

## **The Influence of Career Patterns on Work Motivation of Air Traffic Controllers at Jakarta Air Traffic Service Center (JATSC)**

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### **Abstract**

*The profession of Air Traffic Controller (ATC) at the Jakarta Air Traffic Service Center (JATSC) carries a critical responsibility for maintaining aviation safety in one of Southeast Asia's busiest airspaces. Given the high-pressure environment in which ATCs operate, work motivation plays a vital role in sustaining performance and minimizing human error. This study aims to analyze the influence of career patterns on ATC work motivation at JATSC. Using a quantitative descriptive-correlational method, data were collected from 89 ATC personnel selected through purposive sampling. Primary data were obtained using a Likert-scale questionnaire supported by observation and documentation. Data were analyzed using descriptive statistics, Pearson correlation, and simple linear regression to test the hypothesis. The results revealed a significant positive relationship between career patterns and work motivation, indicating that clearer and more transparent career structures enhance motivation and performance. Moreover, respondents perceived that limited promotion opportunities and unclear advancement pathways could potentially decrease long-term motivation. The findings underscore the importance of implementing a structured and competency-based career management system to sustain ATC motivation and operational safety. These results provide empirical evidence and managerial implications for AirNav Indonesia to improve career development policies that promote fairness, transparency, and professional growth*

**Keywords: Career Pattern, Work Motivation, Air Traffic Controller, JATSC, Human Resource Management**

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## **INTRODUCTION**

Aviation safety is the most critical aspect of air transportation and serves as the top priority for all stakeholders involved. Among the professions that hold direct responsibility for ensuring aviation safety is the Air Traffic Controller (ATC). ATCs are tasked with managing aircraft movements during takeoff, landing, and within controlled airspace to prevent conflicts or potential accidents. This profession demands high concentration, accuracy, quick decision-making under pressure, and resilience to stress (Panjaitan & Supardam, 2025).

The Jakarta Air Traffic Service Center (JATSC), operating under AirNav Indonesia, plays a pivotal role in managing air traffic within the Jakarta Flight Information Region (FIR) one of the busiest airspaces in Southeast Asia. Handling thousands of daily flight movements, JATSC operates in an environment characterized by complexity and operational intensity. Such conditions can significantly affect the psychological state and work motivation of ATC personnel. Studies in Indonesia have indicated that ATCs experience high levels of mental workload, particularly related to time pressure and task demands (Triyanti et al., 2020), while other studies have shown that qualitative workload contributes notably to occupational stress, emphasizing the need for ongoing professional training and mental health maintenance (Mallapiang et al., 2022).

Work motivation is an essential factor influencing employee performance, particularly in high-stress professions like air traffic control. High motivation enhances job performance, organizational loyalty, and teamwork effectiveness, while low motivation can lead to reduced service quality and a higher likelihood of human error. Research in Indonesia has shown that work motivation has a significant positive impact on employee performance, both directly and

indirectly through job satisfaction (Nurdiansah et al., 2020). Additionally, factors such as leadership, work environment, training, task characteristics, rewards, and career pathways influence employee motivation (Nor & Sridadi, 2023).

One of the key organizational factors believed to influence motivation is career pattern. A well-structured career pattern provides employees with a clear professional roadmap, including transparent promotion procedures, competency development opportunities, and fair performance evaluations. Previous research suggests that effective career development significantly enhances employee motivation and overall job performance (Sugiarti, 2021). Transparent and equitable career systems not only act as non-financial incentives but also strengthen organizational commitment and reduce turnover intention (Sadikin & Putri, 2025). However, preliminary observations at JATSC indicate that many ATCs perceive the career advancement process as lacking in transparency and fairness. Reports of stagnation, limited promotion opportunities, and bureaucratic systems may contribute to job dissatisfaction, decreased motivation, and even burnout (Imroz & Sadique, 2022).

Based on these issues, the research seeks to analyze “The Influence of Career Patterns on Work Motivation of Air Traffic Controllers at the Jakarta Air Traffic Service Center (JATSC).”

## RESEARCH METHODS

This study employs a quantitative research method with a descriptive-correlational approach aimed at analyzing the relationship between career patterns (independent variable) and work motivation (dependent variable) among Air Traffic Controllers (ATCs) at the Jakarta Air Traffic Service Center (JATSC). The method was chosen to allow the researcher to obtain measurable and objective data that can be statistically analyzed to test hypotheses concerning the influence of organizational career systems on employee motivation levels (Sugiyono, 2016).

### Research Design and Population

The research design is correlational, intended to identify both the strength and direction of the relationship between two primary variables. The population of this study includes all ATCs employed at JATSC, totaling 436 personnel across operational units such as Tower (TWR), Approach (APP), and Area Control Center (ACC). Using purposive sampling, 89 respondents were selected based on two criteria: (1) active operational involvement in air traffic control and (2) willingness to participate in the survey. The sample size was determined using the Slovin formula with a margin of error of 10%, providing a statistically representative sample of the target population.

### Variables and Operational Definitions

1. Independent Variable (X): Career Pattern defined as the organizational system that governs career progression, including transparency in promotions, competency development opportunities, and fairness in evaluation processes. A clear career pattern reflects structured professional growth and predictability, fostering employee engagement and motivation.
2. Dependent Variable (Y): Work Motivation defined as the internal and external drive influencing enthusiasm, commitment, and responsibility in executing work tasks. In the context of ATCs, motivation directly supports concentration, performance accuracy, and mental resilience under pressure (Riyanto & Endri, 2021).

### Data Collection Techniques

Data were gathered using three primary techniques:

1. Direct Observation: Conducted at JATSC operational facilities to understand real working conditions, teamwork dynamics, and environmental stressors influencing motivation and career perception.

2. Questionnaire (Primary Instrument): A structured Likert-scale (1-5) questionnaire was distributed both physically and digitally. It contained two sections: demographic information and variable indicators measuring perceptions of career clarity and motivation. The items were adapted from established human resource management frameworks (Sugiarti, 2021; Ghozali, 2018).
3. Semi-Structured Interviews: Conducted with selected respondents to validate and enrich quantitative findings through qualitative insights about the organizational career system.

### Data Analysis and Statistical Model

The collected data were analyzed using descriptive and inferential statistical techniques.

1. Descriptive Statistics summarized demographic characteristics, frequency distributions, and central tendencies of variables.
2. Pearson Correlation Test was employed to assess the strength and direction of the linear relationship between career patterns and work motivation.
3. Simple Linear Regression Analysis was applied to determine the extent to which the independent variable (career pattern) affects the dependent variable (work motivation), using the general equation:

$$Y=a+bX+e$$

where Y represents work motivation, X career pattern, aaa constant, b regression coefficient, and eee error term (Ghozali, 2018).

### Research Instruments and Measurement Scale

The questionnaire comprised 14 core statements seven for each variable rated on a five-point Likert scale (1 = Strongly Disagree to 5 = Strongly Agree). This scale was chosen for its effectiveness in measuring psychological and attitudinal constructs, providing both reliability and sensitivity for quantitative analysis.

### Research Focus and Analytical Framework

The research focuses on identifying whether a transparent and structured career system significantly contributes to ATC motivation levels. The results aim to highlight that when career progression opportunities are clear and competency development is encouraged, motivation tends to increase, reinforcing both job performance and psychological resilience (Mallapiang et al., 2022; Panjaitan & Supardam, 2025).

## RESULT AND DISCUSSION

The findings of this research reveal a significant relationship between career patterns and work motivation among Air Traffic Controllers (ATCs) at the Jakarta Air Traffic Service Center (JATSC). The data collected through questionnaires distributed to 89 respondents show that a structured and transparent career system plays a vital role in sustaining motivation in high-pressure environments such as air traffic control.

The demographic profile indicates that the majority of respondents are operational ATCs with over five years of experience, representing the Tower (TWR), Approach (APP), and Area Control Center (ACC) units. The gender distribution shows male dominance, reflecting the global trend in the air traffic control profession. Most respondents are in the productive age range of 25-40 years, an age group generally associated with strong career aspirations and active professional engagement.

### Descriptive Analysis of Career Pattern (X)

Table 1. Descriptive Summary of Career Pattern Variable

Indicator	Mean Score	Interpretation
Career clarity and structure	4.12	High
Promotion transparency	3.85	Moderate

Competence development opportunities	4.03	High
Fairness and objectivity of evaluation	3.91	Moderate
Supervisory support	4.10	High

The data demonstrate that ATCs perceive career clarity and supervisory support as well-implemented aspects within JATSC. However, transparency in promotion and fairness in assessment are viewed as moderate, suggesting areas for organizational improvement. These findings are consistent with studies emphasizing the importance of transparent and equitable career management in maintaining employee engagement and motivation (Sugiarti, 2021; Sadikin & Putri, 2025).

### Descriptive Analysis of Work Motivation (Y)

Table 2. Descriptive Summary of Work Motivation Variable

Indicator	Mean Score	Interpretation
Enthusiasm for work	4.32	High
Commitment and responsibility	4.28	High
Perceived job significance	4.21	High
Resilience under pressure	4.11	High
Organizational loyalty	4.09	High

Overall, ATCs at JATSC exhibit a high level of motivation. This reflects their strong sense of professional duty and intrinsic motivation rooted in the safety-critical nature of their work. These findings align with Deci and Ryan's (2000) self-determination theory, suggesting that intrinsic motivation plays a key role in sustaining performance in demanding professions.

#### Relationship Between Career Pattern and Work Motivation

The results of the Pearson correlation test show a positive and significant correlation between career pattern and work motivation ( $r = 0.684$ ,  $p < 0.05$ ). The coefficient of determination ( $R^2 = 0.468$ ) indicates that approximately 46.8% of the variation in motivation levels can be explained by the career pattern variable. This suggests that while other factors (such as leadership, workload, and work environment) may influence motivation, career structure remains a dominant factor.

Figure 1. Relationship Between Career Pattern and Motivation



(A conceptual diagram showing how career clarity, promotion transparency, and competence development influence ATC motivation through psychological satisfaction and organizational commitment) Source: Processed Research Data (2025).

Figure 1. Relationship Between Career Pattern and Motivation

This correlation supports previous research by Riyanto and Endri (2021), who argue that professional growth opportunities and fair career systems enhance motivation in high-stress occupations. Furthermore, the findings indicate that when ATCs perceive their career trajectory as structured and fair, they experience higher satisfaction, reduced stress, and a stronger commitment to safety and operational excellence.

The study underscores the significance of career management in maintaining motivation among ATCs a profession where human performance directly impacts aviation safety. While motivation levels remain high, qualitative responses reveal that some ATCs experience career stagnation due to limited promotion opportunities within the organization's rigid hierarchical structure. This perception is consistent with the concept of a *career plateau* (FERENCE et al., 1977), where employees with advanced technical expertise face minimal opportunities for upward mobility.

Despite this limitation, most ATCs maintain strong professional motivation derived from intrinsic factors such as pride in contributing to flight safety and the sense of responsibility inherent in their role. This indicates a separation between job satisfaction and career satisfaction. As noted by Herzberg (1966), intrinsic motivators such as recognition, responsibility, and personal growth are essential in sustaining long-term motivation.

However, the absence of transparent and competency-based career systems can gradually erode intrinsic motivation. This finding aligns with studies showing that unclear promotion systems and lack of recognition contribute to declining morale and increased turnover intentions (Imroz & Sadique, 2022). In organizations like JATSC, where operational excellence depends heavily on mental focus and commitment, declining motivation can indirectly affect safety performance.

The research also suggests that ATCs value competence-based career development rather than hierarchical advancement. Opportunities such as training, mentoring, and role specialization (e.g., as instructors or operational developers) are perceived as equally meaningful career growth indicators. This supports the *career enrichment* model proposed by Hall (2002), which emphasizes horizontal career development through skill expansion and recognition of expertise.

Finally, from an organizational perspective, the findings imply that career policy reform is essential to sustain ATC motivation. AirNav Indonesia and JATSC management should consider implementing transparent, measurable, and inclusive career pathways that integrate

performance, experience, and competency. Such systems not only improve individual motivation but also contribute to long-term operational safety and organizational resilience.

## CONCLUSION

The results of this study conclude that a well-structured and transparent career pattern significantly influences the work motivation of Air Traffic Controllers (ATCs) at the Jakarta Air Traffic Service Center (JATSC). The findings demonstrate that clarity in career progression, fairness in promotion, and competency-based development opportunities enhance psychological satisfaction, commitment, and professional engagement among controllers. Conversely, limited transparency and career stagnation tend to reduce morale and long-term motivation, particularly in a high-pressure operational environment. The positive and significant correlation between career structure and motivation highlights that non-financial factors, such as recognition, fairness, and growth opportunities, play an equally crucial role as monetary incentives in maintaining workforce effectiveness. Therefore, AirNav Indonesia is encouraged to strengthen its career management system through transparent evaluation, continuous professional training, and equitable promotion mechanisms to sustain high performance and operational safety within the organization.

## REFERENCES

- Deci, E. L., & Ryan, R. M. (2000). The “What” and “Why” of Goal Pursuits: Human Needs and the Self-Determination of Behavior. *Psychological Inquiry*.
- Ference, T. P., Stoner, J. A. F., & Warren, E. K. (1977). *Managing the Career Plateau*. Academy of Management Review.
- Ghozali, I. (2018). *Aplikasi Analisis Multivariate dengan Program IBM SPSS 25*. Universitas Diponegoro Press.
- Hall, D. T. (2002). *Careers In and Out of Organizations*. Sage Publications.
- Herzberg, F. (1966). *Work and the Nature of Man*. Cleveland: World Publishing.
- Imroz, S., & Sadique, F. (2022). An Analysis of Air Traffic Controllers’ Job Satisfaction. *Journal of Aviation/Aerospace Education & Research*. <https://doi.org/10.15394/jaaer.2022.1910>.
- Mallapiang, F., Hamid, A., Ibrahim, H., & Azriful, A. (2022). Description of qualitative workload, career development and personal responsibility toward the risk of work stress operators on Air Traffic Controller (ATC). *Hospital Management Studies Journal*. <https://doi.org/10.24252/hmsj.v3i1.25081>.
- Nor, M., Eliyana, A., & Sridadi, A. (2023). Systematic Literature Review: The Importance Of Work Motivation To Employee Performance. *Jurnal Pamator : Jurnal Ilmiah Universitas Trunojoyo*. <https://doi.org/10.21107/pamator.v16i1.19060>.
- Nurdiansyah, R., Mariam, S., Ameido, M., & Ramli, A. (2020). Work Motivation, Job Satisfaction and Employee Performance. , 20, 153-162. <https://doi.org/10.25105/ber.v20i2.8006>.
- Panjaitan, G., & Supardam, D. (2025). Peran Pengatur Lalu Lintas Udara Dalam Memandu Lalu Lintas Penerbangan. Sebuah Kepemimpinan Otentik Tinjauan Literatur Sistematis. *Aviation Business and Operations Journal*. <https://doi.org/10.54147/jobp.v2i02.1118>.

- Riyanto, S., Endri, E., & Herlisha, N. (2021). Effect of work motivation and job satisfaction on employee performance: Mediating role of employee engagement. *Problems and Perspectives in Management*. [https://doi.org/10.21511/ppm.19\(3\).2021.14](https://doi.org/10.21511/ppm.19(3).2021.14)
- Sadikin, M., Junaedi, J., & Putri, W. (2025). Enhancing Employee Performance Through Motivation and Career Development. *Indikator: Jurnal Ilmiah Manajemen dan Bisnis*. <https://doi.org/10.22441/indikator.v9i1.30134>.
- Sugiarti, E. (2021). The Influence of Training, Work Environment and Career Development on Work Motivation That Has an Impact on Employee Performance at PT. Suryamas Elsindo Primatama In West Jakarta. *International Journal of Artificial Intelligence Research*. <https://doi.org/10.29099/ijair.v6i1.304>.
- Sugiyono. (2016). *Metode Penelitian Pendidikan (Pendekatan Kuantitatif, Kualitatif dan R&D)*. Bandung: Alfabeta.
- Triyanti, V., Azis, H., Iridiastadi, H., & , Y. (2020). Workload and Fatigue Assessment on Air Traffic Controller. *IOP Conference Series: Materials Science and Engineering*, 847. <https://doi.org/10.1088/1757-899X/847/1/012087>.