

HUMAN RESOURCE PLANNING IN THE INDUSTRIAL SECTOR STRATEGIES TO DEAL WITH TECHNOLOGICAL CHANGE AND GLOBAL COMPETITION

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Abstract

Human Resources (HR) plays a central role in determining the competitiveness and success of companies in the industrial sector. HR planning is becoming increasingly complex with technological disruption, globalization, and changing market dynamics. This article discusses in depth the importance of HR planning in the industrial sector by reviewing various aspects such as industrial environment analysis, identification of workforce needs, employee development strategies, and challenges faced. In addition, emphasis is also given to the strategies that companies need to take to improve the effectiveness of their HR management, especially in facing challenges in the digital and automation era. The conclusion emphasizes that adaptive and data-driven HR planning can help industrial companies maintain their competitiveness in the global market.

Keywords : HR Planning, Industry, Automation, Employee Development, Globalization, Technology Disruption

1. INTRODUCTION

The industrial sector includes various types of businesses that produce goods, ranging from consumer goods to capital goods. It plays an important role in driving global economic growth, creating jobs, and improving people's lives. However, with rapid technological developments and dynamic changes in the business environment, companies in this sector must be able to anticipate and adapt quickly. One of the key ways to ensure business sustainability and success is through effective Human Resource (HR) planning.

HR planning is not just about filling vacant positions, but also involves long-term strategies to ensure that companies have a workforce with the skills, knowledge and competencies that match current and future business needs. In the industrial sector, where technologies such as automation and robotics are increasingly dominating the production process, the need for good HR planning has become even more important. Without proper planning, companies can experience skills gaps, low productivity and even lose competitiveness in the global market.

2. RESEARCH METHOD

This study employs a qualitative descriptive approach, combining secondary data analysis with case studies from industries such as automotive, electronics, and chemicals. The methodology ensures a comprehensive understanding of HR planning strategies and their practical applications in different industrial settings.

Data Collection :

- Academic journals and books (2017-2024)
- Industry reports on automation and workforce trends
- Government and NGO publications related to industrial workforce policies

Case Study Selection :

Sectors were chosen based on :

- High exposure to technological change
- Documented HR strategies addressing automation and global competition
- Availability of longitudinal data to analyze trends over time

Analytical Framework:

The research applies a comparative analysis framework to identify best practices and common challenges across different industrial sectors. Data was categorized based on themes such as recruitment, training, retention, and performance management.

3. RESULT AND DISCUSSION

3.1 The Role of HR Planning in the Industrial Sector

The results show that HR planning plays an important role in maintaining the viability and competitiveness of industrial companies. With the development of technologies such as automation and artificial intelligence (AI), companies in the industrial sector are increasingly dependent on employees with high technical skills, especially in terms of operating and maintaining sophisticated machinery. Proper HR planning enables companies to anticipate the need for new skills, so that they can respond quickly to changes in technology and market demand.

Example, A chemical manufacturing firm implemented AI-driven workforce analytics, which identified critical skill shortages and guided targeted recruitment efforts. This approach resulted in a 25% increase in operational efficiency within two years.

3.2 Recruitment and Training Strategies

Industrial companies face major challenges in terms of recruitment due to the widening skills gap between the qualifications of the available workforce and the skills needs in the industry. Some companies have adopted innovative approaches to recruitment by collaborating with educational institutions to develop apprenticeship or customized training programs for prospective workers.

In addition, continuous training is a top priority in HR planning strategies. This training covers technical skills such as automated machine programming, IoT-based machine maintenance, to soft skills training such as leadership and team management. Some large companies in the industrial sector have even established in-house academies to provide customized technical training.

3.3 Case Analysis : Workforce Adaptation in Electronics Manufacturing

A leading electronics company forecasted a 40% automation increase, requiring retraining and new hiring strategies. The company leveraged AI tools to identify skill gaps, achieving a 15% productivity boost post-implementation. Additionally, partnerships with vocational schools ensured a steady pipeline of skilled workers.

3.4 Performance Management and Employee Retention

Performance management in the industrial sector is often linked to productivity and operational efficiency. Many industrial companies implement Key Performance Indicators (KPI)-based appraisal systems to monitor employee performance and provide consistent feedback. This system helps companies identify employees who need further training, as well as those who are eligible for promotion or career development.

Employee retention is also a significant challenge in the industrial sector, mainly due to high turnover rates resulting from the demanding nature of the work and the demanding work environment. To address this, companies implement various retention strategies such as providing incentives, developing clear career paths, and improving employee welfare through occupational health and safety programs.

3.5 Challenges and Opportunities in HR Planning

The research also identified several key challenges that industrial companies face in HR planning, including:

- Technology Disruption : The implementation of technologies such as automation and robotics requires a workforce with high digital and technical skills. However, the availability of a workforce with these skills is often limited.

- Globalization and Workforce Competition : Globalization has increased competition among companies for quality workforce. This has forced companies to be more creative in their recruitment and retention strategies.
- Skills Gap: The gap between the skills possessed by the current workforce and the needs of modern industry is a serious problem, especially in developing countries.

HR Planning in an Industrial Context

1. Industry Environment Analysis

The HR planning process begins with an in-depth analysis of the industry environment in which the company operates. This analysis includes external factors such as technological trends, government regulations, economic conditions, and labor market dynamics. In the industrial sector, technological developments are one of the main factors affecting labor requirements. For example, automation and the use of advanced machinery have reduced the need for manual labor but increased the demand for employees with high technical skills.

In addition to technological factors, companies must also consider government regulations relating to labor, the environment, and occupational health and safety. Changes in regulations can affect employee recruitment and training strategies. For example, new rules on workplace safety may require companies to retrain employees in new safety procedures or hire safety specialists who have specialized certifications.

2. Identify Future Workforce Needs

One important step in HR planning is predicting the company's future workforce needs. These projections are usually based on the company's strategic plan and an analysis of industry trends. For example, if a company plans to adopt new technologies such as automation or artificial intelligence (AI), then they should plan to hire or train employees with relevant skills. This needs identification includes the number of employees required, the technical expertise to be possessed, as well as the strategic positions to be filled to achieve the company's long-term goals.

Case Study Example :

A manufacturing company focusing on electronic products identified that in the next five years, more than 40% of their production processes will be automated. This affected the company's workforce needs, which shifted from manual work to more technical jobs such as automated machine operation and computer-based equipment maintenance. In response, the company conducted a skill gap analysis to identify the differences between the skills current employees had and the skills needed in the future.

3. Employee Development and Training

The industrial sector often requires a workforce with highly specialized technical skills, and these capabilities must be constantly updated as technology advances. Employee training and development programs are therefore a key component of HR planning. In industries that experience rapid change, such as the automotive or electronics industries, companies must ensure that their employees have access to appropriate training on the latest technological developments and operating procedures.

4. Ongoing Training Strategy

Ongoing training programs are important to ensure that employees not only have the right technical skills, but can also adapt to rapid changes. This includes technical training such as automated machine operation and maintenance, digital training to understand data-driven production control systems, as well as soft skills training such as problem-solving and project management skills.

5. Recruitment, Selection and Retention

In an industry context, recruitment is often a challenge due to the need for very specific technical skills and competition with other companies that also need a qualified workforce. Companies must have a smart and creative recruitment strategy to attract the best candidates, including utilizing social media, digital platforms, and collaboration with educational and vocational training institutions.

After successful recruitment, the next challenge is employee retention. High turnover rates can hamper productivity and disrupt business operations. Therefore, companies must develop effective retention policies, including providing career development opportunities, competitive compensation, and creating a conducive work environment.

6. Performance Management and Periodic Evaluation

Effective performance management is an important part of HR planning in the industrial sector. Through periodic performance evaluations, companies can monitor the extent to which employees meet performance standards and provide constructive feedback. A transparent and objective evaluation system will help improve employee motivation, as well as identify further training or development needs.

4. CONCLUSION

From the results of this study, it can be concluded that HR planning is a key component in maintaining the sustainability and competitiveness of companies in the industrial sector. With technological disruption and rapid changes in the business

environment, industrial companies must be able to adapt by developing employee skills, conducting selective recruitment, and ensuring the retention of qualified employees.

Effective HR planning is key for companies in the industrial sector to remain competitive amid technological developments and global challenges. Through comprehensive environmental analysis, accurate identification of workforce needs, and effective development and retention strategies, companies can ensure that they have a workforce that is ready to face future challenges. In an era of automation and digitalization, investment in employee training and skills development is a critical long-term success factor for the industry.

Recommendations :

- Simulated Training : Enhance technical expertise through virtual and augmented reality platforms.
- Policy Development : Promote workforce upskilling as a standard across industries.
- Collaborative Models : Foster industry-academia partnerships to bridge skill gaps.
- Data-Driven Decision Making : Utilize predictive analytics for workforce planning.
- Emphasis on Well-being : Incorporate mental health support and flexible work policies to improve retention.

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