

# Strategic workload management in digital business: Lessons from a case study on internet service provider company

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## Abstract

This study aims to analyze workload distribution at ISPCX, a leading internet service provider in Bandung, to identify imbalances and propose strategies for optimizing resource allocation and operational efficiency. The study employs a single-case study approach, integrating both quantitative and qualitative methods. Data were collected through document analysis, employee surveys, semi-structured interviews, and direct observations. The Full-Time Equivalent (FTE) method was utilized to calculate workload ratios, providing a quantitative measure of workforce utilization. The analysis revealed significant workload disparities across roles and divisions. Overburdened roles, such as the Manager in the General Affairs Division (workload ratio 3.24), risk employee burnout. Conversely, underutilized roles in the Technical Division, like the Manager (0.30), indicate inefficiencies in task alignment. Balanced roles were observed in specific administrative positions, highlighting potential best practices. The findings underscore the importance of strategic task redistribution and leveraging digital tools to improve efficiency and reduce employee strain. This study provides actionable insights for digital businesses, emphasizing the role of evidence-based workload management in driving economic growth and sustainable development.

Keywords: Workload distribution, Full-Time Equivalent (FTE), digital business.

## Abstrak

Penelitian ini bertujuan untuk menganalisis distribusi beban kerja di ISPCX, salah satu penyedia layanan internet terkemuka di Bandung, untuk mengidentifikasi ketidakseimbangan dan mengusulkan strategi dalam mengoptimalkan alokasi sumber daya dan efisiensi operasional. Penelitian ini menggunakan pendekatan studi kasus tunggal dengan mengintegrasikan metode kuantitatif dan kualitatif. Data dikumpulkan melalui analisis dokumen, survei karyawan, wawancara semi-terstruktur, dan observasi langsung. Metode Full-Time Equivalent (FTE) digunakan untuk menghitung rasio beban kerja, memberikan ukuran kuantitatif atas pemanfaatan tenaga kerja. Analisis mengungkapkan ketimpangan signifikan dalam beban kerja di berbagai peran dan divisi. Peran yang kelebihan beban, seperti Manajer di Divisi Umum (rasio beban kerja 3,24), berisiko menyebabkan kelelahan karyawan. Sebaliknya, peran yang kurang dimanfaatkan di Divisi Teknik, seperti Manajer (0,30), menunjukkan ketidakefisienan dalam penyesuaian tugas. Peran yang seimbang ditemukan pada beberapa posisi administratif tertentu, yang dapat menjadi praktik terbaik. Temuan ini menekankan pentingnya redistribusi tugas yang strategis dan pemanfaatan alat digital untuk meningkatkan efisiensi dan mengurangi tekanan pada karyawan. Penelitian ini memberikan wawasan yang dapat diimplementasikan untuk bisnis digital, dengan menekankan pentingnya pengelolaan beban kerja berbasis bukti dalam mendorong pertumbuhan ekonomi dan pembangunan berkelanjutan.

Kata kunci: Distribusi beban kerja, Full-Time Equivalent (FTE), bisnis digital.

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## 1. Introduction

The internet network service industry plays a pivotal role in enabling digital transformation across various sectors (Herrmann et al., 2018; Zhou et al., 2024). With rapid technological advancements and increasing customer demands, these companies are under constant pressure to deliver reliable and high-quality services. Workforce management, therefore, emerges as a critical factor in sustaining operational efficiency and competitiveness. However, organizations in this sector often struggle with uneven workload distribution, leading to overburdened employees, underutilized resources, and compromised service quality. Organizations should implement strategies to balance workload distribution, preventing employee burnout and ensuring resources are not underutilized. These challenges are particularly acute in the digital economy, where constant connectivity can exacerbate workloads and strain workforce capacities (Viktoria et al., 2023). Addressing these issues is essential not only for enhancing employee satisfaction and organizational performance but also for sustaining competitive advantage in a highly dynamic and competitive industry. This can involve leveraging digital tools for better task allocation and monitoring (Viktoria et al., 2023).

Previous studies have highlighted the importance of workload analysis in identifying and addressing inefficiencies within organizational structures (Georgios et al., 2018; Ariyani et al., 2024). An optimized workload distribution not only enhances productivity but also improves employee well-being (Yeti, 2024; Singh et al., 2024). Similarly, Drucker (1999) emphasizes that effective task allocation is fundamental to achieving organizational objectives. In the context of technical service providers, Mintzberg's (1979) organizational theory underscores the necessity of aligning roles and responsibilities with the dynamic demands of the industry. In industries where rapid decision-making and agility are essential, as in internet service provision, optimizing workload distribution can provide a critical edge over competitors. The study by Ma et al. ((2024)) indicates policies promoting digital transformation, such as the "Broadband China" initiative, lead to improved employee allocation efficiency. This results in reduced staff redundancy and enhanced productivity, particularly in firms located in demonstration cities.

This study focuses on one of the prominent internet service provider companies in Bandung city which later in the study called ISPCX, to analyze workload distribution using the Full-Time Equivalent (FTE) method. The FTE approach provides a quantitative measure of workforce utilization by comparing actual working hours to effective working hours (Hadi, 2023; ;Ged et al., 2014). As described by Robbins and Judge (2017), the FTE method provides a precise calculation of how many full-time employees are required to perform specific tasks within a given timeframe. This method is widely recognized for its ability to quantify workload imbalances by comparing actual working hours with an ideal benchmark (; Santika et al., 2022; Muhammad et al., 2023; Rizki et al., 2024). Further, Armstrong and Taylor (2023) argue that FTE analysis can highlight inefficiencies and help managers redistribute tasks to achieve equilibrium in workload distribution.

A study by Sonny et.al. (2023) suggest The FTE method is used to analyze workload and determine the optimal number of employees needed. For instance, at PT Mada Wikri Tunggal, the FTE method helped identify an imbalance between sales growth and workforce size, highlighting the need for adjustments to prevent employee fatigue and maintain productivity. This analysis is crucial for determining the optimal number of employees needed, ensuring that neither excessive nor minimal workloads lead to inefficiencies, physical, or mental fatigue, ultimately impacting productivity negatively. In the Sri Rejeki bakery, the FTE method revealed uneven workload distribution across workstations, leading to recommendations for additional staffing to normalize workload levels (Rahmi et al., 2023). Similarly, at PT Pupuk Kujang Cikampek, FTE calculations identified specific departments with excessive workloads, prompting suggestions for workforce expansion (Yudha et al., 2024).

Another previous study from different sectors shows the role of FTE in workload analysis, for example, the rise of digitalization and remote work has introduced new challenges in workload management. While digital tools can increase efficiency, they can also lead to higher workloads due to constant connectivity. FTE can help in assessing the impact of digitalization on workload and in designing interventions to mitigate its negative effects (Hannes et al., 2024). In healthcare, workload management is critical for ensuring patient safety and care quality. The use of FTE allows for the standardization of staffing levels, which is essential for maintaining operational efficiency and employee well-being. This is particularly important in contexts where the workload can fluctuate significantly, such as during pandemics or seasonal outbreaks (Raymond et al., 2024). In the manufacturing sector, workload management involves balancing the pace of work with employee health and safety. Studies have shown that increased work pace can lead to higher energy expenditure and perceived effort, impacting long-term musculoskeletal health. FTE can help in planning and distributing workloads to prevent overburdening employees (Javanmardi et al., 2024).

Moreover, the relevance of this research extends beyond its immediate organizational context, contributing to broader societal and economic objectives. By exploring the application of the Full-Time Equivalent (FTE) method, this study aligns with global efforts to promote decent work and economic growth as outlined in the Sustainable Development Goals (SDG 8). Effective workload management ensures not only the well-being of employees but also the sustainable scaling of digital services, which are foundational for the digital economy. By addressing workload disparities, this research supports the creation of resilient organizations capable of driving broader economic and technological advancement.

The problem statement driving this research is twofold: first, to address the overburdening of employees in critical divisions, and second, to identify opportunities for task redistribution in underutilized roles within divisions. By systematically evaluating workload ratios and identifying root causes of imbalances, this study aims to propose actionable strategies to optimize resource allocation and enhance operational efficiency. The findings from this study contribute to the growing body of

literature on workload management in digital business particularly in internet service provider companies. They also provide practical insights for decision-makers in similar organizational contexts, emphasizing the need for evidence-based approaches to workforce optimization.

## 2. Research Method

This study adopts a single-case study approach as outlined by Yin (2018), who highlights the value of case studies in understanding intricate and contextualized phenomena. This method is particularly suitable for exploring the complexities of workload dynamics in real-world organizational settings. The research focuses on ISPCX as a single case, offering a holistic examination of its workload distribution, management practices, and operational challenges. By delving deeply into the organization's context, this approach generates comprehensive insights that bridge theoretical frameworks and practical applications, enabling the identification of targeted solutions and strategic improvements. The research was conducted at ISPCX, a leading internet network provider located in Bandung city. The company operates across multiple divisions, including technical, administrative, and network operations, providing a diverse environment for studying workload dynamics. By integrating both quantitative and qualitative methods, this methodology provides a robust framework for analyzing workload dynamics at ISPCX.

The study utilized a combination of primary and secondary data sources to ensure a comprehensive analysis of workload dynamics at ISPCX. Primary data were gathered through direct interactions with employees and organizational processes, including employee surveys designed to capture task durations, complexities, and perceptions of workload; semi-structured interviews with managers and staff to gain deeper qualitative insights into workload challenges and task allocation practices; and direct observations of task execution to validate survey responses and identify real-time work patterns. Secondary data were derived from existing organizational documents, such as detailed organizational charts that provided an overview of hierarchical structures, performance reports that offered quantitative metrics of employee outputs, and job descriptions that outlined role-specific responsibilities. Together, these data sources provided a multi-faceted view of workload dynamics, ensuring the study's findings were both data-rich and contextually grounded.

Data collection was conducted using a triangulated approach to enhance validity and reliability, ensuring a comprehensive understanding of workload dynamics within ISPCX. First, Document Analysis was performed by reviewing internal organizational records, including job descriptions and performance reports. This provided a foundational understanding of employee roles and quantitative performance metrics. Second, 41 employee surveys were administered using structured questionnaires designed to capture detailed insights into task durations, perceived complexities, and workload perceptions. These surveys allowed employees to reflect on their workload and provide measurable data on their daily tasks. Third, semi-structured interviews were conducted with managers and staff to gather qualitative insights into specific

workload challenges and nuances of task allocation. These interviews offered a deeper understanding of contextual factors influencing workload distribution. Together, these methods offered a multi-dimensional perspective on workload analysis, combining employee perceptions, qualitative insights, and objective organizational data to form a robust dataset for analysis.

The quantitative and qualitative data were analyzed using structured and systematic approaches to ensure a comprehensive understanding of workload dynamics within ISPCX. Quantitative analysis employed the Full-Time Equivalent (FTE) method, which involved the following steps:

- 1) Calculating Effective Working Hours, the formula for calculating effective working hours is expressed as:

$$\text{Effective Working Hours} = (D_y - D_l) \times H_d$$

Where:

$D_y$ : Total annual days (365 days)

$D_l$ : Days allocated to leave and holidays, including weekends and public holidays

$H_d$ : Average daily effective working hours available for tasks

This formula accounts for all non-working periods to derive the total hours employees can effectively dedicate to work tasks annually. Based on Minister of Administrative and Bureaucratic Reform Regulation Number 1 of 2020 on Guidelines for Job Analysis and Workload Analysis (2020), the effective working hours would be 1250 hours annually.

- 2) Calculating Workload Ratios, Workload ratios were computed as:

$$\text{Workload Ratios} = \frac{\text{Total Hours Worked}}{\text{Effective Working Hours}}$$

A workload ratio greater than 1.0 indicates overburdening, suggesting that employees are working beyond their effective capacity (Beth & Crisp, 2022). Conversely, ratios below 1.0 imply underutilization of the employee's potential, necessitating redistribution of tasks or reallocation of resources (Andrés, 2017).

Quantitative data were processed using Microsoft Excel for descriptive statistics and to create visualizations, such as bar graphs and pie charts, for workload ratios and distribution patterns. These visual tools were instrumental in identifying disparities and presenting findings effectively.

### 3. Results and Discussion

#### 3.1. Results

The findings show the workload analysis at ISPCX in Table 1. revealed several key patterns and disparities across divisions. The Full-Time Equivalent (FTE) analysis was applied to calculate the workload ratios for each role, yielding the following results: the Technical Division shows significant variability in workload ratios among its roles. The Manager and Coordinator roles are severely underutilized, with workload ratios of 0.30 and 0.31, respectively. These roles have a substantial gap between their effective

working hours (1,250 annually) and the actual hours worked (379 and 390 hours). This underutilization suggests a lack of clearly defined responsibilities and an inefficient alignment with the division's operational needs. On the other hand, the Administrative Staff role in the same division has a workload ratio of 1.37, indicating overburdening due to excessive manual and repetitive tasks such as documentation and reporting. The Leader Technician and Technician roles, with workload ratios of 1.05 and 1.09 respectively, demonstrate near-optimal task allocation. However, slight adjustments in workload distribution could further enhance their efficiency.

Table 1. Workload Ratios by Division

Division	Role	Effective Working Hours (hr/y)	Total Hours Worked (hr/y)	Workload Ratio
Technical Division	Manager	1250.00	379.00	0.30
	Coordinator	1250.00	390.00	0.31
	Administrative Staff	1250.00	1717.58	1.37
Network	Manager	1250.00	1307.33	1.05
Operation Center (NOC) Division	Technical Support Staff	1250.00	1365.14	1.09
Administrative Division	Administrative Manager	1250.00	3725.00	2.98
	Finance Staff	1250.00	2037.50	1.63
General Affairs Division	Manager	1250.00	4050.00	3.24
	Driver	1250.00	4087.50	3.27

Source: Processed data by the authors (2024)

The NOC Division is heavily overburdened, with all roles showing workload ratios significantly exceeding 1.0. The Manager role, with a workload ratio of 2.98, is particularly strained, handling tasks that amount to nearly three times the effective working capacity. Similarly, Technical Support Staff have a workload ratio of 1.63, while general Staff have a ratio of 2.03. These findings highlight the intensive demands of network monitoring and problem resolution, compounded by inefficient task delegation and the absence of automation. This overburdening not only risks employee burnout but also compromises the division's overall effectiveness in maintaining network stability.

The Administrative Division reflects a mix of overburdened and near-optimal roles. The Manager role is critically overburdened with a workload ratio of 3.27, far exceeding effective capacity. This is likely due to a combination of multitasking demands and inadequate delegation of routine administrative tasks. Conversely, Staff in this division have a workload ratio of 1.08, suggesting a relatively balanced task distribution. While the staff workload is manageable, improvements in task delegation and automation could further optimize their efficiency and alleviate the pressure on managerial roles.

The General Affairs Division exhibits significant underutilization in its roles. The Manager has a workload ratio of 0.25, with only 312.50 hours worked annually out of an effective 1,250 hours. Similarly, Staff roles have a workload ratio of 0.95, indicating

near-optimal allocation but with room for slight adjustments. The underutilization of the Manager role highlights an opportunity to redistribute tasks from overburdened divisions to this underutilized capacity, maximizing resource efficiency.

The findings presented in Figure 1. Workload Ratios by Role and Division reveal notable disparities in workload distribution across ISPCX's divisions. These imbalances highlight inefficiencies that require immediate attention to optimize resource allocation and operational alignment. The General Affairs Division, for example, demonstrates significant overburdening, with the Manager and Driver roles exhibiting workload ratios of 3.24 and 3.27, respectively. Such excessive demands place employees at risk of burnout and compromise their ability to sustain productivity. This finding underscores the necessity for strategic task redistribution or workforce expansion to mitigate these risks (Singh et al., 2024; Yeti, 2024).

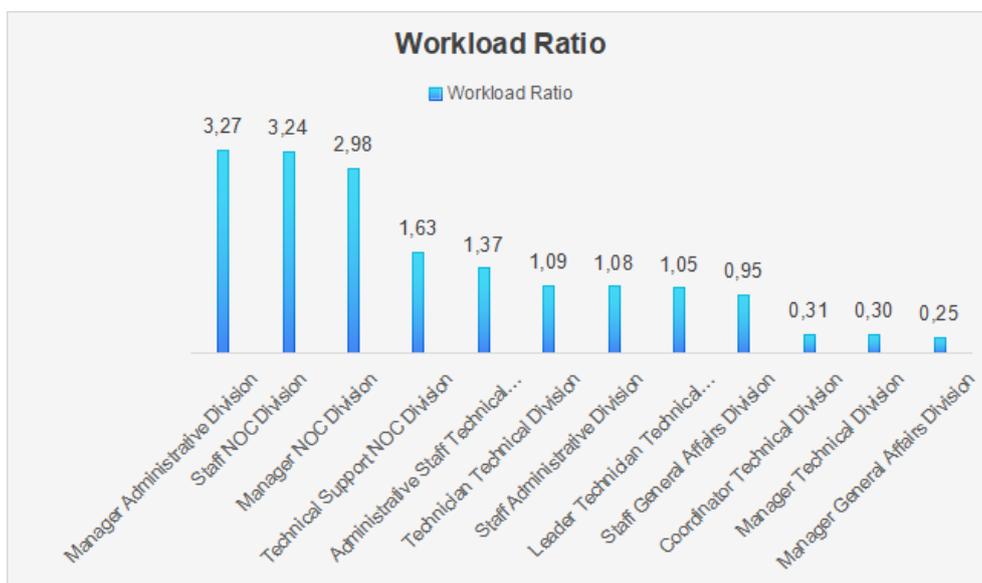


Figure 1. Workload Ratios by Role and Division  
Source: Processed data by the authors (2024)

### 3.2. Discussion

#### Disparities in Workload Allocation

The workload ratios across divisions at ISPCX, as presented in Table 1, reveal significant disparities in workload allocation. These findings can be contextualized through organizational and management theories. Mintzberg's (1979) organizational theory highlights the importance of aligning roles and responsibilities with organizational needs. In the Technical Division, managerial roles with workload ratios of 0.30 and 0.31 reflect a misalignment, where these positions lack sufficient responsibilities to meet operational demands. This underutilization underscores the need for better-defined responsibilities to optimize role effectiveness. Drucker (1999) emphasizes that effective task allocation is fundamental to achieving organizational goals. The overburdened Administrative Staff (workload ratio of 1.37) and Technical Support Staff (1.09) exemplify Drucker's concern that excessive workloads can lead to reduced productivity. Similarly, Armstrong and Taylor (2023) argue that such

imbalances highlight inefficiencies in resource allocation, necessitating task redistribution to balance workloads and enhance organizational performance.

### **The Overburdening**

The overburdening observed in roles such as the General Affairs Division Manager (3.24) and the Driver (3.27) poses risks of employee burnout. According to Singh et al. (2024) overworked employees often face challenges maintaining work-life balance, which can negatively impact overall well-being and productivity. Yeti (2024) further suggests that implementing task automation and redistributing excessive workloads could alleviate these risks, promoting a healthier and more efficient workplace environment. The Full-Time Equivalent (FTE) method used in this study provides a quantitative measure of workload distribution and highlights imbalances (Hadi, 2023; Judge & Robbins, 2017). For instance, while underutilized roles in the Technical Division point to inefficiencies in role design, overburdened roles like Finance Staff (1.63) underscore the need for improved resource allocation. FTE analysis, as Robbins and Judge (2017) suggest, serves as a diagnostic tool for achieving equilibrium in workforce distribution. The digitalization of workplace tasks introduces additional challenges, particularly evident in the Network Operation Center (NOC) Division, where roles such as the Manager (2.98) are heavily strained. Viktoria et al. (2023) note that digital transformation, while enhancing efficiency, often increases workloads due to constant connectivity. Leveraging digital tools for task allocation and monitoring could address such imbalances, ensuring that digitalization benefits rather than burdens employees.

Insights from other sectors, for example, workload management in healthcare and manufacturing highlight the value of FTE analysis in balancing employee demands during periods of increased workload (Rahmi et al., 2023; Raymond et al., 2024) Drawing from these sectors, ISPCX could implement strategies such as dynamic task reallocation during peak periods to ensure operational resilience and employee well-being. In summary, the workload analysis at ISPCX, framed through organizational theories and supported by empirical findings, underscores the need for evidence-based strategies to optimize workforce efficiency. Implementing clearer role definitions, redistributing excessive workloads, and leveraging digital tools for task allocation are critical steps to achieving a balanced and productive workforce. These measures align with both theoretical perspectives and practical insights from other industries, highlighting their applicability in addressing workload disparities at ISPCX.

### **The Underutilized**

In Figure 1, in stark contrast, roles within the Technical Division, such as the Manager (0.30) and Coordinator (0.31), are underutilized. These low ratios point to inefficiencies in assigning responsibilities and aligning tasks with organizational priorities, reflecting Mintzberg's (1979) emphasis on the importance of role alignment for operational effectiveness. This underutilization stands in contrast to the Administrative Staff in the same division, who are overburdened with a workload ratio of 1.37. Such discrepancies

highlight the need for better delegation practices to balance workloads across roles within the division.

The Network Operation Centre (NOC) Division reflects another dimension of workload disparity. Here, roles such as the Manager (2.98) and Technical Support Staff (1.63) experience significant overburdening due to the high demands of network monitoring and issue resolution. These findings align with Viktoria et al.'s (2023) observation that digital transformation can exacerbate workload demands, particularly in roles requiring constant connectivity. Introducing automation tools and revisiting task prioritization could alleviate pressure on these roles, enhancing efficiency while preventing fatigue.

In the Administrative Division, a blend of overburdened and balanced roles emerges. While the Manager role exhibits a critical workload ratio of 2.98, suggesting severe strain, other roles like Staff (1.08) display more manageable allocations. This disparity signals the need for improved task delegation to relieve managerial strain while maintaining overall operational efficiency. Armstrong and Taylor (2023) argue that targeted delegation practices and automation can significantly enhance organizational performance, which is particularly applicable in this division.

Overall, Figure 1 vividly underscores systemic challenges in workload management at ISPCX. The juxtaposition of overburdened and underutilized roles across divisions reflects inefficiencies in task alignment and workforce optimization. Robbins and Judge (2017) advocate for evidence-based approaches such as the Full-Time Equivalent (FTE) methodology to systematically address such disparities. By recalibrating task distribution and leveraging technology, ISPCX can create a more balanced and efficient workforce.

#### **4. Conclusion**

The aim of this study was to analyze workload distribution at ISPCX, a leading internet service provider in Bandung, using the Full-Time Equivalent (FTE) method. The study sought to identify workload imbalances across divisions and propose actionable strategies to optimize resource allocation, improve operational efficiency, and prevent employee burnout. By employing a robust case study approach, this research combined quantitative and qualitative data to provide a comprehensive understanding of workload dynamics within the organization.

The results revealed significant disparities in workload distribution across roles and divisions. Underutilized roles, such as the Manager and Coordinator in the Technical Division, indicated inefficiencies in task assignment and responsibility alignment. Conversely, roles in the General Affairs and Administrative Divisions were critically overburdened, with workload ratios exceeding three times the effective working capacity in some cases. The Network Operation Center (NOC) Division also faced intense workload pressures, underscoring the challenges of managing dynamic operational demands in a digital environment. These findings underscore the need for

strategic task reallocation and the adoption of digital tools to balance workloads effectively.

From a practical perspective, this study highlights the importance of evidence-based approaches to workload management. Organizations like ISPCX can benefit from implementing targeted strategies such as clearer role definitions, automated task management systems, and periodic workload reviews. These measures can enhance employee well-being, reduce inefficiencies, and improve overall organizational performance. Additionally, insights from this study can inform decision-makers in similar industries, emphasizing the critical role of workload optimization in sustaining competitive advantage.

For future studies, it is recommended to explore the longitudinal impacts of workload redistribution on employee productivity and job satisfaction. Further research could also investigate the role of emerging technologies, such as artificial intelligence, in optimizing task allocation and monitoring workloads. Expanding the scope of analysis to include cross-industry comparisons could provide broader insights into effective workload management practices. By building on the findings of this study, researchers and practitioners can continue to develop innovative solutions to address the complexities of workload dynamics in the digital age.

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