

# The Influence of HR Analytics on Managerial Decision-Making in Talent Management in the Digital Era at Pt. Saitama Stamping Indonesia

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HR Analytics, managerial decision making, talent management, digital age, organizational efficiency

## Abstract

This study aims to analyze the influence of HR Analytics on managerial decision-making in the context of talent management in the digital era at PT Saitama Stamping Indonesia. The method used is quantitative with a survey of 64 respondents, consisting of company employee position holders. Data was collected through an online questionnaire and then analyzed using SmartPLS4. The results showed that HR Analytics significantly influenced managerial decision-making. Key dimensions such as data collection, predictive analytics, efficiency, and skill gap analysis play an important role in data-driven talent management. In addition, the results also reveal that implementing HR Analytics helps improve the effectiveness of talent management strategies through alignment of organizational goals, employee development, and retention management. The implication of this research is the need for companies to prioritize the adoption of analytics technology in human resource management to increase competitiveness in the digital era. This research contributes to the literature by filling the gap in adopting HR Analytics in the Indonesian manufacturing sector, particularly in human resource management.

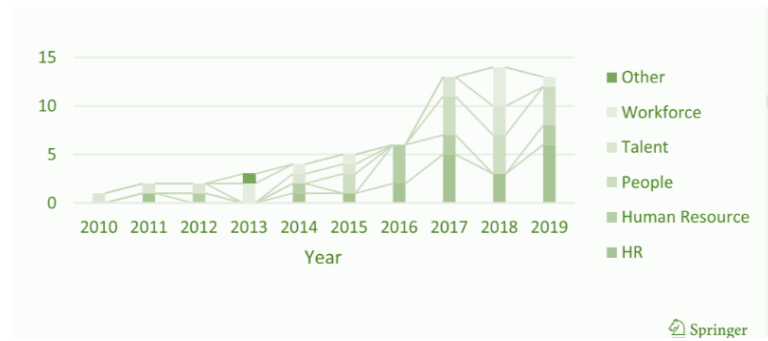
## 1. Introduction

Data-driven insights help identify potential risks in the supply chain and implement proactive measures to mitigate disruptions for sustainable growth and long-term success effectively; manufacturers must make the right strategic decisions (Rustandy et al., 2023). One company that has used data-driven decision-making is PT Saitama Stamping Indonesia, a subsidiary of the Saitama-based precision metal processing company Showakiki Industry CO. The company was established in April 1996, based on joint investment from Showakiki Industry CO., LTD. (80%), Toshima Manufacturing (10%), and Kiya Corporation (10%). However, as of 2008, Showakiki Industry CO., LTD. owns 100% of the shares.

PT Saitama Stamping Indonesia is engaged in the production of auto parts, recoil starters, radiator parts, and fine blanking. The company has obtained several certifications, such as ISO 9001, ISO/TS 16949, and ISO 14001. PT Saitama Stamping Indonesia, a manufacturing company with national and international certifications in its application, can utilize HR analytics to analyze production performance and connect employee performance data with production data to identify factors that affect efficiency and product quality. Therefore, implementing HR analytics requires data integration from various departments, including HR and production. Technical constraints, such as system compatibility or lack of HR training in using HR analytics, can be an obstacle.

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**Figure 1** Increased adoption of HR Analytics by Enterprises (Source: Karwehl & Kauffeld, 2021)

Figure 1 above "HR" and "Human Resource" show a significant increase after 2015, indicating more attention is paid to HR management. For PT SSI, this trend reflects the importance of utilizing HR analytics to link employee performance and production data. In this way, PT SSI can more easily identify factors that affect production efficiency and quality, such as employee development.

Managerial decision-making in the context of talent management is increasingly influenced by HR analytics, which facilitates a data-driven approach to human capital optimization. The use of these analytics assists management in aligning talent strategies with organizational goals by monitoring by performance metrics and behavior more in-depth employee (Singhrau & Anurag, 2024). Therefore, strategic decisions can be optimized with data support from HR analytics, which provides more precise information on employee retention, performance, and development, enabling timely and relevant decisions (Eid, 2024).

Talent management in the digital age faces significant transformation as technological advancements affect various aspects of human resource management. Digitalization introduces analytics platforms and tools that enable talent management to be more adaptive and responsive to rapid changes in the business environment (Singhrau & Anurag, 2024). This transformation enables efficient employee identification, training, and development, supporting organizational sustainability and competitiveness (Zournatzidou et al., 2024). Moreover, a data-driven management approach helps detect skill development needs and shape strategies relevant to current business needs (Willie, 2024).

Companies are challenged to make faster, more precise and data-driven decisions. One of the areas most affected by this digitization is human resource (HR) management, particularly talent management. As a data-driven approach to HR management, HR Analytics is gaining attention for its potential to support more objective and efficient decision-making. With the ability to analyze historical employee data, HR Analytics enables companies to identify trends, predict future needs, and take more informed strategic steps regarding employee recruitment, retention, and development (Capolupo et al., 2024).

Research by Wang et al. (2024) shows that HR Analytics has a significant influence on managerial decision-making in talent management while also finding that the application of HR Analytics in talent management has strengthened decision-making related to workforce planning. In addition, research conducted by Cahyono (2024) explains how HR Analytics enables identifying potential employees for promotion and designing optimal career paths. In research Rani Jhansi, (2023) This study found that applying e-HRM and cloud computing in HR Analytics helps identify the skills needed and assess the effectiveness of training.

There are still some gaps in supporting managerial decision-making in talent management. Employee perspectives on the use of in the research on HR Analytics HR Analytics, especially regarding data privacy and transparency, are also underrepresented. Furthermore, measuring implementation success through key performance indicators has not been widely discussed, as have empirical studies on its effectiveness in improving talent retention and career development. Research that considers the local cultural and regulatory context is also needed to bridge the gap between the potential of HR Analytics and its application in Indonesia.

This study brings novelty by integrating HR Analytics in measurement performance to identify relationships between relevant employee efficiencies in a manufacturing company such as PT Saitama Stamping Indonesia. This study also utilizes Data-Driven Decision-Making Theory to show how employee performance, engagement, and potential data can support strategic decisions related to workforce promotion, development, and retention.

This research aims to explore the influence of HR Analytics on managerial decision-making in the context of talent management in the digital age. One of the main motivations for this research is to understand how HR Analytics can improve the quality of data-driven managerial decisions, replacing traditional approaches that tend to be subjective and intuitive.

## 2. Literature Review

### 2.1 Human Resource Management

Human resource management is the primary role of business management that organizes employees to successfully generate economic and social value in pursuit of objectives (Arraniri et al., 2021). Human resource management includes human resource planning, implementation, recruiting, training, career development, and organizational development efforts, all integral to human resource development (Purwanto et al., 2024). Human resource management is a managerial function that encompasses the allocation, enhancement, and assessment of individual incentives within an organization or corporation (Sakti et al., 2023). Attain organizational objectives. Its functions include planning, recruiting, training, career advancement, performance assessment, and compensation. Human resource management emphasizes organizational growth and the generation of sustained economic and social value. According to the aforementioned experts' definition, human resource management is a managerial function designed to manage personnel successfully.

### 2.2 HR Analytics

Alwan, B.M (2024) defines HR Analytics as a data-driven methodology using quantitative analytic tools to assess employee data to enhance human resource management operations, including recruiting, training, retention, and productivity. Furthermore, Setthasuravich & A. Pukdeewut (2024) assert that HR Analytics involves using worker data to enhance strategic decision-making in human resource management. HR Analytics is an effective instrument for organizations to enhance strategic decision-making and optimize organizational performance. Through HR analytics, organizations may get significant insights into their people and make educated choices that align with overarching company objectives (Okatta et al., 2024). According to the experts, HR Analytics may be defined as a data-driven methodology that uses quantitative analytic tools to assess employee-related data to enhance human resource management procedures. This strategy encompasses several facets, including recruiting, training, retention, and productivity enhancement, with the primary objective of optimizing staff management.

The dimensions in HR Analytics used to measure this variable are 1) Data Collection and integration (Marler & Boudreau, 2017), 2) Predictive Analytics (Levenson, 2018), 3) Efficiency and cost-effectiveness (Van den Heuvel & Bondarouk, 2017), 4) Skill Gap Analysis & Talent Management (Wingard, 2019).

### 2.3 Managerial Decision Making

According to A Mohammadi & K Almasieh (2024), managerial decision-making is a process used by managers to choose the best course of action among several alternatives to achieve organizational goals that include assessing relevant information, evaluating risks, and selecting decisions that are expected to provide optimal results. In addition, according to S Karthick & DRR Sivaramakrishnan (2024), Managerial decision-making is also defined as choosing between alternative actions based on organizational goals, needs, and various environmental factors. Managerial decision-making is an important part of an organization's operations. When making decisions, managers must consider various factors so that company activities can be carried out efficiently and effectively (Arviani et al., 2024). Based on the views of experts, managerial decision-making can be synthesized as a strategic process carried out by managers to choose the best course of action from various alternatives to achieve goals. This process includes assessing relevant information, evaluating risks, and considering organizational needs and environmental factors.

The dimensions in managerial decision-making used to measure this variable are 1) Strategic Alignment (Atif, 2023), 2) Decision Confidence & Leadership Planning (Dank & Hellström, 2020), 3) Employee Development & Engagement (Hosseini et al., 2024), 4) Retention & Turnover Management (Chakraborty et al., 2021).

### 2.4 Talent Management

Talent management is a strategic and comprehensive methodology aimed at attracting, developing, engaging, and retaining skilled personnel who contribute to attaining business objectives and promoting sustainable success (Herawati, 2023). Talent management is a crucial process in human resource management, including identifying, developing, retaining, and placing suitable individuals (Nisa et al., 2016) in (Al Rinadra et al., 2023). Masrurouh et al. (2023) define talent management as a process that ensures a company's capacity to occupy critical roles for future leaders and positions that bolster the organization's fundamental strengths. According to the aforementioned expert definitions, talent management may be defined as a cohesive strategy framework to attract, develop, engage, and retain skilled workers.

### 2.5 Framework

HR Analytics is a data-driven approach that uses quantitative analysis techniques to evaluate employee data to optimize human resource management (HRM) processes. The dimensions in HR Analytics used to measure

this variable are 1) Data Collection and integration (Marler & Boudreau, 2017), 2) Predictive Analytics (Levenson, 2018), 3) Efficiency and cost-effectiveness (Van den Heuvel & Bondarouk, 2017), 4) Skill Gap Analysis & Talent Management (Wingard, 2019).

Managerial decision-making is a process managers undertake to select the best course of action from several alternatives to achieve organizational goals. This process includes risk evaluation and assessment of relevant information. The dimensions in measuring this variable include strategy alignment and succession planning (Atif, 2023), trust in decision-making and leader selection (Dank & Hellström, 2020), employee development and engagement programs (Hosseini et al., 2024), and retention and turnover management which includes engagement and turnover identification (Chakraborty et al., 2021).

The relationship between HR Analytics and managerial decision-making has been researched extensively. Wang et al. (2024) found that HR Analytics has a significant influence on strengthening decision-making related to workforce planning. Cahyono (2024) explained that HR Analytics enables the identification of potential employees for promotion and the design of optimal career paths. Rani Jhansi (2023) also added that using e-HRM and cloud computing in HR Analytics helps identify necessary skills and assess training effectiveness.

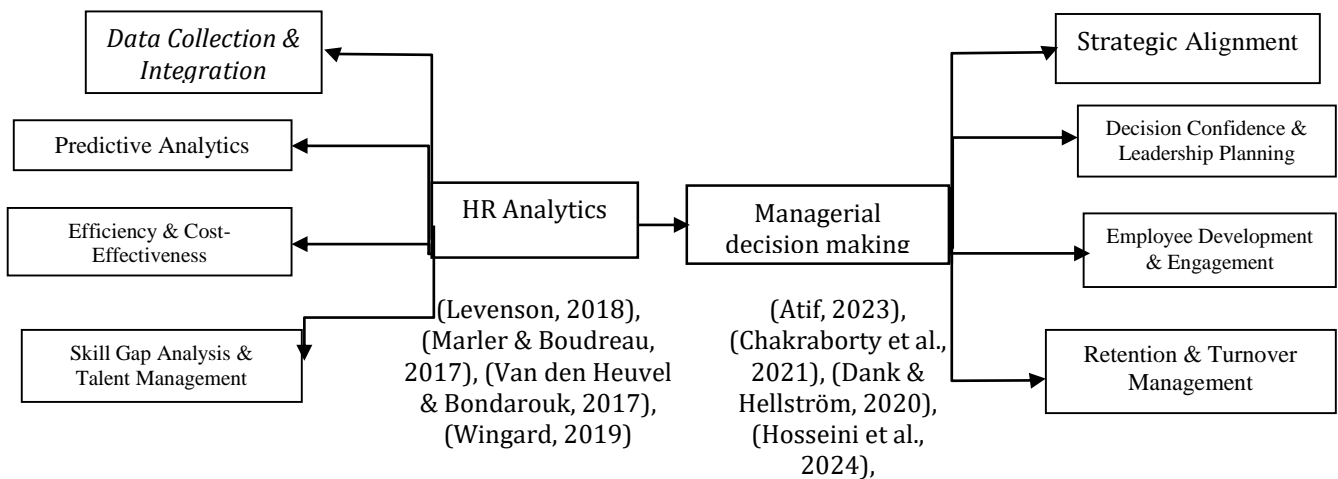


Figure 2. Framework of Thought

**Hypothesis:** It is suspected that *HR analytics* affects the managerial decision making.

### 3. Research Methods

This study uses a quantitative approach with a systematic and logical research design to analyze the effect of HR Analytics on managerial decision-making in talent management in the digital era at PT Saitama Stamping Indonesia. The population of this study includes employees of PT Saitama Stamping Indonesia with a total of 70, with the sample size calculated based on Hair, et al (2014), depending on the number of indicators used. The number of indicators can be multiplied 5 to 10 times, but the researcher decided to use 8x based on the following calculation: Sample = number of indicators x 5-10, Sample = 8 indicators x 8 = 64 respondents, so a sample of 64 people was used. The data collection technique used in this study was to distribute online questionnaires to respondents.

#### 3.1 Operational Table of Variables

Table 1 Operational Variable Table

<i>HR Analytics (X1)</i>		
Dimensions	Indicator	Source
Collection and Integration Data	Availability of relevant employee data. Easy integration of data from various sources	(Marler & Boudreau, 2017)
Predictive Analytics	Prioritization of talent needs.	(Levenson, 2018)

	Performance evaluation	
Efficiency and Cost Savings	Turnover identification. Reduction of HR costs.	(Van den Heuvel & Bondarouk, 2017)
Skills Gap Analysis and Talent Management	Skills gap. Employee development.	(Wingard, 2019)

<b>Managerial Decision Making (Y)</b>		
<b>Dimensions</b>	<b>Indicator</b>	<b>Source</b>
<i>Strategic Alignment</i>	Strategy alignment.	(Atif, 2023)
<i>Decision Confidence &amp; Leadership Planning</i>	Succession plan Decision trust.	(Dank & Hellström, 2020)
<i>Employee Development &amp; Engagement</i>	Leader selection. Development program.	(Hosseini et al., 2024)
<i>Retention &amp; Turnover Management</i>	Employee engagement. Job satisfaction engagement turnover identification	(Chakraborty et al., 2021).

The data-gathering method included disseminating online surveys to respondents (workers). This study employs a Likert scale to assess respondents' (employees') perceptions, featuring five response levels from very low (1) to very high (5), indicating the degree to which respondents evaluate statements pertaining to the variable indicators of HR Analytics (X1) and Managerial Decision Making (Y).

Data analysis using the SEM-PLS methodology with Smart PLS-4 software to examine the interrelationship among variables. The independent and dependent variables were examined. Tests include convergent validity, average variance extracted, Cronbach's alpha, composite reliability, R-Square, effect size (f2), quality of the fit model (Q2), and hypothesis testing via bootstrapping approaches.

## 4. Research Result And Discussion

### 4.1 Respondent Profile

The respondent profile describes the characteristics of the research sample, which includes gender, age, length of service, and position.

**Table 2 Respondent Profile**

<b>Characteristics</b>	<b>Sample</b>	<b>%</b>		<b>Sample</b>	<b>%</b>
Gender			Position		
Male	58	90,6%	Manager	6	9,4%
Female	6	9,4%	Assistant Manager	6	9,4%
			Supervisor	16	35%
			Chief	36	56,3%
Age			Length of service		
< 25 years	0	0%	3 - 5 years	5	7,8%
26 - 34 years old	23	35,9%	6 - 10 years	18	28,1%
35 - 44 years	30	46,9%	More than 10 years	41	64,1%
45 - 55 years	11	17,2%			

Table 2 shows that there are more men than women. In terms of age, the group 35-44 years dominates with 46.9%. Most of the employees are chief officers, with 56.3%. In terms of, tenure >10 years 64.1% of employees, reflecting that the majority are employees appointed to positions requiring high experience.

## 4.2 Convergent Validity Test

According to Mashuri and generous (2022) in Fiska et al (2024), convergent validity is measured by examining the loading factor value, where each indicator must have a minimum value of 0.70 to be considered valid.

**Table 3** Output Loading Factors

<i>HR Analytics</i>			<i>Managerial Decision Making</i>		
<b>Dimensions</b>	<b>Indicator</b>	<b>Outer Loading</b>	<b>Dimensions</b>	<b>Indicator</b>	<b>Outer Loading</b>
Data Collection and	X1.1	0.859	<i>Strategic Alignment</i>	Y.1	0.895
Integration	X1.2	0.854		Y.2	0.883
Predictive Analytics	X1.3	0.791	<i>Decision Confidence &amp;</i>	Y.3	0.783
	X1.4	0.854	<i>Leadership Planning</i>	Y.4	0.763
Efficiency and Cost Savings	X1.5	0.903	<i>Employee Development &amp;</i>	Y.5	0.825
	X1.6	0.838	<i>Engagement</i>	Y.6	0.832
Skills Gap Analysis and	X1.7	0.784	<i>Retention &amp; Turnover</i>	Y.7	0.858
Talent Management	X1.8	0.809	<i>Management</i>	Y.8	0.792

Based on Table 3, it shows that all indicator values are > 0.70, which indicates that the measurement has met the convergent validity standards or the above indicators are declared valid and suitable for research.

## 4.3 Validity Test Average Variance Extracted, Cronbach's Alpha, Composite Reliability

Table 4 explains the research results of Average Variance Extracted, Cronbach's Alpha, and Composite Reliability

**Table 4** Average Variance Extracted, Cronbach's Alpha, Composite Reliability

<b>Variables</b>	<b>Cronbach's alpha</b>	<b>Composite reliability (rho_a)</b>	<b>Composite reliability (rho_c)</b>	<b>Average variance extracted (AVE)</b>
<i>HR Analytics</i> (X1)	0.939	0.941	0.949	0.701
Managerial decision making (Y)	0.935	0.941	0.946	0.689

values Average Variance Extracted (AVE) greater than 0.5 are used to ensure the discriminant validity of the analyzed variables. Based on Table 4, both variables in this study have an AVE value of more than 0.5, which indicates that the variables are reliable and have a high level of accuracy. In addition, each construct should have a value of Cronbach's Alpha and Composite Reliability more than 0.7. The same table also shows that these two variables meet these criteria, which means that all question items in each construct have reliability good (Silitonga et al., 2024).

## 4.4 Structural Model Test (R- Square)

The accuracy of the model is tested through several tests, one of which is the analysis of the R-squared value. According to Ghozali and Latan in Mashuri and Generous (2022), a model with an R-squared value of 0.75 is considered to have high strength. Conversely, an R-squared value of 0.50 indicates moderate or moderate model strength, while a value of 0.25 indicates that the model has low strength (Fiska Anggraini, 2024)

**Table 5** *R-square Values*

<b>Variables</b>	<b>R-square</b>	<b>Adjusted R-square</b>
Managerial decision making (Y)	0.500	0.492

Table 5, the output R-squared suggests that the variable managerial decision-making has a value of 0.500, categorizing this model as Moderate. This indicates that 50% of the management decision-making variables are affected by HR Analytics, while the other 50% is determined by other variables.

#### 4.5 Effect Size (F2)

The indicate how much partial influence each predictor variable has on the endogenous variable. f-square value of more than 0.35 indicates a large effect, an value of less than 0.15 indicates a moderate effect, and an value of f-square less than 0.02 indicates a small effect. (Perkasa & Mulyanto, 2023).

**Table 6** *Effect Size Test Results (f2)*

<b>Variables</b>	<b>Effect Size</b>	<b>Description</b>
HR Analytics (X1)	1.001	Strong

Based on table 6, the value of Effect Size variable X1 (HR Analytics) is 1.001, which indicates that HR Analytics has a influence strong on the managerial decision-making variable.

#### 4.6 Goodness Of Fit Model (Q2)

Evaluating Goodness of Fit The inner model's structural framework employs the predicted relevance value (Q2). worth A Q-Square over 0 (zero) indicates that the model has a value significance (Winoto & Perkasa, 2024).

**Table 7** *Q-Square Test Results*

<b>Variables</b>	<b>Q<sup>2</sup> (=1-SSE/SSO)</b>
Managerial Decision Making (Y)	0.332

Based on table 7, This indicates a Q-Square value of 0.332. This indicates that the research model accounts for 33.2% of the variance in research data variety. The remainder is attributed to issues outside the scope of this study model. This indicates that the model has substantial predictive significance. Given that Q2>0, this model can effectively forecast Managerial Ability. Despite the Q2 value being somewhat low, it remains commendable in management research models. Consequently, the findings indicate that this study model has a satisfactory goodness of fit.

#### 4.7 Hypothesis Testing Results

Hypothesis testing was carried out using the method SEM-PLS with techniques bootstrapping processed through SmartPLS. This test aims to determine the direct effect between the independent and dependent variables. The results of the analysis can be seen in Figure 3.

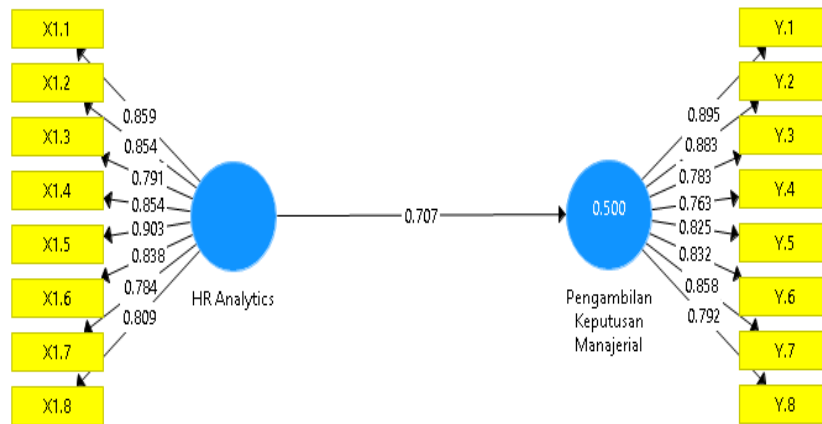


Figure. 3 PLS Bootstrapping Output Results

In structural models, relationships are considered significant if they meet certain criteria. The significance assessment is tested using the bootstrapping, method with reference to the parameter coefficient values and t-statistics from the algorithm results bootstrapping. According to Yurindera (2022), hypothesis testing in SEM-PLS involves evaluating t-statistics and probability, where the hypothesis is accepted if the t-statistic > 1.998 and the probability < 0.05 (Fiska Anggraini, 2024).

Table 8 Bootstrapping Hypothesis Testing Results

Variables	Original sample (O)	Sample mean (M)	Standard deviation (STDEV)	T statistics ( O/STDEV )	P values
HR Analytics (X1) → Managerial Decision Making (Y)	0.707	0.720	0.073	9.743	0.000

According to Table 8, the exam outcomes of HR Analytics in Managerial Decision-Making. The original sample value in this research is 0.707, with a t-statistic of 9.743 (exceeding the t-table value of 1.998), while the significance gain value is 0.000 (less than 0.05), showing a very significant association between HR Analytics and Managerial Ability. This signifies the acceptance of the first hypothesis (H1), indicating that the variable HR Analytics (X1) and its indicators have a considerable impact on the variable Managerial decision-making (Y) and its indicators. Consequently, HR Analytics significantly influences the enhancement of Managerial Ability, and this outcome is not coincidental.

## 5. Discussion

### 5.1 The Effect Of HR Analytics (X1) on Managerial Decision Making (Y)

The analysis results show that HR Analytics (X1) employees significantly influence managerial (Y) talent management in the digital era at PT Saitama Stamping Indonesia. This influence has been proven to be strong, with a value for decision-making R-square 0.500. This means that HR Analytics can explain 50% of the managerial decision-making variable, while other factors influence 50%. Value of the very strong managerial decision-making. This research model has an f-square of 1.001 and shows the influence of HR Analytics Q-square of 0.332, which means that 33.2% of the data diversity in the Managerial Decision-making variable can be explained by the model, indicating good predictive ability.

The results of the loading factor analysis show that the largest indicators influencing the variable HR Analytics (X1) are efficiency and cost, with a value of 0.903. This finding aligns with Marler & Boudreau (2017), who state that savings efficiency in human resource management (HR), including cost reduction and employee performance optimization, is one of the main factors in successfully implementing. As for the Managerial decision-making variable (Y), the largest indicator is HR Analytics Strategic Alignment, with a loading factor value of 0.895. According to Atif (2023), strategic alignment reflects the managerial ability to align strategic decisions with

organizational goals, which is core to supporting companies' sustainability in the digital era. In addition, the results show that HR Analytics significantly influences Managerial Decision Making, with an R-square value of 0.500 and an effect size (f-square) value of 1.001, indicating a very strong influence. This confirms the research of Wang et al. (2024), which emphasizes the importance of data-driven analytics in strengthening decision-making confidence and improving operational efficiency. According to Okon et al. (2024), organizations that use HR Analytics can improve decision-making effectiveness by providing more accurate information about employee performance and organizational trends. This is in line with the findings of this study, where HR Analytics contributes to Strategic Alignment (Y1) with a loading factor value of 0.895. This confidence in decision-making is driven by greater data disclosure and predictive analytics that help managers understand HR trends. Thus, HR Analytics makes decision-making easier and increases confidence in choosing the right strategy. Research by Chakraborty et al. (2021) shows that HR data analysis can help companies identify factors that cause turnover and take proactive measures to improve retention. In this study, the Retention & Turnover Management indicator (Y7) has a loading factor value of 0.858, which indicates that HR Analytics plays an important role in reducing employee turnover. Applying HR Analytics to monitor job satisfaction and predict turnover analysis allows companies to develop more effective and evidence-based retention strategies.

## 6. Conclusion

This research shows that HR Analytics supports managerial decision-making at PT Saitama Stamping Indonesia. The findings confirm that using data-driven analytics can assist managers in aligning corporate strategies with organizational goals, improve operational efficiency, and facilitate the identification of workforce needs and development skills. Thus, applying HR Analytics strengthens the decision-making process and supports digital transformation in talent management to create a sustainable competitive advantage.

## 7. Implications

This provides recommendations for companies to strengthen the implementation of research HR Analytics by focusing on employee training to improve data literacy and employee gaps. Companies must also create a data-driven work culture through policies and programs that support evidence-based decision-making to support its effectiveness. For future researchers, exploring unexplored aspects, such as the role of leadership in adopting HR Analytics, its influence on innovation, and other sector-based approaches outside manufacturing, is recommended. This may increase the relevance of HR Analytics in various organizational contexts.

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## Conflict of Interest

Authors declare that there is no conflict of interest regarding the publication of the paper.

## Author Contribution

The authors confirm contribution to the paper as follows: study conception and design: E.U.R., U.M.D.F. and E.R.; data collection: E.U.R., U.M.D.F. and E.R.; analysis and interpretation of results: E.U.R., U.M.D.F. and E.R.; draft manuscript preparation: E.U.R., U.M.D.F. and E.R. All authors reviewed the results and approved the final version of the manuscript.

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