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Workload Analysis of Air Freight Forwarding (EMPU) Operations in Domestic Cargo Handling

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Abstract:
The growing volume of domestic air cargo has increased operational activities in air freight forwarding services, presenting challenges in balancing operational demands against available resources. Although workload has been widely studied across various industries, research specifically addressing the operational workload of Air Freight Forwarding (EMPU) units in domestic cargo handling where work is bound by flight schedules, daily volume fluctuations, and limited operational facilities remains limited. This study aims to analyze the operational workload of EMPU staff in domestic cargo handling at PT Integrasi Aviasi Solusi, Denpasar Branch. A qualitative descriptive approach was used, with purposive sampling applied. Data were collected through semi-structured interviews, participant observation, and documentation, and analyzed using the interactive model of Miles, Huberman, and Saldaña. The results show that operational workload is shaped by three indicators working conditions, utilization of working time, and work targets all of which intensify as cargo volume rises. During peak cargo periods, limited human resources, operational vehicles, and X-ray facilities require personnel to undertake multiple tasks simultaneously and work beyond scheduled shifts to sustain cargo handling operations. These conditions indicate that workload distribution is strongly affected by operational dynamics relative to available resources. Based on these findings, this study develops a practical guideline to support workload evaluation and for improving workload distribution in domestic cargo handling operations.

Keyword: workload, air freight forwarding, domestic cargo handling, qualitative descriptive

INTRODUCTION

The growing volume of domestic air cargo has intensified operational activities within air freight forwarding services, requiring Air Freight Forwarding (EMPU) units to manage workload effectively amid limited personnel and facilities. At PT Integrasi Aviasi Solusi, Denpasar Branch, operational data between August 2025 and February 2026 revealed a 67% spike in daily cargo volume during August and a 91% increase in the monthly average during October, while the number of EMPU personnel, operational vehicles, and X-ray screening facilities remained fixed. This imbalance between fluctuating operational demands and static resource capacity forms the empirical basis for examining workload in this setting.

Workload analysis offers a theoretical framework for comprehending such conditions. According to Koesomowidjojo (2021), workload analysis is the process of determining the amount of working hours required by human resources to complete a task within a specific period and can be assessed through three indicators: working conditions, the utilization of working time, and the targets that must be achieved. This framework offers a structured lens to examine how operational demands translate into the day-to-day burden experienced by frontline personnel.

Previous studies have examined workload across various sectors. Juhri and Kusworo (2026) found that limited human resources and dual work roles in a cosmetics factory intensified work stress, highlighting the psychological consequences of excessive workload. Suta and Sutriani (2025) demonstrated that unbalanced workload distribution reduced employee focus and motivation, while Sari and Palupi (2026) showed that a high caseload combined with limited staffing and digital adaptation demands affected employee well-being and performance. These studies consistently confirm workload as a critical determinant of employee outcomes and organizational performance. However, none of these settings are bound by the strict time-sensitive constraints of flight schedules or the continuous, fluctuating flow of incoming and outgoing shipments characteristic of air cargo operations. Studies specifically addressing workload within air freight forwarding also remain scarce. Bocalbos et al. (2025) examined workload balancing and process optimization in cargo handling, offering relevant insight into how demand and resources must be reconciled during peak activity.

However, existing studies primarily emphasize workload balancing and process optimization without explaining how operational workload is experienced by frontline personnel within Air Freight Forwarding (EMPU) units responsible for domestic cargo handling. Unlike previous settings, EMPU operations are characterized by strict flight cut-off schedules, fluctuating daily cargo volumes, simultaneous incoming and outgoing cargo flows, and shared operational facilities. These operational characteristics create a distinct workload context that has received limited empirical attention.

This study contributes to the literature in two ways. First, it extends workload research by examining operational workload within the specific context of domestic Air Freight Forwarding (EMPU) units, a logistics setting that has received limited empirical attention despite its strategic role in supporting national cargo distribution. Second, by employing Koesomowidjojo's workload indicators through a qualitative descriptive approach, this study explains how working conditions, working time utilization, and operational targets collectively shape workload under fluctuating cargo volumes and limited operational resources. In addition, the findings are translated into a practical guideline that can support workload evaluation and operational improvement in domestic air cargo handling.

CONCEPT

Human Resource Management

Human resource management is broadly defined as the systematic and strategic management of the workforce to ensure work is completed effectively, employee well-

being is maintained, and organizational goals are achieved. Hasibuan (2021) frames it as the science and art of managing workforce relationships and roles efficiently to support the goals of the company, employees, and society, while Dessler (2020, as cited in Siregar, 2025) emphasizes the process of acquiring, training, appraising, and compensating employees while attending to labor relations, health, safety, and fairness. Armstrong and Taylor (2020, as cited in Siregar, 2025) similarly describe it as a strategic, integrated, and coherent approach to the employment, development, and welfare of people within an organization. This concept is highly relevant to EMPU's operational workload, which is shaped by workforce size, individual capacity, and available facilities. An understanding of HRM allows this study to examine how workforce planning, task distribution, and staff management can help balance workload against operational constraints.

Workload

Workload has been defined from several perspectives. Hart and Staveland (1988, as cited in Ishak, 2023) describe it as something that emerges from the interaction between the task demands of a work environment and the skills, behavior, and perceptions of the worker. Permendagri No. 12 of 2008 defines it as a measure of work borne by a position or organizational unit, calculated as the product of work volume and the standard time norm required for its effective completion under real conditions. Mahawati et al. (2021) describe workload as the volume of work, whether physical or mental, assigned to and borne by a worker, noting that every job constitutes a burden for the person performing it, and that each worker has a different capacity to manage that burden, whether physical, mental, or social in nature.

Based on these definitions, workload can be concluded to be the amount or volume of tasks a worker must complete within a given period, arising from the interaction between job demands and the worker's capacity to complete them, encompassing both physical and mental burdens that must be managed to ensure tasks are completed effectively and on time.

Cargo Handling

Cargo handling refers to the sequence of processes involved in managing cargo from the point of receipt through to loading onto an aircraft for transport between cities, both domestically and internationally (Anggraeni & Rachmawati, 2022). It encompasses the full range of service activities for incoming and outgoing cargo at an airport, including loading and unloading, transfer from the aircraft to storage (the cargo warehouse), arranging and storing goods, and delivery to or receipt from the owner, as well as the reverse process of warehousing, transfer from storage, and loading into the aircraft's cargo compartment, all carried out with the requisite knowledge and expertise (Suharto Abdul Madjid & Eko Probo Warpani, 2009, as cited in Achir, 2022). Cargo handling runs effectively when the systems, procedures, and supporting facilities at each station's warehouse are adequate and work is carried out correctly according to standard operating procedure (Anggraeni & Fauziah, 2022).

Cargo handling can be concluded to be a series of service activities encompassing the receipt, transfer, storage, and loading of goods onto an aircraft, as well as cargo delivery (doorING), for both domestic and international shipments. This process involves activities such as loading, unloading, dooring, and warehouse management carried out in accordance with established operating procedures.

Air Freight Forwarding (EMPU)

As regulated under Ministerial Decree of Transportation No. KM 89 of 1990, Ekspedisi Muatan Pesawat Udara (EMPU) is officially defined as a business entity responsible for managing documentation and tasks related to the receipt and delivery of cargo transported by

air. Gusmali (2020) similarly describes EMPU as a business handling documentation and work related to the receipt and delivery of air-transported cargo, on behalf of or to airlines, for eventual delivery to the goods' owner domestically or internationally, with the EMPU company itself defined as a business that provides air cargo expedition services. Firnanda (2024) further characterizes EMPU as the activity of shipping and receiving cargo to and from the Cargo Terminal (Lini I) for air departure or arrival, including supporting services such as the issuance of Airway Bills (SMU) and packaging; under Air Freight service, every shipment must first be processed through EMPU to obtain an Airway Bill before it can be dispatched.

EMPU can be concluded to be a business entity engaged in document handling and cargo receipt and delivery services via air transport, encompassing the shipping and receiving of goods for domestic and international distribution. EMPU's activities also include supporting services such as the issuance of Airway Bills (SMU) and the packaging and shipment of goods in accordance with applicable regulations.

METHOD

This study employs a qualitative descriptive approach to analyze the operational workload of Air Cargo Forwarding (EMPU) services regarding domestic cargo handling at PT Integrasi Aviasi Solusi, Denpasar Branch. This approach was selected for its ability to provide an in-depth understanding of workload conditions based on the experiences and perspectives of personnel directly involved in operational activities.

Data sources consisted of primary and secondary data. Primary data were obtained through direct interviews with the EMPU Coordinator, Operational Staff, and drivers, as well as through direct observation of operational activities during the internship period. Secondary data comprised the company's daily and monthly cargo volume reports (manifests), domestic cargo flight schedules, and employee shift rosters.

Data were collected through three techniques. First, semi-structured interviews that were conducted with five informants selected through purposive sampling: the EMPU coordinator, three operational staff members, and one driver, chosen for their direct involvement in outgoing and incoming cargo handling. Interview guides were developed around the study's three workload indicators working conditions, working time utilization, and targets to be achieved. Second, participant observation was carried out to directly observe the cargo-handling workflow, including handling duration, queues at the X-ray machine, and team interaction during shifts. Third, a documentary study was conducted to gather supporting written records, such as cargo volume data, flight schedules, and documentation related to the cargo handling process for both incoming and outgoing shipments.

RESULT AND DISCUSSION

RESULT

Based on in-depth interviews, participant observation, and documentation, findings are organized around the three workload indicators proposed by Koesomowidjojo (2021) includes working conditions, working time utilization, and targets to be achieved.

1. Working Conditions

   According to Koesomowidjojo (2021), working conditions serve as an indicator in workload analysis for understanding how well an employee comprehends their job. In the operational context of the EMPU at PT Integrasi Aviasi Solusi (Denpasar Branch), working conditions are influenced by rising cargo volumes, limited operational facilities, the tendency for incoming and outgoing activities to occur simultaneously, and dynamic, multitasking work patterns.

   Rising cargo volume emerged as the primary condition increasing operational workload. When tonnage rises, handling activity becomes denser, since shipments from multiple customers arrive within a similar timeframe against different flight departure targets and Service Level Agreements (SLAs), requiring staff to process a greater quantity of goods

within the same period without any corresponding increase in resources. The Coordinator explained that a rise in tonnage brings noticeable fatigue and a sense of being overwhelmed among staff, given the sheer volume of goods that must be moved, and that the team responds by preparing in advance, checking staff readiness, stamina, and vehicle condition before a surge occurs. The clearest sign of increased density, according to the same informant, is the simultaneous arrival of shipments from different customers, which requires the team to be divided across tasks so that each customer's SLA can still be met. Operational staff described the resulting atmosphere in direct terms, characterizing high-volume periods as chaotic and physically draining, while another staff member noted that despite limited personnel and infrastructure, the team compensates through initiative, calling on colleagues to help with urgent tasks before returning to their own assignments. One informant added an emotional dimension to this pressure, explaining that increased workload often leads to overtime, which in turn reduces time available for family, even as recognition from leadership offers some sense of being valued. Collectively, these accounts indicate that rising cargo volume increases workload directly, both by intensifying the physical effort required for handling and by adding psychological strain as staff work to sustain accuracy and speed at the same time.

Multitasking further compounds this workload by requiring staff to divide attention across several tasks within a single shift, a practice reported to occur almost daily rather than occasionally. Under normal volume, task division tends to be more specific, with one person assigned to one task; during high-volume periods, however, a single staff member may be responsible for two customers at once. The Coordinator confirmed that task assignments become flexible when multiple customers' shipments arrive together, allowing staff to shift between processes as operational needs demand. Another informant described an even more demanding form of multitasking, in which physical cargo handling must be performed alongside administrative duties such as payment processing and system data entry, a combination that, in their account, reduces overall efficiency compared to dividing these tasks among separate staff. A further informant offered a more balanced view, acknowledging greater physical fatigue as a result of multitasking but also faster task completion. Taken together, these findings suggest that multitasking increases workload not only by adding physical fatigue but also by dividing staff attention across competing demands, raising the cognitive and coordinative burden of daily operations.

Facility limitations represent a third condition contributing to increased workload, particularly with respect to vehicle availability and the single X-ray unit used for cargo inspection. The Coordinator identified vehicle shortages as the most frequent obstacle, especially in the Regulated Agent (RA) process, where vehicles must shuttle between the cargo terminal and the RA area, creating delays when volume is high. Another informant noted that the domestic unit's single X-ray machine falls short of the two-unit standard typically expected for a Grade 1 airport, and that inspection queues lengthen considerably when cargo backs up close to SLA deadlines, raising the risk of customer complaints. One staff member recounted an instance in which only one vehicle was operational due to a mechanical breakdown, which extended an afternoon shift that should have ended at 1:00 a.m. to 4:00 a.m. the following morning. Another noted that vehicle shortages create delays even when staffing and readiness are not the issue, since the team must simply wait for a vehicle to become available. A driver described the practice of rotating vehicle use between processes as a partial workaround, though he acknowledged that during very high tonnage, the available fleet is sometimes insufficient regardless of rotation. These facility constraints increase workload by extending waiting time within the handling process and by requiring staff to absorb delays through faster work once facilities become available, effectively compressing the time available to complete the same volume of tasks.

Staffing adequacy constitutes the fourth condition shaping working conditions, and was reported as sufficient under normal cargo volume but strained during peak periods,

particularly during weekday mornings and early afternoons. The Coordinator described the team as overwhelmed during these hours, while remaining more manageable at night when courier volume slows. Another informant echoed this pattern, noting that while normal volume can be handled comfortably, high-volume periods require staff to be resourceful and to support one another, especially given the disruption that would follow if any team member became unable to work. One informant illustrated how thin this margin is, noting that with nine personnel, high-tonnage periods already strain capacity, and that even a single absence is felt immediately within a shift. A driver added a management perspective, describing how a planned reduction in staff was reconsidered once a major courier partner's volume proved too much for the existing team to manage comfortably. This condition increases workload most directly, since an already limited workforce must absorb rising task volume without proportional staffing increases, forcing each individual to carry a disproportionately larger share of the operational burden during peak periods.

These interview findings were consistent with observation results, which documented cargo accumulating in the warehouse area during high-volume periods, increased staff movement between work processes, inspection queues at the Regulated Agent area, and the rotational use of vehicles shared across domestic, export-import, and transshipment activities. Documentation further captured the warehouse filled with goods during peak periods, along with continuous loading, checklist, wrapping, labelling, and X-ray inspection activity carried out by staff.

Taken together, these four conditions, rising cargo volume, multitasking, facility limitations, and staffing adequacy, do not operate independently but reinforce one another to elevate operational workload above normal levels. Rising volume increases the sheer quantity of work; multitasking spreads that work across simultaneous tasks; facility limitations slow the pace at which it can be completed; and staffing constraints leave fewer people to absorb the resulting pressure. The combined effect is an increase not only in physical workload, evident in greater handling activity and extended waiting time, but also in mental workload, since staff are required to work quickly, accurately, and adaptively while sustaining SLA compliance under persistent resource constraints.

2. Working Time Utilization

Working time utilization is the second workload indicator proposed by Koesomowidjojo (2021), concerned with how working time is used in carrying out daily tasks, including the extent to which it aligns with established operational procedures. When working time deviates from the standards set or extends beyond normal limits, this is treated as an indication of excessive workload. In the context of EMPU operations at PT Integrasi Aviasi Solusi, Denpasar Branch, working time utilization is shaped by shift patterns, the dynamics of cargo arrivals and departures, and the condition of available facilities.

Work at the EMPU unit does not follow a uniform daily pattern. Schedules depend heavily on flight arrivals and departures as well as the volume of cargo that must be handled within a given shift, so that both the start and end of work vary according to conditions encountered in the field. The Coordinator explained that rest periods cannot be fixed in advance, since they depend entirely on ongoing flight activity, with staff resting only when a slower period between flights allows it. One informant added that work within a shift is not always completed by the same shift, requiring coordination with the following shift to ensure that unfinished tasks are picked up and carried through. Another informant went further, explaining that during periods of very high volume, even the next shift is sometimes unable to absorb the remaining work, making it necessary to call in staff who are off duty or to bring back morning-shift personnel later at night. Taken together, these accounts show that working time at EMPU is highly dynamic and difficult to predict, and that unpredictable rest periods combined with the need to carry work over into subsequent shifts indicate that working time regularly extends beyond the boundaries of a normal shift, particularly during high-volume periods. This unpredictability itself constitutes a form of

workload, since staff must remain operationally ready without a fixed sense of when their working period will end.

Observation carried out during the research period showed that staff adjust their working time according to flight activity and the cargo volume that must be handled. During high-volume periods, staff were seen spending much of their working time managing the outgoing cargo process in the Regulated Agent area, from X-ray inspection through to the issuance of goods receipt documents. On certain occasions, staff continued working even after the scheduled shift change had arrived, because cargo still remained to be processed. Rest periods were not taken at fixed hours but were adjusted to operational conditions, typically occurring during lulls in flight activity or while waiting for cargo inspection to proceed. Documentation captured staff resting only after completing a loading process, while waiting for the next flight to arrive, illustrating that rest is not something scheduled in advance but something that becomes possible only once all work within a given flight cycle has been cleared and no new cargo has yet arrived. Combining the interview, observation, and documentation results, working time utilization at EMPU follows the rhythm of field conditions rather than a fixed schedule. Rest, task completion, and shift handover are all shaped by flight timing and cargo volume, and when volume rises, work often cannot be finished within a single shift, requiring coordination between shifts and, at times, overtime, simply to keep cargo handling running as operations require. This dependence on unpredictable external timing, rather than a controllable internal schedule, adds a further layer of workload, since staff are rarely able to plan their own working hours with certainty.

Beyond irregular rest patterns, working time at EMPU is also marked by frequent overtime and shift extension whenever cargo volume increases. This occurs because operations follow the principle that all cargo received on a given day must be cleared on that same day, with no fixed cutoff time. The Coordinator explained that staff are not permitted to leave until all work within a shift has been completed, even if that means continuing until one, two, or three in the morning, since the rule is simply that the work must be finished, however long that takes. A driver described a case of overtime extending until early morning during a period of very high volume, recalling a shift ahead of a religious holiday when cargo built up so heavily that a shift beginning at four in the afternoon did not end until five thirty the following morning, amounting to roughly thirteen and a half hours of unplanned extra time. Another informant noted that overtime affects more than just physical stamina, explaining that increased workload leading to overtime also reduces the time available to spend with family, even though attention from leadership during such periods can offer some sense of being valued. These accounts indicate that overtime and shift extension are an unavoidable consequence of rising cargo volume, with every informant describing operational work as something that must be completed regardless of how far it extends past normal hours, particularly during surges in tonnage, flight delays, or a buildup of cargo toward the end of a shift. In certain cases, work continues into the early hours of the morning or requires help from the following shift and from staff who are otherwise off duty, showing that working time at EMPU does not fully follow the shift schedule as set, but instead adjusts to operational demands and the need to complete cargo handling on time.

Observation during the research period confirmed that task completion does not always align with the scheduled end of a shift. On several occasions, staff were still found working beyond normal hours to finish cargo handling that remained in progress, particularly when volume was high and goods still needed to be processed before being passed to the next stage. Completion time was also strongly influenced by the volume of incoming cargo, flight schedules, and the smoothness of each stage of the handling process, so that staff sometimes had to continue working past the end of a shift simply to ensure that cargo handling could be completed as operations required. Documentation recorded operational

activity still underway at 02.23 AM. local time, confirming that staff were still carrying out cargo handling well past the point at which normal working hours should have ended. This indicates that during certain periods, particularly when cargo volume rises, completing the work can require considerably more time than the scheduled shift allows.

Taken as a whole, these findings show that working time utilization at EMPU is not confined to the hours formally assigned to each shift. When cargo volume increases, staff frequently continue working past the end of a shift to ensure that the entire cargo handling process can be completed, making overtime and shift extension a routine form of operational adjustment rather than an occasional exception. This pattern reflects a clear increase in workload, since staff not only work longer hours than scheduled but also carry the added burden of uncertainty about when a shift will actually end, a condition that compounds the physical fatigue already produced by high cargo volume and leaves little room for the recovery that a predictable schedule would normally allow.

3. Targets to be Achieved

Targets to be achieved represent the third workload indicator proposed by Koesomowidjojo (2021), concerned with how the setting of work targets affects the workload experienced by employees. The stricter the targets set and the more limited the time available to achieve them, the greater the workload experienced tends to be. In the context of EMPU operations at PT Integrasi Aviasi Solusi, Denpasar Branch, work targets are reflected in the Service Level Agreement (SLA) agreed upon with each customer, along with the completion time standards that must be met at every stage of the process.

Operations at the EMPU unit are guided by delivery time targets agreed with each customer through SLAs, which set completion deadlines for every stage of the process, from the retrieval of goods through to delivery to the customer, so that all operational activity must be completed within the agreed timeframe. A driver explained the structure of these targets in detail, describing five delivery cycles within a single day, each with its own cutoff time, alongside a one hour standard for retrieving cargo after a flight lands and a thirty minute standard for unloading cargo until it is ready on the pallet for each flight. Another informant added that SLA targets are not limited to incoming cargo but also cover every stage from the retrieval of goods through to transport and delivery to the customer. This was reinforced by a further informant, who explained that outgoing cargo is equally bound by SLA expectations, since customers expect their shipments to depart on a specific flight at a specific time, and any failure to meet that expectation means the delivery target has not been met. At the same time, the Coordinator clarified that there is no fixed daily quota for the amount of cargo to be processed. The operative principle is simply that any cargo received on a given day must be sent out on that same day, regardless of how late into the night that requires staff to keep working.

Taken together, these accounts show that EMPU's operational targets are not oriented toward a fixed volume of cargo per day, but toward meeting SLA commitments and delivery punctuality according to customer needs, across every stage from retrieval and unloading through to warehouse handling and final delivery or flight departure. Even as cargo volume fluctuates from day to day, staff consistently aim to complete deliveries on the same day according to the schedule set. Observation confirmed that staff have internalized these time and SLA targets across every stage of handling, visible in efforts to speed up loading and processing as soon as cargo is received in order to avoid delays. For outgoing cargo, goods were also seen being prepared well ahead of scheduled departure to anticipate X-ray queues and other operational obstacles, with staff coordinating and assisting one another whenever cargo volume increased so that all work could still be completed on the same day. In certain cases, work continued past normal hours specifically to ensure that SLA commitments and delivery schedules were still met. Documentation of cargo and flight manifests further showed that each shipment carries its own flight schedule and handling deadline, requiring staff to organize their work according to these varying

delivery targets. This indicates that meeting SLA commitments places a form of pressure on staff that operates independently of cargo quantity, since the target is defined by time rather than volume, and that pressure intensifies whenever volume and time constraints occur together.

Meeting these targets becomes especially demanding under conditions of high cargo volume, which pose a distinct challenge for EMPU staff. Despite limited personnel and facilities, the entire cargo handling process must still be completed in line with SLA commitments and delivery schedules, requiring staff to make a range of adjustments to their work in order to keep targets within reach. The Coordinator explained that under such conditions, tasks are divided according to priority, for instance by assigning separate staff to incoming and outgoing processes. Beyond task division, staff also described starting the handling process earlier than usual to anticipate delays caused by queues or rising cargo volume, preparing goods well ahead of a flight's scheduled departure so they are ready to go long before the cutoff arrives. The same informant explained that when work cannot be finished within a single shift, coordination with the next shift ensures that the remaining tasks are picked up so that delivery targets can still be met. Another form of adjustment involves mutual assistance among staff whenever additional manpower is needed, with informants describing how coordination and teamwork through informal channels allow urgent tasks to be addressed collectively before staff return to their original assignments.

These accounts indicate that meeting operational targets under high volume conditions depends on a combination of adjustments, including prioritybased task division, earlier initiation of the handling process, coordination between shifts, and mutual assistance among staff to address urgent work. This suggests that achieving operational targets at EMPU does not rest on resource availability alone, but also on coordination, flexibility, and staff initiative in responding to rising cargo volume. Observation during the research period confirmed these efforts in the field. Incoming cargo was pulled and processed as soon as it arrived to avoid delays at later stages, while outgoing cargo was prepared well in advance through labelling, X-ray inspection, and documentation so that it could depart according to schedule. Staff were also seen assisting and coordinating with one another whenever several tasks overlapped, allowing all operational processes to be completed in line with the targets set. Documentation captured staff carrying out the loading process together, reflecting collective efforts to complete work requiring additional manpower, particularly when cargo volume increased, so that handling and delivery could continue to proceed according to the operational targets in place.

Taken as a whole, these findings show that meeting operational targets at EMPU during periods of high cargo volume relies on a set of ongoing adjustments rather than on resource availability alone. Because targets are defined by time rather than by a fixed quantity of cargo, every increase in volume translates directly into pressure to compress more work into the same fixed window, requiring staff to work faster, coordinate more closely across shifts, and rely more heavily on one another simply to keep pace. This indicates that the demand to meet targets constitutes a workload in itself, one that compounds the physical and time related pressures already created by rising cargo volume and limited facilities and staffing, and that is sustained largely through the adaptability and cooperation of the staff involved rather than through any increase in the resources available to them.

DISCUSSION

Based on the results of interviews, participant observation, and documentation, the workload experienced by EMPU staff results from the interaction of three factors: dynamic working conditions, working time that frequently exceeds normal hours, and the demand to meet operational targets amid limited resources. These three aspects are analyzed using the workload indicators proposed by Koesomowidjojo (2021): working conditions, working time utilization, and targets to be achieved.

The findings indicate that working conditions represent the primary source of workload

escalation. Although EMPU personnel possess a clear understanding of operational procedures and cargo handling processes, workload is determined more by operational circumstances than by procedural complexity. During periods of increased cargo volume, employees simultaneously handle multiple customers, perform operational and administrative tasks concurrently, and adjust responsibilities according to immediate operational priorities. Limited operational vehicles and the availability of only one X-ray screening facility further intensify these conditions by creating bottlenecks throughout the cargo handling process. Consequently, workload arises not merely from the quantity of cargo handled but from the need to maintain operational continuity while sharing limited facilities and coordinating multiple interdependent activities.

These findings are consistent with Juhri and Kusworo (2026), who reported that limited human resources require employees to perform multiple tasks simultaneously, thereby increasing workload. Similarly, Koesomowidjojo (2021) identifies work facilities, physical task characteristics, and job complexity as external factors shaping workload. The present findings extend this perspective by demonstrating that, within domestic air freight forwarding operations, workload is also created by the interaction between fluctuating cargo demand and operational constraints associated with flight-based logistics, where delays in one process directly affect subsequent operational activities.

Regarding working time utilization, the findings show that operational schedules are highly dependent on cargo arrivals and flight departures. Although shift schedules are formally established, employees frequently continue working beyond scheduled hours to ensure that all cargo is processed before flight departure and SLA deadlines. Extended working hours, delayed rest periods, and unpredictable finishing times therefore become operational characteristics rather than exceptional situations during peak cargo periods.

This finding supports Koesomowidjojo's (2021) argument that workload increases when work requires more time than standard working hours. Likewise, Djamalu et al. (2025) found that continuous operational services reduce opportunities for employee rest, while Sari and Palupi (2026) demonstrated that prolonged working hours and time pressure increase work demands. Similar conditions were observed in this study, where the continuity of cargo handling operations leaves limited flexibility for employees to regulate their working time independently.

The third dimension, target to be achieved, demonstrates that EMPU personnel must consistently achieve Service Level Agreement (SLA) requirements despite fluctuating cargo volumes and limited operational resources. Meeting these targets requires employees to redistribute tasks, prioritize urgent shipments, and coordinate intensively across shifts to prevent operational delays. Consequently, workload is determined not only by performance expectations but also by the capacity of available resources to support target achievement under changing operational conditions.

This finding is consistent with Bocalbos et al. (2025), who emphasize that workload balancing, workload distribution, and process optimization are fundamental for maintaining cargo handling performance during peak operational periods. However, the present study further demonstrates that maintaining SLA performance within domestic air freight forwarding operations depends not only on workload balancing but also on continuous operational adaptation when personnel, vehicles, and screening facilities remain unchanged despite increasing cargo demand.

This study contributes to the workload literature by extending the application of Koesomowidjojo's workload framework to the context of domestic air freight forwarding operations, an area that has received limited empirical attention. Unlike previous studies conducted in manufacturing or general service sectors, this research demonstrates that workload in domestic cargo handling is shaped by the interaction between operational dynamics, flight schedule constraints, fluctuating cargo volumes, and shared operational facilities. These findings provide empirical evidence that workload in air freight forwarding should be understood not only as an issue of task quantity but also as the outcome of balancing operational

demands against available resources within a time-critical logistics environment. Furthermore, the practical guideline developed from these findings offers an operational reference that may support workload evaluation and resource allocation in comparable domestic cargo handling operations.

CONCLUSION

This study concludes that the operational workload of the EMPU unit in handling domestic cargo at PT Integrasi Aviasi Solusi, Denpasar Branch, is fluctuating and strongly influenced by cargo volume dynamics, human resource availability, and facility limitations. Although operational staff demonstrate a clear understanding of cargo-handling procedures, several field conditions intensify their workload, including fluctuating cargo volume, limited vehicle fleets, reliance on a single X-ray machine, and the need to manage multiple tasks simultaneously, factors that demand more intensive coordination among personnel.

Working time utilization is also affected, as shifts do not always end as scheduled. Flight delays, processing queues, and increased cargo volume often require staff to adjust their working hours, resulting in suboptimal rest periods and work extending beyond planned shift durations. At the same time, EMPU operations are required to meet service targets tied to flight schedules and the Service Level Agreement (SLA) agreed upon with customers. While these targets are generally achievable through task prioritization, inter-shift coordination, and personnel cooperation, meeting them requires greater effort when cargo volume rises and facilities are used concurrently.

Overall, these findings indicate an imbalance between operational demands and available resources: as cargo volume increases, the number of personnel, vehicles, and inspection facilities remains fixed, forcing staff to handle multiple activities at once, extend working hours beyond normal limits, and continuously adjust task allocation to sustain SLA compliance. This suggests that the operational workload of the EMPU unit reflects not merely the volume of tasks to be completed, but also the sustained effort required to maintain operational performance under persistent resource constraints.

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