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ANALYSIS OF LABOR NEEDS AT THE END OF THE YEAR BASED ON WORKLOAD WITH WORKLOAD INDICATOR OF STAFFING NEED (WISN) METHOD AT ILJEONG METAL CO.LTD SOUTH KOREA

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Abstract

This study aims to analyze the labor needs at the end of the year at Il Jeong Metal Co. Ltd, South Korea, by utilizing the Workload Indicator of Staffing Need (WISN) method to evaluate the workload. The WISN method was chosen because of its ability to provide a clear picture of staff needs based on the volume of work available. Data were collected through workload surveys and interviews with managers and employees in various departments. The results of the analysis showed that there was an imbalance between the number of available workers, which was only 21 people, and the workload that had to be completed, especially in the production and quality control departments, which should have been 32 people. These findings indicate the need for adjustment of the number of employees to achieve optimal operational efficiency. By implementing the recommendations generated from the WISN analysis, Il Jeong Metal Co. Ltd is expected to increase productivity and minimize work stress among employees. This study offers significant insights for management in the decision-making process regarding the recruitment and redeployment of workers, and contributes to the literature on human resource management in the manufacturing industry.

Keywords: Human Resource Needs, Workload Level, Workload Indicator for Staff Needs (WISN)

Introduction

South Korean industries have seen substantial progress in recent years. IL Jeong Metal Co. Ltd., also known as IL Jeong Industrial Co. Ltd., is a company based in Gyeongju-si, Gyeongsangbuk-do, South Korea. Founded in 2001, the company is engaged in the production and distribution of various types of engine parts for Hyundai and Kia vehicles. With a focus on innovation and quality, IL Jeong Metal has carved out a strong reputation in the engine parts industry, especially in the automotive segment. Global demand for high-quality products continues to increase, prompting companies to improve production capabilities and operational efficiency. Analysis of workforce needs in this context is crucial to ensure that companies have sufficient quantity and quality of human resources to meet market demand. The need for an efficient and effective workforce is a crucial aspect of human resource management, especially in the manufacturing industry that faces rapid market dynamics. IL Jeong Metal Co. Ltd., as one of the leading companies in South Korea, faces challenges in managing workload and staffing needs, especially towards the end of the year when product demand increases. Previous research shows that companies that cannot manage the number of workers that must be adjusted to the level of workload tend to experience decreased productivity and product quality. Therefore, a deep understanding of workforce needs is essential to improve operational efficiency.

IL Jeong Metal Co.Ltd is committed to improving its operational efficiency through the application of modern technology and effective human resource management. He stated that “Human Resource Management (HRM) is the stage of utilizing individuals in the scheme of achieving organizational targets. Every worker will face various issues related to Human Resource (HR) which include environmental challenges, organizational challenges, and individual challenges” Mondy Wayne, 2008, as quoted in Noor et al., 2023, p. 4). Successful human resource management is the main key to achieving success in an organization. At IL Jeong Metal Co.Ltd, a deep understanding of workforce needs helps in strategic planning and employee development. By using the right methods, companies can optimize the use of labor and increase overall productivity. According to Sukamdani, N. B. (2023), “HRM is a discipline and skill in managing relationships and the role of human resources so that they can function optimally and productively in supporting the realization of company, employee, and community goals”. In this context, Workload Indicator of Staffing Need (WISN) is a method that serves as an important tool in describing human resource needs. This method has been proven effective in various previous studies, the required workforce needs are balanced with the ongoing workload, providing a structured method for

identifying the required human resource needs according to the ongoing workload. In utilizing WISN, companies can identify staff shortages or excesses more accurately, which in turn can help in better workforce planning. In the research conducted, researchers hope to be able to contribute very highly to human resource management at IL Jeong Metal Co. Ltd.

According to research by Budiman et al. (2023). Analyzing workforce needs based on workload using the staff request system (WISN) at the medical records unit of the Dr. R. Suharsono Level III Hospital. This study was conducted with a descriptive approach and cross-sectional design and showed that the Workforce Network (WISN) method has met workforce needs. Kusuma (2021). Analyzing energy needs. The duties of registered officers implement employee procedures at the UPTD Puskesmas. The analysis of worker needs refers to the number and amount of work that employees must complete in a year, while the workload refers to the number of types of work that need to be done. This is done by professional health workers within one year of work. (Kusumah 2021). Wanri et al. (2018). Analysis of department capacity needs based on workload was carried out using the work model method using the WISN method to improve the quality of outpatient polyclinic services at the Dr. Brathanatha Jembi Hospital in 2018. This study used a qualitative approach and practical sampling method. The results of the calculation of administrative staff using the WISN method show that there is still a shortage of qualified personnel. Cania (2020). Employee demand based on work pressure using the job index method is one type of human demand research that uses a qualitative approach, where the quantitative data obtained shows a low number of jobs. and research from Ekawati & Subekti (2022). Analysis of the activities and needs of girls was carried out using the integrated method of Job Portfolio and employee needs indicators. This type of research is descriptive qualitative research using observation methods, in-depth interviews and text analysis. The results of this study indicate that the number of workers must be increased.

Problems faced by IL Jeong Metal Co. Ltd Workload is a key factor in determining workforce needs. Analyzing data related to work days, annual leave, education and training and absence is essential to achieve a comprehensive understanding of HR needs. Knowing what each employee does, IL Jeong Metal Co. Ltd can plan more effective scheduling and task distribution workforce needs include the mismatch between the number of employees available and the workload to be completed. As postulated by Umi Sukamti (as quoted in Sukamdani (2023). "There are two main objectives in human resource planning, namely: (1) general objectives, which aim to support the organization in the efficient use of human resources for the benefit of individual employees and the interests of the organization as a whole. (2) Specific objectives, which focus on HR planning that will be implemented in the future in the organization or company. "According to Ermawati & Hardy (2022), "To overcome employment problems, it is necessary to plan employee needs using the WISN method to reduce errors caused by the amount of work." This phenomenon often results in high work stress among employees, as well as decreased motivation and productivity. With increasing market demands, companies must immediately address this problem in order to remain competitive and meet customer expectations. This study aims to analyze the human resource needs of the company using a method based on data. Through workforce needs analysis using the WISN method, IL Jeong Metal Co. Ltd can identify workforce shortages or excesses accurately. This allows the company to take proactive action in employee recruitment, training, and development, thereby increasing productivity and job satisfaction.

This study aims to analyze the workforce needs at IL Jeong Metal Co. Ltd based on workload using the WISN method. By conducting this analysis, it is expected to identify the number of workers needed to achieve optimal operational efficiency. This study aims to provide strategic recommendations to company management in the stages related to deciding on recruitment and redistribution of human resources. The benefits of this study are not only limited to IL Jeong Metal Co. Ltd. However, the statement can also be a reference for other companies in the manufacturing sector that face similar problems. By understanding workforce needs accurately, the Company can take appropriate actions to improve efficiency and create a more conducive working atmosphere. This research is expected to provide useful insights to develop theories and practices in human resource management, as well as contribute to the existing literature in this field.

Research Method

This study applies a qualitative method in its analysis of workforce needs at IL Jeong Metal Co. Ltd based on the evaluation of workload carried out using the Workload Indicator of Staffing Need (WISN) method. Sugiyono & Lestari (2021) the method is better known as the naturalistic research method because it is carried out in natural conditions. This approach is based on the principle of postpositivism, and this method is also known as an interpretive method because the results of the study focus more on interpreting data collected in the field. The qualitative approach was chosen because it provides

researchers with the opportunity to deeply understand the dynamics and perceptions that exist within the organization. Through interviews and group discussions, researchers can explore richer information about the experiences of employees and managers regarding workload and staff needs.

This research was conducted at IL Jeong Metal Co. Ltd, located in South Korea. The location was chosen based on the company's status as one of the major players in the manufacturing industry, thus providing a relevant context for the analysis of workforce needs. The research was conducted in the production department. The sources in this research were generated from two main sources, namely primary sources and secondary sources. Primary sources consisted of in-depth interviews conducted with managers and employees from various departments. In addition, focus group discussions were also conducted to obtain a collective view of the challenges faced in workforce management. Secondary sources included internal company documents, annual reports, and statistical data related to workforce productivity and performance.

Data collection was conducted through the application of semi-structured interviews, where researchers utilized an interview guide as a reference designed to explore information related to employee experiences and perceptions of workload. These interviews were recorded, and the transcripts were analyzed to identify emerging themes. In addition, focus group discussions were conducted to discuss specific issues related to workforce needs and to obtain views from various departments. Data collected through interviews and focus groups were analyzed using thematic analysis methods. This process involves coding data to find themes and patterns related to the research objectives. Each theme was evaluated to understand how these factors interrelate and contribute to workforce needs. The results of this analysis will be used to formulate strategic recommendations for the management of IL Jeong Metal Co. Ltd. The Workload-Based Human Resource (HR) Calculation Method (WISN) is an approach to determining operational workforce HR needs based on the actual workload carried out by each category of human resources in the production, packaging, and grinding departments. The advantages of this method are that it is easy to run, easy to use, easy to apply, and rational and comprehensive. Analysis using WISN (Workload Indicators of Staffing Needs) has five stages in the process of calculating Human Resource needs as follows:

1. Determine available working hours
2. Establish Workload Standards
3. Establish Allowance Standards
4. Determine Production Work Quantity
5. Determine Production Manpower Requirements

Result and Discussion

Analyzing Labor Needs in the Manufacturing Sector Using the Labor Force Analysis Method

The use of productive time is obtained by observing employee activities and is used to calculate employee needs using the labor index method for employee needs. Then an analysis of the work results is carried out. The steps for data analysis in this study are as follows:

Determine Available Working Hours

Available working time for production workers at IL Jeong Metal Co. Ltd is the time that workers must fulfill to carry out their main activities in one year. Working time refers to the total daily working hours in the production sector where a one-shift system is implemented, namely 09.00-21.00. The following table 1 shows the results of the study of available working time for the production section per year.

$$\textit{Available Working Hours} = A-[(B+C+D+E)] \times F$$

Description:

A: Number of working days
B: Annual leave
C: Education and training
D: National holidays
E: Absenteeism from work
F: Working hours

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Table 1. Available Working Hours at IL JEONG METAL CO. LTD per Year

Code	*Factor*	Total	Information
A	*Working Days*	341	Day/Year
B	*Annual leave*	12	Day/Year
C	*Education and Training*	0	Day/Year
D	*Public Holidays*	11	Day/Year
E	*Absence From Work*	0	Day/Year
F	*Working Hours*	12	Hour/Day
	Available Working Time	**3816**	**Hour/Year**
	Available Working Hour	**318**	**Day/Year**
	Total Minutes	**228960**	**Minutes/Year**

The working time that can be utilized in the production department in one year reaches 3,816 hours, which is equivalent to 228,960 minutes or 318 effective working days. This calculation is based on the total working days during a year, taking the number of annual leave, education, training, public holidays, and absences, then multiplied by the number of working hours each day.

Preparing Workload Standards

The workload standard is obtained by measuring the available working time, which is then divided by the average time required to complete each main activity. The average time to complete the main activity reflects the time required by each human resource factor in each presenting the results of research on workload standards at IL JEONG METAL CO.LTD.

Table 2. Workload Standard

Activities	Available Working Hour	Average Time Available (Minutes)	Workload Standards
Raw Material Receipt	228960	10	22896
Initial Processing	228960	20	11448
Welding Process	228960	20	11448
Grinding dan Finishing	228960	30	7632
Quality Inspection	228960	10	22896
Assembly	228960	5	45792
Packaging and Shipping	228960	20	11448
Machine Maintenance	228960	20	11448

The results of the study indicate that the workload standards set based on production activities at IL JEONG METAL CO.LTD have varying values for each productive activity carried out. Assembly activities show the highest workload standards based on calculations of 45,792 minutes/year. Meanwhile, the Grinding and Finishing activities have small work standards of 7,632 minutes/year.

Preparing Allowance Standards

Free time can be interpreted as time used to do other activities that are not related to the main job, but are beneficial for employees. Table 3 shows the results of research related to idle time standards in the production process at IL JEONG METAL CO.LTD. Determination of minimum cost standards is carried out through calculations using a special model:

Table 3. Allowance Standards

No	Relaxation Factor	Average Time	Total	Allowance Standard
1	Isoma	1.5 Hours/Day	477 Hours/Year	0.12
2	Annual Leave	12 Days/Year	288 Hours/Year	0.08
3	National Holidays	11 Days/Year	264 Hours/Year	0.07
Total Allowance Standard				**0.27**

Based on the analysis conducted, it turns out that the standard margin time calculated from the average margin factor time has a margin factor ratio of 0.27.

Quantity of Production Work IL JEONG METAL CO.LTD

Table 4. Production Quantity of IL JEONG METAL CO.LTD

Year	Production Quantity
2023	50.000 units

The annual production volume of IL JEONG METAL CO.LTD per 2023 is 50,000 units/year.

Production Manpower Needs with the WISN Method

$$HR\ Requirements = \ + Allowance\ Standard$$

Labour requirements at IL JEONG METAL CO.LTD are determined based on each main activity carried out during the observation period. After that, the labor requirements of each main activity are added up to obtain the total production employee requirements which can be presented in table 5 below**:**

Table 5. Production Manpower Requirements Based on Workload Calculations

No	*Activities*	QMA	WS	AS	HRR
1	*Raw Material Receipt*	50000	22896	0.27	2.45
2	*Initial Processing*	50000	11448	0.27	4.63
3	*Welding Process*	50000	11448	0.27	4.63
4	*Grinding dan Finishing*	50000	7632	0.27	6.82
5	*Quality Inspection*	50000	22896	0.27	2.45
6	*Assembly*	50000	45792	0.27	1.36
7	*Packaging and Shipping*	50000	11448	0.27	4.63
8	*Machine Maintenance*	50000	11448	0.27	4.63
Total HR Requirements					**31.65**
Rounded up					**32**

Based on the analysis of labor requirements for various activities in the metal factory, the total human resource (HR) requirement is 32 people. The activity with the highest labor requirement is Grinding and

Finishing, which requires 6.82 people, indicating the complexity of this process. Meanwhile, the assembly requires the least labor, which is 1.36 people.

Conclusion

The conclusion of the analysis of labor requirements at the IL JEONG METAL CO. LTD factory shows that the total human resource requirement is 32 people, while only 20 people are available. The shortage of 12 people can disrupt the smooth operation, especially in activities that require a lot of manpower, such as Grinding and Finishing. This limitation has the potential to cause delays in the production process and have a negative impact on the quality of the products produced.

To overcome this shortage, it is important for management to immediately take strategic steps, such as recruiting additional workers or increasing the work efficiency of existing employees through training and skills development. Thus, the factory can ensure that all activities run smoothly, meet quality standards, and maintain overall productivity. Implementing this solution will help the factory achieve its production goals and face future challenges.

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