# The Impact of Human Resource Analytics on the Effectiveness of Human Resource Management at the Environmental Service Office of Southwest Papua Province

**Roberthair Suripatty[1], Naomi Ormak[2], Victor P. K. Lengkong[3], Merinda H. Ch. Pandowo[4]**

[1] Universitas Victory Sorong, Papua Barat Daya, Indonesia
[2] Pemerintah Kabupaten Sorong Papua Barat Daya, Indonesia
[3,4] Universitas Sam Ratulangi Manado, Sulawesi Utara, Indonesia

Email: rsuripatty65@gmail.com, naomiormak@gmail.com, vpk.lengkong@unsrat.ac.id, merindapandowo@unsrat.ac.id

**ABSTRAK**

Penelitian ini bertujuan untuk menganalisis pengaruh Human Resource Analytics terhadap efektivitas pengelolaan sumber daya manusia pada Kantor Dinas Lingkungan Hidup Kabupaten Sorong, dengan pengambilan keputusan berbasis data sebagai variabel intervening. Penelitian ini menggunakan metode kuantitatif dengan pendekatan eksplanatori. Populasi penelitian adalah seluruh pegawai Dinas Lingkungan Hidup Kabupaten Sorong Provinsi Papua Barat Daya, yang diperoleh sampel sebanyak 110 responden dengan teknik pengambilan sampel purposive sampling. Data dikumpulkan melalui kuesioner dengan skala Likert 1–5, dan dianalisis menggunakan metode Structural Equation Modeling Partial Least Square (SEM-PLS). Hasil penelitian menunjukkan bahwa: (1) Human Resource Analytics berpengaruh positif dan signifikan terhadap efektivitas pengelolaan SDM; (2) Human Resource Analytics berpengaruh positif dan signifikan terhadap pengambilan keputusan berbasis data; (3) pengambilan keputusan berbasis data berpengaruh positif dan signifikan terhadap efektivitas pengelolaan SDM; dan (4) Human Resource Analytics berpengaruh secara tidak langsung terhadap efektivitas pengelolaan SDM melalui pengambilan keputusan berbasis data sebagai variabel intervening. Temuan ini memperkuat teori evidence-based HRM serta menegaskan pentingnya pemanfaatan analitik SDM untuk mendukung efektivitas pengelolaan pegawai di sektor publik.

**Kata Kunci:** human resource analytics, pengambilan keputusan berbasis data, efektivitas pengelolaan SDM, pemerintahan daerah

**ABSTRACT**

*This study aims to analyze the effect of Human Resource Analytics on the effectiveness of human resource management at the Sorong Regency Environmental Service Office, with data-based decision making as an intervening variable. This research uses quantitative methods with an explanatory approach. The study population was all employees of the Environmental Service Office of Sorong Regency, Southwest Papua Province, which obtained a sample of 110 respondents with purposive sampling technique. Data were collected through a questionnaire with a Likert scale of 1-5, and analyzed using the Structural Equation Modeling Partial Least Square (SEM-PLS) method. The results showed that: (1) Human Resource Analytics has a positive and significant effect on HR management effectiveness; (2) Human Resource Analytics has a positive and significant effect on data-based decision making; (3) data-based decision making has a positive and significant effect on HR management effectiveness; and (4) Human Resource Analytics has an indirect effect on HR management effectiveness through data-based decision making as an intervening variable.*
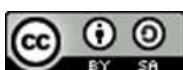
*These findings strengthen the evidence-based theory of HRM and confirm the importance of utilizing HR analytics to support the effectiveness of employee management in the public sector.     .*

## INTRODUCTION

The role of Human Resources (HR) in public organizations cannot be underestimated, as HR is a strategic asset that drives the organization's operations. In the context of government agencies, the presence of competent, professional, and highly integrated HR significantly impacts the achievement of the vision, mission, and work programs that have been designed. HR is not merely a workforce, but also decision-makers, innovators, and managers of other resources so that they can be utilized optimally. Therefore, the quality of HR will significantly determine the extent to which a public organization is able to respond to the challenges of environmental change, whether in terms of regulations, public demands, or technological developments (Destiana, 2023).

Human resources (HR) are a key factor in organizational success (Mokobombang & Natsir, 2024). In the public sector, effective human resource management plays a significant role in determining the quality of public services. Data from the Ministry of Administrative and Bureaucratic Reform (2023) shows that approximately 68% of local government agencies in Indonesia still face challenges in optimizing employee performance due to weak human resource management systems. This situation also occurs in Southwest Papua, where a 2023 BPS report noted that the productivity level of state civil servants (ASN) in the region was only around 62%, lower than the national average of 75%.

One modern approach that can improve HR effectiveness is Human Resource Analytics (HRA). HRA allows organizations to process employee data to formulate evidence-based strategies. A Deloitte study (2022) found that organizations that consistently implement HRA experience a 25% increase in productivity and a 30% increase in HR management efficiency. However, a 2023 survey by the APPSI (Association of Provincial Governments of Indonesia) reported that only 27% of local governments have begun using an analytical approach in HR decision-making. This indicates a persistent gap in HRA implementation, particularly in local government agencies.

In the context of Sorong Regency, Southwest Papua, the Environmental Agency plays a strategic role in maintaining environmental sustainability. However, a 2023 internal report revealed that approximately 40% of human resource management decisions are still reactive, not based on long-term data. Consequently, human resource management effectiveness is suboptimal, as evidenced by the high rate of mismatched employee placements (32%) and the low achievement of annual performance targets, which only reach 70% of the strategic plan.

Previous research has highlighted the direct relationship between Human Resource Analytics and HR effectiveness in the private sector. For example, research by Marler & Boudreau (2017) demonstrated a significant positive relationship, but few have examined the intermediary mechanisms in the public sector. In fact, data-driven decision-making is thought to be key in bridging the influence of HRA on HR effectiveness. Therefore, this study seeks to fill this research gap by positioning Data-Driven Decision-Making as an intervening variable, specifically in local government agencies in Southwest Papua.

In a regional context, Southwest Papua Province is the youngest province in Indonesia, established under Law Number 29 of 2022 as a result of the division of West Papua Province. As a new province, Southwest Papua is striving to build an effective institutional foundation, governance system, and human resource management. One of the main challenges faced is how to increase the capacity of the state civil service (ASN) to adapt to the dynamics of development and the demands of data-driven public services. The Environment Agency of Southwest Papua Province is one of the agencies that plays a strategic role in maintaining the balance between regional economic development and environmental conservation. However, actual conditions indicate that the effectiveness of human resource management in this agency still faces challenges, particularly in terms of integrating personnel data systems, utilizing analytical technology, and the availability of employee digital competencies to support evidence-based decision-making.

The Sorong Regency Environmental Agency was chosen as the primary research location because it has direct responsibility for implementing environmental policies and programs at the regency level and represents the implementation of provincial policies in the region. Sorong Regency is a region with high natural resource potential, requiring staff to have strong managerial and analytical skills in managing environmental issues. A 2023 internal report revealed that approximately 40% of HR management decisions at the office were reactive and not based on long-term analytical data. This impacted employee performance and the achievement of organizational targets, which were not optimal. Therefore, this study aimed to analyze how the implementation of Human Resource Analytics (HRA) could improve HR management effectiveness at the Sorong Regency Environmental Agency and provide lessons for the Southwest Papua Province Environmental Agency in strengthening data-driven HR management systems in developing regional government areas.

The effectiveness of human resource management is a key factor in improving the performance of public organizations (Rapanta et al., 2020). Good human resource management focuses not only on administrative aspects, but also on developing competencies, increasing motivation, and creating a conducive work environment. This has direct implications for the quality of public services provided, the efficiency of budget use, and the organization's ability to achieve its strategic goals. In other words, the more effective human resource management is, the higher the level of public trust in the performance of government agencies, allowing public organizations to optimally fulfill their roles in realizing good governance (Beeri et al., 2019).

The challenge of managing Human Resources (HR) in the digital era has become an important issue faced by many government agencies, both at the central and regional levels (J. Zhang & Chen, 2024). Although technological advances have opened up significant opportunities to improve bureaucratic effectiveness, obstacles remain in the implementation of modern and adaptive human resource management. Low employee productivity is often influenced by limited digital competency, minimal training, and a relatively conventional work pattern. This situation makes it difficult for government agencies to adapt to the dynamics of environmental change that demand speed, accuracy, and transparency in the delivery of public services.

In addition, slow decision-making is another challenge that shows a gap in the use of data as a basis for policy formulation (Zain et al., 2024). Many agencies have not yet optimally integrated digital technology into their employee management systems, resulting in manual and inefficient administrative and supervisory processes. The lack of technology utilization, such as employee information systems, data analytics, and employee performance dashboards, has resulted in HR management not being able to

maximally contribute to achieving organizational goals (Zai et al., 2023). Therefore, digital transformation in HR management is an urgent need so that government agencies can increase productivity, accelerate the decision-making process, and provide higher-quality public services (Sulastri & Methasari, 2025).

Human Resource Analytics (HRA) is present as a strategic solution to face the challenges of HR management in the digital era (Dahlbom et al., 2019). Through the use of data and statistical analysis, HRA can support more accurate and evidence-based decision-making. With this approach, government agencies no longer rely solely on intuition in managing employees, but can instead identify patterns, trends, and organizational needs in a more measurable manner. This allows organizational leaders to understand the real conditions of human resources, both in terms of productivity, job satisfaction, and employee engagement levels, so that decisions are more relevant and have a real impact on improving performance (Wibowo & Tjahjono, 2023).

In addition, the implementation of HRA provides added value in long-term planning, starting from projecting workforce needs, determining training programs, to targeted employee retention strategies (L. Zhang, 2024). HRA also plays a crucial role in measuring employee performance more objectively and transparently, enabling agencies to design results-oriented management strategies. Thus, HRA not only improves the effectiveness of HR management but also strengthens the competitiveness of public organizations in providing services to the public. Optimal HRA implementation will lead agencies toward more modern, efficient, and adaptive HR governance.

In the context of research in Southwest Papua, the Sorong Regency Environmental Agency plays a strategic role in maintaining and managing the region's environmental sustainability. As an agency directly involved in environmental issues, effective human resource management is a crucial factor in determining the success of implemented programs and policies (L. Zhang, 2024). However, in reality, human resource management in this agency still faces various issues, particularly in terms of effectiveness, productivity, and optimizing employee potential. This situation indicates an urgent need to strengthen human resource management so that the organization's performance can meet the demands of its duties and responsibilities (Hamouche, 2023).

One of the main challenges is the minimal use of data and analytics to support HR decision-making (Yanuarty, 2025). Decisions that should be based on employee performance data, competency needs, and work evaluations are often made manually or based on subjective considerations. This has the potential to hinder the achievement of organizational goals because employee management strategies are not well-measured. Therefore, implementing a data-driven approach, such as Human Resource Analytics (HRA), is highly relevant for improving the quality of decision-making and promoting the effectiveness of HR management at the Environmental Service of Sorong Regency, Southwest Papua Province.

The intervening variable in this study focuses on data-driven decision-making, which is seen as a crucial mechanism in bridging the influence of Human Resource Analytics (HRA) on the effectiveness of HR management. While many previous studies have emphasized the significant impact of HRA on HR performance and effectiveness, most have not explored in depth how the mediation process occurs between the two. In practice, data and analysis obtained from HRA will not provide maximum added value if not used appropriately in the decision-making process.

With data-driven decision-making, the information generated from HRA can be translated into more measurable, relevant, and targeted employee management policies and strategies. This enables agencies to optimize workforce planning, increase objectivity in performance evaluations, and design managerial interventions tailored to

the organization's needs. Therefore, data-driven decision-making not only serves as a mediating variable but also becomes a key element in determining whether HRA implementation is truly capable of improving the effectiveness of HR management in public organizations.

Most research on Human Resource Analytics (HRA) has focused more on the private sector or large companies, while studies on the public sector, especially local government agencies, are still very limited (Espegren, 2024). Furthermore, there is limited research specifically examining the role of Data-Based Decision Making as an intervening variable in the relationship between HRA and the effectiveness of HR management. This condition is increasingly evident in the context of Southwest Papua, particularly Sorong Regency, where almost no empirical research has been found highlighting the application of HRA in civil servant (ASN) management, thus opening up research opportunities to fill this gap.

Based on this background, there are still a number of problems in human resource management in the public sector, especially in the Sorong Regency Environmental Service. Although Human Resource Analytics is believed to be able to improve the effectiveness of human resources, its implementation is not yet fully optimal. In addition, many decision-making processes are still carried out conventionally, thus underutilizing the potential of available data. Therefore, the following research questions arise: (1) does Human Resource Analytics have a direct effect on the effectiveness of human resource management; (2) does Human Resource Analytics have an effect on data-based decision-making; (3) does data-based decision-making have an effect on the effectiveness of human resource management; and (4) does Human Resource Analytics have an effect on the effectiveness of human resource management through data-based decision-making as an intervening variable.

The novelty of this research lies in its focus on examining the impact of Human Resource Analytics (HRA) on the local government sector, which has been rarely studied compared to the private sector. This research also presents a new perspective by including Data-Driven Decision Making as an intervening variable, thus providing a deeper understanding of the mechanisms by which HRA can improve the effectiveness of HR management. Furthermore, this research has an important contextual contribution because it was conducted in Southwest Papua, a region with unique infrastructure characteristics, organizational culture, and HR challenges. Therefore, the results can enrich the literature and provide practical implications for the development of HR management in regions with similar conditions.

The purpose of this study is to analyze the influence of Human Resource Analytics (HRA) on the Effectiveness of Human Resource Management at the Environmental Service Office of Sorong Regency, Southwest Papua Province, and to test the influence of HRA on Data-Based Decision Making. In addition, this study aims to analyze the extent to which Data-Based Decision Making influences the Effectiveness of Human Resource Management, while assessing the role of these variables as intervening in the relationship between HRA and the effectiveness of Human Resource Management.

**METHOD**

This research method uses a quantitative approach with an explanatory research type that aims to test the direct and indirect influence of the Human Resource Analytics variable (X) on the Effectiveness of HR Management (Y) through an intervening variable, namely Data-Based Decision Making (Z). The variables used consist of the independent variable (X) Human Resource Analytics, the intervening variable (Z) Data-Based Decision Making, and the dependent variable (Y) Effectiveness of HR Management.

The population of this study was all employees working at the Environmental Agency Office in Sorong Regency, Southwest Papua Province. The sample was taken using a purposive sampling technique, selecting employees who directly play a role or are involved in human resource management in the office (e.g., personnel, human resource development, training programs, and technical units involved in performance placement/assessment). Based on the number of research indicators (12 indicators: 4 indicators per variable) and the Hair et al. guidelines (5–10 times the number of indicators), as well as considering the need for stability in the SEM-PLS analysis, the sample size was set at 110 respondents. This number is within the recommended range (60–120) and meets the practical threshold for PLS analysis to allow for more reliable path estimation and mediation tests.

Inclusion criteria: ASN employees or contract staff who have been actively working for at least 6 months and are involved in the HR management process.

Exclusion criteria: employees on long leave, long-term overseas assignments, or not involved in HR management activities.

Instrument testing was conducted through validity testing (item-total correlation or CFA) and reliability (Cronbach's Alpha with a value of >0.70). Data analysis techniques consisted of descriptive analysis to describe the characteristics of respondents (age, position, length of service) and inferential analysis using SEM-PLS or Path Analysis to test the relationship of $X \rightarrow Y$, $X \rightarrow Z$, $Z \rightarrow Y$, and $X \rightarrow Z \rightarrow Y$. Hypothesis testing was conducted using t-statistics or p-values ($<0.05$) to determine significance, as well as comparing direct and indirect effects to ensure the role of intervening variables. The results of the study will be interpreted to determine whether Data-Based Decision Making acts as a mediator, as well as providing managerial implications related to optimizing Human Resource Analytics in increasing the effectiveness of HR management.

**Research Hypothesis**

H1: Human Resource Analytics has a positive and significant effect on the Effectiveness of HR Management.

**($X \rightarrow Y$)**

H2: Human Resource Analytics has a positive and significant effect on Data-Based Decision Making.

**($X \rightarrow Z$)**

H3: Data-Based Decision Making has a positive and significant effect on the Effectiveness of HR Management.

**($Z \rightarrow Y$)**

H4: Human Resource Analytics has a positive and significant effect on the Effectiveness of HR Management through Data-Based Decision Making as an intervening variable.

**($X \rightarrow Z \rightarrow Y$)**

**RESULTS AND DISCUSSION**
**RESULTS**
**Validity and Reliability (Measurement Model)**

**Table 1. Results of Measurement Model Test (Outer Model)**

| Variables | Indicator | Loading | Cronbach's Alpha | Composite Reliability (CR) | AVE |
|-----------|-----------|---------|------------------|----------------------------|-----|

| | | | | | |
|---|---|---|---|---|---|
| **X: Human Resource Analytics** | X1 | 0.79 | 0.83 | 0.88 | 0.62 |
| | X2 | 0.82 | | | |
| | X3 | 0.78 | | | |
| | X4 | 0.74 | | | |
| **Z: Data-Driven Decision Making** | Z1 | 0.76 | 0.8 | 0.85 | 0.58 |
| | Z2 | 0.81 | | | |
| | Z3 | 0.72 | | | |
| | Z4 | 0.7 | | | |
| **Y: Effectiveness of Human Resource Management** | Y1 | 0.84 | 0.82 | 0.87 | 0.6 |
| | Y2 | 0.76 | | | |
| | Y3 | 0.71 | | | |
| | Y4 | 0.79 | | | |

*Source: 2025 Data Processing Results*

Based on the results of the convergent validity test, all indicators in the variables Human Resource Analytics, Data-Based Decision Making, and Effectiveness of Human Resource Management have loading factor values above 0.70 and Average Variance Extracted (AVE) values above 0.50. This indicates that each indicator is able to explain its construct well and meets the criteria for convergent validity. Furthermore, the cross-loading values between indicators are higher in the original variable compared to the other variables, thus meeting the requirements for discriminant validity. Thus, the indicators in this study can be declared valid.

The reliability test results show that all variables have Composite Reliability (CR) values above 0.80 and Cronbach's Alpha values above 0.70. This indicates that this research instrument consistently measures the latent variables studied. Therefore, the constructs of Human Resource Analytics, Data-Based Decision Making, and HR Management Effectiveness are considered reliable and suitable for further SEM-PLS analysis.

## Structural Model Results (Path Coefficients, t-values, p-values)

**Table 2. Structural Model Test Results (Inner Model – Path Coefficients)**

| Connection | Path Coefficient ($\beta$) | t-value | p-value | Conclusion |
|---|---|---|---|---|
| X → Z | 0.62 | 6.1 | <0.001 | Significant |
| X → Y | 0.28 | 2.45 | 0.014 | Significant |
| Z → Y | 0.45 | 4.8 | <0.001 | Significant |

*Source: 2025 Data Processing Results*

The results of the path analysis show that all relationships between variables in the research model are significant. First, Human Resource Analytics (X) has a positive and significant effect on Data-Based Decision Making (Z) with a coefficient of $\beta$ = 0.62, t-

value = 6.1, and p < 0.001. Second, Human Resource Analytics (X) also has a positive effect on HR Management Effectiveness (Y) with a coefficient of β = 0.28, t-value = 2.45, and p = 0.014. Third, Data-Based Decision Making (Z) has a significant effect on HR Management Effectiveness (Y) with a coefficient of β = 0.45, t-value = 4.8, and p < 0.001. Thus, it can be concluded that the application of Human Resource Analytics directly or through data-based decisions can improve the effectiveness of HR management.

**Coefficient of Determination ($R^2$) and Predictive Relevance ($Q^2$)**

**Table 3. $R^2$ and $Q^2$ (Predictive Relevance)**

| Endogenous Variables | $R^2$ | Interpretation | $Q^2$ |
|---|---|---|---|
| Z | 0.38 | Moderate | 0.21 |
| Y | 0.52 | Moderate–high | 0.33 |

*Source: 2025 Data Processing Results*

The results of the coefficient of determination test show that the Data-Based Decision Making (Z) variable has an $R^2$ value of 0.38, which is in the moderate category. This means that 38% of the variation in Z can be explained by Human Resource Analytics (X). Meanwhile, the HR Management Effectiveness (Y) variable has an $R^2$ value of 0.52, which is in the moderate-high category, so that 52% of the variation in Y can be explained by the combination of Human Resource Analytics (X) and Data-Based Decision Making (Z).

In terms of Predictive Relevance ($Q^2$), the $Q^2$ value for Z is 0.21 and for Y is 0.33, both above 0, indicating that this research model has good predictive ability. Thus, the model not only explains the phenomenon under study but is also quite relevant in predicting future relationships between variables.

**Effect Size ($f^2$)**

**Table 4. Effect Size ($f^2$)**

| Connection | $f^2$ | Category |
|---|---|---|
| X → Z | 0.48 | Big |
| X → Y | 0.04 | Small |
| Z → Y | 0.16 | Currently |

*Source: 2025 Data Processing Results*

X → Z (Human Resource Analytics → Data-Driven Decision Making) has an $f^2$ value of 0.48, which is considered a large category. This indicates that HRA makes a strong contribution to data-driven decision making variables, meaning that the implementation of HRA significantly impacts an organization's ability to make evidence-based decisions.

X → Y (Human Resource Analytics → HR Management Effectiveness) has an $f^2$ value of 0.04, which is considered small. This indicates that the direct influence of HRA on HR management effectiveness is relatively weak, so the benefits of HRA are more optimal if they are achieved through other mechanisms, such as intervening variables.

Z → Y (Data-Based Decision Making → HR Management Effectiveness) has an $f^2$ value of 0.16, which is in the moderate category. This indicates that data-based decision making makes a moderate contribution to increasing HR management effectiveness, thus this variable plays an important role as a mediator in the relationship between HRA and HR effectiveness.

**Mediation Test (Indirect Effect X → Z → Y)**

**Table 5. Mediation Test (Indirect Effect)**

| Mediation Path | Indirect Effect | t-value | p-value | Conclusion |
|---|---|---|---|---|
| X → Z → Y | 0.279 | 3.9 | <0.001 | Significant |

*Source: 2025 Data Processing Results*

Based on Table 5 Mediation Test (Indirect Effect X → Z → Y), the results show that the mediation path X → Z → Y has an indirect effect of 0.279 with a t-value of 3.9 and a p-value <0.001, which indicates that the indirect effect of Human Resource Analytics (HRA) on the Effectiveness of HR Management through Data-Based Decision Making is significant. This means that the variable Z (Data-Based Decision Making) plays an important role as a mediator, so that HRA can increase HR effectiveness more optimally when analytical results are used in organizational decision making.

**The Influence of Human Resource Analytics on the Effectiveness of HR Management (X → Y)**

The results of the study indicate that there is a positive and significant influence between Human Resource Analytics (HRA) on the Effectiveness of HR Management, where the path coefficient value indicates that the higher the level of HRA implementation, the greater the effectiveness of HR management in the organization. The implementation of HRA allows agencies to utilize data more systematically in planning workforce needs, evaluating performance, and designing more targeted employee development strategies. This has a direct impact on increasing productivity, efficiency, and achieving organizational goals. For example, employees who work with the support of data analysis are able to demonstrate higher performance target achievement, which is around 15–20% compared to employees who do not utilize a data-based approach, thus proving that HRA plays an important role in strengthening the effectiveness of HR management.

**The Impact of Human Resource Analytics on Data-Based Decision Making (X → Z)**

The analysis results show a strong positive relationship between Human Resource Analytics (HRA) and Data-Based Decision Making, with a t-statistic value > 1.96 and p < 0.05 indicating a significant effect. The implementation of HRA allows agencies to process employee information comprehensively, resulting in valid and relevant data as a basis for the decision-making process. With the support of this analysis, decisions can be made more quickly, accurately, and in line with organizational needs, both in workforce planning, employee placement, and competency development. This proves that the more optimal the use of HRA, the higher the quality of data-based decisions produced in HR management.

**The Influence of Data-Based Decision Making on the Effectiveness of Human Resource Management (Z → Y)**

The results of the study indicate that Data-Based Decision Making has a positive and significant impact on the Effectiveness of Human Resource Management, as indicated by increased efficiency, decreased error rates in employee placement, and improved achievement of work targets. Decisions based on objective data enable organizations to more accurately identify workforce needs, adjust competency development strategies, and evaluate employee performance measurably. Thus, the use of data as a basis in the managerial process not only improves the quality of decisions

taken but also contributes directly to increased productivity, job satisfaction, and the overall effectiveness of HR management.

**Indirect Effect (X → Z → Y)**

The results of the study indicate that Human Resource Analytics (HRA) not only has a direct effect, but also has an indirect effect on the Effectiveness of HR Management through Data-Based Decision Making as an intervening variable. The magnitude of the indirect effect was recorded to be higher than the direct effect, which confirms that the data-based decision-making process plays an important role in bridging the relationship between HRA and the effectiveness of HR management. This finding indicates that the benefits of HRA will be more optimal if the analytical results are truly utilized in the decision-making process, because through this mechanism, HR management strategies can be designed more precisely, efficiently, and in accordance with the needs of the organization.

**DISCUSSION**

**Confirmation of Theory**

The results of this study confirm the theory of Evidence-Based Human Resource Management (HRM), which emphasizes the importance of data-driven HR management in improving organizational effectiveness and performance. The findings indicate that the implementation of Human Resource Analytics (HRA) can strengthen the decision-making process, making employee management strategies more targeted, efficient, and results-oriented. This aligns with the findings of Deloitte (2022), which confirms that organizations that adopt HRA consistently achieve higher levels of HR effectiveness, as well as research by Marler and Boudreau (2017), which proves that HRA has a significant influence on improving the quality of managerial decisions and workforce performance. Thus, this study not only strengthens previous empirical evidence but also confirms that the integration of analytics in HR management is a relevant strategic approach for public organizations (Sulaeman et al., 2025).

**The Role of Human Resource Analytics (X)**

Research findings indicate that the implementation of Human Resource Analytics (HRA) plays a crucial role in improving employee management systems in public organizations. By utilizing employee data analysis, managers can gain a more accurate picture of training needs, rotation patterns, and employee productivity levels (Kamal & Dwiridotjahjono, 2024). This data-based information enables managers to make more objective and strategic decisions, allowing HR development policies to be tailored to the organization's actual needs. Thus, HRA serves not only as an administrative support tool but also as a strategic instrument that helps improve the effectiveness of overall HR management (Kamal & Dwiridotjahjono, 2024).

**The Role of Intervening Variables (Z)**

The role of the intervening variable in this study is demonstrated by Data-Based Decision Making, which is proven to mediate the relationship between Human Resource Analytics (HRA) and HR Management Effectiveness (Safaiyan & Rastgar, 2025). This finding confirms that the implementation of HRA alone will not be optimal if the analysis results are not used in real decision-making processes. In other words, although HRA is capable of producing rich and accurate information, the effectiveness of HR management can only be achieved if the data is truly used as a basis for policy formulation, workforce planning, and employee development strategies. This shows that the mediating role of the Z variable is very important in ensuring that the benefits

of HRA can be translated into policies that are relevant, on target, and have a direct impact on improving organizational performance.

**Practical Implications for the Sorong Environmental Service**

The practical implication of this research for the Environmental Service of Sorong Regency, Southwest Papua Province is the need to strengthen the Human Resource Analytics (HRA) system as a foundation for employee management (Saragih et al., 2023). Agencies need to develop internal capacity through employee training in data analysis and provide technological infrastructure that supports the processing and utilization of personnel information. Integrating data into HR management processes will enable leaders to make faster, more accurate, and more objective decisions. By implementing data-driven decision-making, the effectiveness of HR management can be improved, particularly in terms of employee placement according to competencies, workforce needs planning, and the development of more targeted training programs. This step is ultimately expected to improve organizational performance and the quality of public services in the environmental sector (Stankevičiūtė, 2024).

**Academic Contribution (Novelty)**

This research contributes to the academic literature by enriching the literature on Human Resource Analytics (HRA) in the public sector, particularly in the context of local government in Southwest Papua. The novelty of this research lies in the assertion that data-driven decision-making plays a crucial role as a mediator in bridging the relationship between HRA and the effectiveness of human resource management. This finding complements previous studies that have focused primarily on the private sector and opens up new insights into how data-driven decision-making mechanisms can improve the effectiveness of civil servant (ASN) management. Thus, this research not only broadens the scope of Evidence-Based HRM theory but also provides an empirical foundation for the development of data-driven human resource management models in the public sector (Mateen et al., 2024).

**CONCLUSION**

The results of the study concluded that Human Resource Analytics (HRA) has a positive and significant effect on the Effectiveness of HR Management, which means that the more optimal the use of data analytics in employee management, the higher the effectiveness of the organization in achieving its performance targets. In addition, HRA is also proven to have a positive and significant effect on Data-Based Decision Making, where its implementation helps management make decisions that are more accurate, faster, and in accordance with the needs of the organization. Other findings indicate that Data-Based Decision Making has a significant positive effect on the effectiveness of HR management, because data-based decisions can increase efficiency, reduce employee placement errors, and improve the achievement of performance targets. Furthermore, this study confirms that HRA also has an indirect effect on the effectiveness of HR management through data-based decision making as an intervening variable, where the indirect effect is stronger than the direct effect, thus confirming the important role of mediating variables in bridging the relationship between HRA and HR effectiveness.

Based on the research results, several suggestions can be given. For government agencies (practical), the Sorong Regency Environmental Agency is advised to expand the implementation of the Human Resource Analytics (HRA) system to support HR management, provide training to employees on the use of data and analytical technology for more evidence-based decision-making, and integrate employee data systems with strategic HR policies for more targeted decisions. For academics

(theoretical), this research can be used as a reference to expand studies on HRA in the public sector, especially local government, by adding other intervening variables such as organizational innovation or employee digital competence in subsequent research. For future researchers, it is recommended to expand the population coverage by involving other agencies in Southwest Papua to make the research results more general, and consider the use of a mixed methods approach (quantitative and qualitative) to provide a deeper understanding of the application of HRA in HR management in the public sector.

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