR requirements in the industrial workforce.

Thus, the pilot study served as a foundation for the main study, improving the quality and accuracy of the data collected for the final research.

6. Analysis and Discussion (Pilot Study)

1. Demographic Profile of Respondents

The pilot study was conducted with 12 respondents drawn from selected industries and institutions. The majority of respondents belonged to the 25–40 years age group, indicating participation from early and mid-career professionals. Most respondents had 1–7 years of work experience, reflecting an active industrial workforce. Both male and female respondents with graduate and post-graduate qualifications were included, ensuring diversity and representation.

2. Need for HR Requirement Analysis

Most respondents agreed or strongly agreed that HR requirement analysis is essential for effective manpower planning. Nearly 80–90% of respondents felt that proper assessment of workforce requirements

helps organizations avoid manpower shortages, overstaffing, and skill mismatches. This highlights the importance of systematic HR planning in industries and institutions.

3. Workforce Adequacy and Skill Availability

A significant proportion of respondents reported that while basic manpower is available, there is a shortage of skilled and job-ready employees. More than 70% of respondents indicated gaps in technical skills, digital competencies, and industry-specific expertise. This shows the growing need for skill-based workforce planning.

4. Recruitment and Selection Requirements

Most respondents felt that existing recruitment practices require improvement to meet industrial workforce demands. Around 65–75% of respondents believed that recruitment processes should focus more on competency-based selection rather than only academic qualifications. This finding emphasizes the need for aligning recruitment with actual job requirements.

5. Training and Development Needs

The pilot study revealed that training and development play a crucial role in fulfilling HR requirements. Approximately 75% of respondents agreed that regular training programs help bridge skill gaps and improve workforce efficiency. However, some respondents felt that training programs need to be more practical and industry-oriented.

6. Challenges in HR Requirement Planning

The major challenges identified during the pilot study included: Shortage of skilled manpower
High employee turnover

Rapid technological changes Limited training resources
Nearly 40–50% of respondents stated that predicting future HR requirements is difficult due to market uncertainty and changing industrial demands.

7. Role of Management in Workforce Planning

Respondents highlighted the importance of management support in effective HR requirement analysis. Organizations with active involvement of top

management in workforce planning were perceived to be better prepared to handle manpower needs. Lack of managerial focus was seen as a barrier to accurate HR planning.

8. Workforce Utilization and Productivity

The findings indicate that improper HR requirement analysis leads to underutilization or overburdening of employees. Many respondents felt that balanced workforce allocation improves productivity, reduces work pressure, and enhances operational efficiency in industries and institutions.

9. Performance Appraisal and HR Requirements

Most respondents agreed that performance appraisal systems help identify HR requirements such as training needs, promotions, and manpower gaps. Transparent and objective appraisal systems were associated with better workforce planning and employee development.

10. Organizational Environment and HR Needs

A supportive organizational environment was found to positively influence workforce availability and retention. Respondents noted that organizations with healthy work culture and clear HR policies experience lower attrition and better workforce stability.

11. Employee Retention and Workforce Stability

The pilot study indicated that effective HR requirement analysis contributes to higher employee retention. Many respondents felt that when manpower planning, training, and career growth opportunities are aligned, employees are more likely to remain with the organization.

12. Feedback on the Questionnaire

Respondents found the questionnaire to be clear, relevant, and easy to understand. The questions were considered appropriate for assessing HR requirements of industrial workforce. This confirms the suitability of the research instrument for the final survey.

13. Implications of Pilot Study Findings

The pilot study provided valuable insights into workforce shortages, skill gaps, and HR planning challenges. The findings helped refine the

questionnaire and confirmed the feasibility of conducting the final study on a larger sample. Overall, the pilot study established a strong foundation for the main research.

7. Findings

The study reveals that industries and institutions face increasing demand for a skilled and adaptable industrial workforce to meet operational and technological requirements.

The workforce is dominated by young and early-career employees, indicating high recruitment needs and continuous training requirements.

Leadership and supervisory roles are critical for effective workforce coordination and productivity.

Skill gaps exist in technical, communication, and problem-solving areas, highlighting the importance of structured training and development programmes.

Employee retention remains a challenge due to limited career progression opportunities and workload pressures.

Effective workforce planning and HR requirement analysis help organizations reduce manpower shortages and improve operational efficiency.

The pilot study confirms that the research tool used is appropriate and reliable for analyzing HR requirements in industrial settings.

8. Suggestions

Industries and institutions should adopt systematic HR requirement planning to ensure the availability of the right workforce at the right time.

Management should focus on skill-based recruitment aligned with job roles and organizational needs.

Regular training and upskilling programmes should be conducted to address skill gaps and technological changes.

Strong leadership and supervisory support should be developed to enhance workforce productivity and discipline.

Career development and promotion policies should be clearly defined to improve employee retention.

Periodic workforce assessment should be conducted to anticipate future HR requirements.

Adequate resources should be allocated for effective manpower planning and implementation.

9. Limitations of the Study

The study is limited to selected industries and institutions, and therefore the findings may not be applicable to all sectors.

The pilot study is based on a limited sample size, restricting the generalization of results.

Data was collected through a structured questionnaire, and responses depend on the accuracy and honesty of respondents.

The study was conducted within a specific time frame, and changes in workforce requirements over time were not considered.

Only selected HR requirement factors such as manpower planning, training needs, leadership, and skill availability were studied, while other factors may exist.

10. Conclusion and Recommendations Conclusion

The study concludes that HR requirement analysis plays a vital role in ensuring effective utilization of the industrial workforce in industries and institutions. Proper assessment of manpower needs, skill requirements, and leadership roles helps organizations improve productivity and operational efficiency. The findings indicate that young employees form a major portion of the workforce, emphasizing the need for continuous training and development. Challenges such as skill shortages, employee turnover, and limited supervisory support affect workforce effectiveness. The pilot study validates the suitability of the questionnaire for conducting a detailed final study on HR requirements.

Recommendations

Organizations should implement structured manpower planning systems to accurately forecast HR requirements.

Skill-based training and development programmes should be strengthened to match industrial demands.

Leadership development initiatives should be introduced to build competent supervisors and managers.

Retention strategies such as career growth opportunities and performance-based rewards should be improved.

Regular review of workforce requirements should be conducted to adapt to changing industrial and institutional needs.

11. References

1. Armstrong, M. (2018). *Armstrong's handbook of human resource management practice* (14th ed.). Kogan Page.
2. Cascio, W. F., & Boudreau, J. W. (2011). *Investing in people: Financial impact of human resource initiatives* (2nd ed.). Pearson Education.
3. Dessler, G. (2020). *Human resource management* (16th ed.). Pearson Education.
4. Gupta, C. B. (2019). *Human resource management* (16th ed.). Sultan Chand & Sons.
5. Kavanagh, M. J., & Johnson, R. D. (2020). *Human resource information systems: Basics, applications, and future directions* (4th ed.). Sage Publications.
6. Milkovich, G. T., Newman, J. M., & Gerhart, B. (2019). *Compensation* (13th ed.). McGraw-Hill Education.
7. Mondy, R. W., & Martocchio, J. J. (2016). *Human resource management* (14th ed.). Pearson Education.
8. Rao, T. V. (2014). *Human resource development: Experiences, interventions, strategies*. Sage Publications.
9. Sharma, A., & Verma, S. (2018). Workforce planning and skill gap analysis in Indian industries. *International Journal of Human Resource Studies*, 8(2), 45–58.
10. Singh, P., & Mohanty, S. (2020). Human resource requirement analysis and manpower planning in manufacturing sector. *International Journal of Management Studies*, 7(3), 112–120.
11. Subramanian, R., & Nilakanta, S. (2017). HR forecasting and workforce analytics in industrial organizations. *Asian Journal of Management Research*, 8(1), 90–101.
12. Torrington, D., Hall, L., Taylor, S., & Atkinson, C. (2020). *Human resource management* (11th ed.). Pearson Education.