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ANALYSIS OF WORK SYSTEMS, RAW MATERIAL QUALITY AND AVAILABILITY IN FURNITURE COMPANIES

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ABSTRACT

This study aims to analyze the employee work system, the quality of wood raw materials, and the availability of work equipment at a small-scale furniture company in Gorontalo, considering that these three aspects play a crucial role in determining the quality and productivity of the furniture industry. This study used a qualitative descriptive method through in-depth interviews with five active workers, to describe the actual conditions of the production process, from wood selection, drying techniques, tool use, to product finishing. The results show that the quality of wood as a raw material is still assessed visually and without technical standards, which often results in shrinkage, cracks, and product defects. The drying process is carried out manually using sunlight, so production time is dependent on the weather and is unpredictable, slowing down the overall workflow. Furthermore, the company relies on manual tools and employees' personal tools, which not only prolongs processing time but also reduces quality consistency and increases the risk of production delays. These conditions are exacerbated by an informal work system and the absence of standard operating procedures (SOPs), resulting in unstructured quality control. Overall, this study concludes that the main obstacles to productivity lie in the quality of raw materials that are not standardized, limited production tools, and informal work structures, so that comprehensive improvements are needed through standardization of raw materials, improvement of work tools, and strengthening of operational procedures to achieve better production efficiency and quality.

Keywords: Work system, raw materials, wood/furniture company.

1. INTRODUCTION

The wood furniture industry is a vital part of the labor-intensive manufacturing sector, particularly in countries with abundant wood resources and where many small and medium-sized enterprises (SMEs) operate. Wooden furniture production involves not only aesthetic and functional aspects, but also heavily depends on the quality of raw materials, the efficiency of work processes, and the availability and suitability of work tools. These factors collectively determine the final product quality, production efficiency, and a company's competitiveness in the market (Afifah et al. 2025).

Literature studies show that quality management and production efficiency in the furniture industry support product quality improvement and waste and defect reduction. For example, a review of various quality management methodologies such as total quality management (TQM), lean manufacturing, 5S, statistical process control (SPC), and failure mode and effect analysis (FMEA) demonstrated that the application of these methods can increase production efficiency, reduce errors, and improve the quality of wooden furniture (Skorupińska et al. 2025).

However, the reality on the ground shows that most of this research focuses on medium- to large-scale furniture companies, which generally have adopted modern quality technologies and procedures. In contrast, there is relatively little empirical research on conditions in small or micro-enterprises/SMEs, which tend to use local wood, manual tools, and precarious labor. This creates a "research gap" for a deeper understanding of how aspects such as work systems, wood quality, and tool availability influence productivity and quality at the furniture SME level.

Furthermore, the importance of proper wood raw material management is increasingly relevant in the context of sustainability and resource efficiency. For example, research in the furniture industry shows that selecting the right wood and ensuring quality control from the start, including wood selection, drying, and initial quality inspection, are crucial for reducing defects and waste. Without a sound system, small companies are vulnerable to producing products with inconsistent quality, high defect rates, and low efficiency, which in turn can be detrimental to their economy and reputation (Hasa et al. 2023).

The urgency of this research arises because many small-scale furniture industries in Indonesia, including those located outside of large industrial centers, operate using traditional, manual, and informal methods. Conditions such as varying raw material quality, simple wood drying methods, reliance on temporary labor, and minimal equipment availability can lead to low productivity, inconsistent product quality, and an inability to consistently meet market demand. Empirical studies that document and analyze the real-world conditions in small businesses are needed to provide practical and relevant recommendations for improvement.

Based on these conditions, this research aims to examine the operations of a furniture company in Gorontalo in depth, focusing on three key aspects that determine the success of the wooden furniture production process: employee work systems, the quality of the raw materials used, and the availability of equipment to support the production process. These three aspects are considered crucial because they are interrelated in shaping work efficiency and the quality of the final product. Therefore, this study formulates several key questions that form the basis of the analysis: how employee work systems are implemented in the company's furniture production process, the extent to which the quality of the raw wood materials influences the final product, and how the availability of equipment affects the smoothness of the production process and the company's productivity.

Through analysis of these aspects, it is hoped that this research can provide an empirical picture of the conditions of wooden furniture production in small-scale companies, as well as contribute recommendations that can improve the quality, efficiency, and sustainability of company operations.

2. RESEARCH METHOD

The research method used in this study is a qualitative descriptive method that aims to describe in depth the real conditions of the production process at a wood/furniture company on Jl. Mahakam No. 1 Bulotadaa, Sipatana District, Gorontalo City. Research data were obtained through direct interviews with 5 informants, namely Mr. Ajis (50 years old), Mr. Leno (54 years old), and Mrs. Wati (40 years old), Mr. Agus (58 years old), Mr. Budi (53 years old) who are active workers at the company, and were conducted by the interview team on Wednesday, December 3, 2025. Data collection techniques focused on disclosing information regarding employee work systems, the quality conditions of raw wood materials, and the availability of work equipment used in the process of making furniture products such as cupboards, tables, doors, and chairs. The collected data was then analyzed through a process of data reduction, data presentation, and drawing conclusions to obtain an objective picture of the production problems that emerged, including varying wood quality, the use of manual tools, limited modern tools, traditional wood drying, and a precarious workforce structure (Fadli, 2021).

3. RESULT AND DISCUSSION

Employee Work System

Wood, as a raw material, is the primary foundation in furniture production; its quality directly impacts the durability, beauty, and lifespan of the final product. In the context of the furniture company that was the subject of this study, wood characteristics, including species, dryness level, and density, are critical variables that must be considered before entering the cutting and assembly stages (Novyanto & Nurraharjo, 2020).

According to the company's manager (Bos Mebel):

"We usually buy wood from local lumber depots without laboratory testing. Sometimes the wood appears dry on the outside, but after being shaped and left for a few weeks, it shrinks or cracks because the moisture content is unstable."

This statement indicates that the company's wood selection practices still rely heavily on visual inspection and traditional experience, rather than technical parameters such as moisture content, grain type, or density. As a result, the company faces the risk of product damage, finishing defects, or shrinkage.

Furthermore, a complaint emerged from production employees:

"Often we have to discard wood or repair products after they are finished, because the wood warps or cracks even though the workmanship is done according to the pattern."

These findings demonstrate the direct influence of raw material quality on the final product, and demonstrate that even meticulous workmanship, low-quality wood can be detrimental to the product (Purwadi & Prasetyadi, 2022).

These field findings align with previous research: for example, studies in the furniture industry indicate that wood selection requires consideration of physical properties, durability, mechanical properties, and texture and grade as key criteria for obtaining suitable raw materials (Hasa et al., 2023). Furthermore, research in the Jepara wood furniture industry indicates that a lack of understanding of the supply of quality wood, both in terms of moisture content and density, is a common cause of furniture products that deteriorate quickly or become unstable (Sushardi et al., 2024).

From an organizational theory perspective, the conditions in this company can be analyzed through the lens of Max Weber's bureaucratic rationality, where the ideal organizational structure is based on written procedures, task specialization, and consistent technical and quality standards (Dash & Padhi, 2020). However, in practice at this small furniture company, the structure remains very informal, with wood selection carried out traditionally and subjectively, without standardized standards, documentation, or written procedures. Consequently, the technical rationality (efficiency, predictability, and consistency) of bureaucratic theory is not met, even though the theory states that a rational-legal organization will improve work effectiveness and quality.

Thus, there is a gap between the bureaucratic ideal (rational, written, standardized) and actual practice in the company. This gap is the reason why the quality of the raw wood materials is not guaranteed, and results in often inconsistent product results. This suggests that to improve furniture product quality, the company needs to adopt wood selection procedures based on objective criteria: for example, checking moisture content, density, wood species according to function, and raw material documentation are part of a rationalization of the production process.

Wood Raw Material Quality

Wood, as the primary raw material for furniture, has specific physical and mechanical characteristics such as density, moisture content, texture, grain, and dimensional stability, which determine the strength, durability, and aesthetics of the final product. Selecting high-quality wood and pretreating it (especially drying) are crucial to prevent shrinkage, deformation, cracking, or defects during processing and finishing. According to a furniture company leader (Bos Mebel),

"*wood quality significantly determines the final product outcome. If the wood is too wet or not fully dried, cabinets or doors can warp or shrink after a few weeks."*

This statement emphasizes that the wood selection process and the initial physical condition of the wood are not merely administrative procedures, but critical factors in ensuring furniture quality. Building on these findings, this study further explores the experiences of workers in wood processing. The workers revealed that:

"Each block of wood is always dried in the sun before being cut and shaped. However, the quality of the wood remains unstable. Some wood still exhibits a high moisture content after natural drying, resulting in furniture products sometimes shrinking or developing defects (cracking/changes in size) over time. Furthermore, the manual drying process takes a relatively long time, slowing down the production process, unlike companies with modern drying machines/ovens, which can reduce drying times to just a few days."

This finding aligns with studies in the wood furniture industry, where raw material quality and process control over the initial condition of the wood have been shown to significantly impact the quality of the final product. For example, a study of a wood furniture company in Blitar Regency found that "the strength of raw material quality significantly impacts the quality of the finished product" (Farida, 2017).

Similarly, recent literature emphasizes that to ensure the sustainability and quality of wood furniture, it is necessary to have quality control of the raw materials and proper wood treatment, including professional drying and processing.

From the perspective of organizational and production theory, particularly bureaucratic and rational-instrumental theories, raw material quality and wood processing procedures can be understood as part of "formal rules and procedures" that influence efficiency and work output. When wood drying and selection procedures are implemented consistently and standardized, production tends to be stable and predictable. Conversely, if raw material control is weak, and the drying process relies on manual and informal procedures, the output (furniture) will be variable and prone to defects. Conditions at your company indicate that this rational-instrumental aspect is not formally structured; wood selection and drying are carried out ad hoc and based on worker experience, creating uncertainty in product quality.

Thus, interviews and literature support the idea that the quality of raw wood materials is not merely a material issue but an integral part of production management. To improve quality and efficiency, it is necessary to consider implementing standard procedures such as wood classification, drying with specialized tools/machines, and quality documentation to strengthen the rational-instrumental and bureaucratic elements of production.

Impact of Barriers on Productivity

The quality of the raw wood material is a crucial variable that directly affects the production speed and stability of furniture output. If the wood used does not meet moisture content or size standards, the production process can be delayed, for example, due to the need for longer drying times, size adjustments, or selective selection of wood parts, which of course extends the production time for furniture such as cabinets, tables, doors, and chairs. According to the owner of a furniture company (boss),

"If the wood is still wet or not completely dry, we can't immediately turn it into a table or cabinet; the wood must be dried in the sun until it's dry, sometimes taking several days, sometimes longer, which affects when we can start work."

This statement reflects the company's heavy dependence on the initial condition of the wood as a raw material, and uncertainties about its quality (e.g., moisture content, density, uniformity) force production delays.

This statement is further supported by data collected from worker informants (employees):

"Often we have to wait for the wood to dry first. Sometimes the wood has already been cut, but we have to delay it to prevent warping or cracking after it's finished. If we force it, the result can be defective or shrink in size."

This illustrates that workers are directly aware of the consequences of raw materials that are not yet qualitatively stable, and choose to delay processing to maintain final quality.

The findings from these interviews align with previous research. For example, a study by "The Effect of Moisture Content and Board Thickness on Rubber Wood Drying Rate" showed how initial moisture content and board thickness significantly influence the drying rate of wood, with thicker

wood tending to require longer drying times. The wood drying process requires proper methods to avoid defects such as shrinkage, cracking, or deformation, especially if the wood is dried using traditional or natural drying methods.

The unavailability of modern drying facilities (e.g., kiln-drying ovens or wood drying machines), as revealed in the interviews, forces the company to rely on natural drying (sun-drying). This means that drying times are highly dependent on weather and environmental conditions, making production schedules difficult to predict. Such conditions reduce efficiency and create uncertainty in production capacity, especially when there are large orders or tight deadlines (Wieruszewski, 2023).

From an organizational theory perspective, this situation can be linked to the notion of bureaucracy and instrumentalist rationality: when a company, even a small one, lacks formal systems and adequate tools (as "instruments" of production), operations become highly dependent on external conditions (weather, wood quality) and individual decisions (when the wood is deemed dry enough). Thus, there is no guarantee of production stability as in companies with formal structures and modern facilities. Reliance on variable raw materials without formal procedures makes production inefficient and vulnerable to disruptions (Wijayanto, 2024).

Thus, it is clear that constraints on raw wood quality, particularly moisture content, thickness, and manual drying, have a significant impact on productivity: extending processing times, increasing schedule uncertainty, and increasing the risk of product defects. This suggests that to increase productivity and furniture quality, companies need to improve raw material management: either through stricter wood selection, more controlled drying methods, or by investing in kiln-drying equipment or wood processing machinery.

4. CONCLUSION

This research shows that the quality of wood as a raw material is a fundamental factor directly determining the success of the furniture production process at the furniture company studied. Wood conditions, particularly dryness, density, and grain stability, are not controlled through standard procedures, but rather through visual assessment and worker experience. This lack of technical standards leads to a high risk of shrinkage, cracking, and deformation in the final product, even though the manufacturing process follows the correct pattern. Both management and employees reported that unstable wood quality is a major cause of product damage, material waste, and the need for repeated repairs.

The findings also revealed that wood drying is carried out manually using sunlight, making the process highly dependent on weather conditions and requiring lengthy processing times. The lack of modern drying facilities leads to uncertain production schedules, especially when demand increases. Uneven natural drying increases the risk of furniture deformation after completion, ultimately extending production times and reducing efficiency.

Furthermore, limited work equipment exacerbates production constraints. The company lacks basic machinery such as planers, sanders, or modern cutting machines commonly used in the furniture industry. The work process relies on manual tools and employees' own personal tools. When equipment breaks down or is inadequate, production must be temporarily halted. This results in longer processing times, lower quality output, and increased interdependence among employees, especially under high-volume orders.

The company's organizational structure is also still very informal and lacks the basic principles of modern bureaucracy, such as standard operating procedures (SOPs), process documentation, or clear task specialization. The absence of a procedure-based quality control mechanism leaves production decisions dependent on subjective employee judgment. This results in an inconsistent and unpredictable work system, making it impossible to ensure consistent product quality from one order to the next. Thus, the rational-instrumental aspect, as outlined in organizational theory, is not met because the company lacks production instruments and technical regulations that enable efficiency and consistency.

Overall, the main obstacles in this company's furniture production process lie in three interrelated aspects: non-standard raw material quality, limited equipment availability, and an informal work system. The combination of these three factors significantly slows the production process, increases the risk of product defects, reduces labor efficiency, and results in unstable

output. This research confirms that efforts to improve quality and productivity cannot be achieved in isolation, but rather require comprehensive improvements in raw materials management, modernization of work equipment, and the implementation of standard procedures to make production processes more rational, efficient, and predictable. These improvements are essential prerequisites for small furniture companies to increase their competitiveness and sustainability..

References

Afifah, A. S., Nugroho, A. R., Nurmadina, N., Fitriyanto, T. R., & Juwitasari, D. (2025). Optimization of wood waste utilization for sustainable material processing in the furniture industry. Journal of Engineering Science and Technology Management (JES-TM), 5(2), 221–228. https://doi.org/10.31004/jestm.v5i2.266

Dash, S. S., & Padhi, M. (2020). Relevance of Max Weber's rational bureaucratic organizations in modern society. Management Revue, 31(1), 81–91. https://doi.org/10.5771/0935-9915-2020-1-81

Farida, N. (2017). Pengaruh kualitas bahan baku terhadap kualitas hasil produksi (Studi pada CV Mebel Bima Karya Kabupaten Blitar). AKUNTABILITAS: Jurnal Ilmiah Ilmu-Ilmu Ekonomi, 8(2), 1. https://doi.org/10.35457/akuntabilitas.v8i2.207

Hasa, M. F., Amri, I., & Putri, A. (2023). Sistem pemilihan jenis kayu untuk kerajinan meubel dengan metode Simple Additive Weighting. Insect (Informatics and Security), 7(2), 1811. https://doi.org/10.33506/insect.v7i2.1811

Hasa, M. F., Amri, I., & Putri, A. (2023). Sistem pemilihan jenis kayu untuk kerajinan meubel dengan metode Simple Additive Weighting. Insect (Informatics and Security), 7(2), 1811. https://doi.org/10.33506/insect.v7i2.1811

Masrek , M. N. ., Baharuddin , M. F. ., & Syam , A. M. . (2025). Determinants of Behavioral Intention to Use Generative AI: The Role of Trust, Personal Innovativeness, and UTAUT II Factors. International Journal of Basic and Applied Sciences, 14(4), 378-390. https://doi.org/10.14419/44tk8615

Novyanto, F., & Nurraharjo, E. (2020). Penentuan jenis kayu untuk bahan meubel dengan metode SAW. Jurnal Informatika dan Rekayasa Elektronik (JIRE), 5(2), 683. https://doi.org/10.36595/jire.v5i2.683

Purwadi, P. K., & Prasetyadi, A. (2022). Characteristics of wooden furniture drying machine. International Journal of Applied Sciences and Smart Technologies (IJASST), 4(1), 1–11. https://doi.org/10.25062/ijass.v4i1.4755

Rahardja, U., Lutfiani, N., & Juliansah, M. A. D. (2025). Strategy of production efficiency and improving the quality of wooden sofa legs in the manufacturing industry. Startupreneur Business Digital (SABDA Journal), 4(2). https://doi.org/10.33050/sabda.v4i2.867 (Pandawan Journal)

Saraan, M. I. K., Rambe, R. F. A. K., Syam, A. M., Suhendar, A., Dalimunthe, M. A., & Sinaga, R. P. K. (2024, May). The application of fertilizer subsidies in the context of coffee plantations in Pollung Sub-District, Humbang Hasundutan District, North Sumatra Province. In IOP Conference Series: Earth and Environmental Science (Vol. 1352, No. 1, p. 012012). IOP Publishing.

Skorupińska, E., Hitka, M., & Sydor, M. (2024). Surveying quality management methodologies in wooden furniture production. Systems, 12(2), 51.

Sushardi, S., Woesono, H. B., Suwadji, S., & Hadi, D. S. (2024). Perbaikan kualitas kayu dan produk meubel di Art Antique dan Mebel Kayu Jati. Empowerment: Jurnal Pengabdian Masyarakat, 3(2), 60–66. https://doi.org/10.55983/empjcs.v3i2.444

Wieruszewski, M., Turbański, W., Mydlarz, K., & Sydor, M. (2023). Economic Efficiency of Pine Wood Processing in Furniture Production. Forests, 14(4), 688. https://doi.org/10.3390/f14040688 (MDPI)

Wijayanto, A. (2024). Pengaruh Kadar Air dan Ketebalan Papan Terhadap Laju Pengeringan Kayu Karet (Hevea brasiliensis) dengan Penerapan Fase Pendinginan. Jurnal Silva Tropika, 8(2), 98–104. https://doi.org/10.22437/jurnalsilvatropika.v8i2.35227 (Jurnal Online Universitas Jambi)