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# HR Analytics Maturity and Evidence-Based Decision Making in Talent Management

Ahmad Fauzi [a*], Nur Aisyah [b]

[a*] *Malaysian Institute for Smart Technology Research, Kuala Lumpur, Malaysia.*
[b] *Malaysian Institute for Smart Technology Research, Kuala Lumpur, Malaysia.*

## Abstract

The development of Human Resource (HR) analytics has created it as an important component in making informed decisions in organizations. In this empirical study, we explore the impact of HR analytics maturity measured by such aspects as data quality, analytical ability, and infrastructure on evidence-based decisions in the field of talent management. Using a quantitative cross-sectional research approach, the data was collected from surveys completed by HR managers and management personnel using a 5-point Likert scale. Using statistical methods such as Pearson correlation and multiple regression analysis, we found out that data quality ($r=0.61$, $p<0.01$), analytical ability ($r=0.65$, $p<0.01$), and analytics infrastructure ($r=0.57$, $p<0.01$) are significantly positively correlated with evidence-based talent management decisions. The multiple regression analysis showed that analytical ability is the best predictor ($\beta=0.34$, $p<0.001$), followed by data quality ($\beta=0.28$, $p<0.001$) and analytics infrastructure ($\beta=0.19$, $p=0.004$). Our results suggest that just simple data on workers is not enough – to effectively recruit, appraise, map succession and retain employees one should use an ecosystem of high-quality data, skilled people and specific technologies.

**Keywords:** HR Analytics, Analytics Maturity, Evidence-Based HR, Talent Management, Data Quality, Decision Making.



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## Introduction

Business organizations have started adopting systematic practices over intuitive approaches to managing based on workforce intelligence. Traditionally, HR management was very much a discretionary activity based on anecdotes. Modern-day paradigms insist on evidence-based HR where decision-making is bolstered with evidence and insight into the organization (van der Togt & Rasmussen, 2017). According to Marler & Boudreau, 2017, HR analytics can be considered as an overarching business practice that links human capital data to enterprise success.

Due to the tremendous rise in the use of enterprise software and big data analytics, there has been a significant increase in the availability of workforce metrics (Dahlbom et al., 2020; Nocker & Sena, 2019). However, the mere availability of digital technologies or metrics is not an assurance of effectiveness; rather, the real success lies in the extent to which organizations make use of these technologies to create valuable intelligence (Van den Heuvel & Bondarouk, 2017). In terms of talent management, the application of evidence-based approach is crucial throughout the full cycle of employment (Gurusinghe et al., 2021; Aljbour et al., 2022; Sousa et al., 2019).

Although there is an increasing focus on this topic, the missing link between analytics maturity in its dimensions of data accuracy, people skills, and technology and talent decisions based on evidence continues to exist (Cech et al., 2018; McCartney & Fu, 2022). It is precisely this research question that this paper aims to answer through empirical examination of the subject matter.

## Literature Review and Hypotheses Development

### HR Analytics Maturity

Maturity of HR analytics is considered the level of an organizational system that allows for gathering, consolidating, analyzing, and utilizing information about employees in order to make human capital decisions. Although Marler & Boudreau (2017) concentrate on the governance of evidence-based HR management, Dahlbom et al. (2020) note that high maturity should be balanced between the technical ability and analytical skills. Also, Nocker & Sena (2019) state that maturity is indicated by the ability of an organization to use advanced analytics to make complex talent decisions.

A fully developed analytics capability consists of several interrelated pillars: accurate data and strong technical expertise (Cech et al., 2018), as well as efficient organizational processes and enterprise systems (Van den Heuvel & Bondarouk, 2017).

### Evidence-Based Decision Making in Talent Management

Data-driven decision-making entails replacing gut feelings, customs, and heuristics with a structured data analysis approach and empirical studies (van der Togt & Rasmussen, 2017). In relation to talent management, data-driven models help leaders make strategic decisions about candidate selection, employee performance appraisal, career development, leadership pipeline, and retention (Gurusinghe et al., 2021; Aljbour et al., 2022). Sousa et al. (2019) point out that the use of big data in human resource operations considerably improves the accuracy of workforce decisions.

### HR Analytics Maturity and Evidence-Based Decision Making

As the capability of analysis develops within an organization, the data of human resources becomes a strategic asset. According to McCartney & Fu (2022), HR analytics creates value for the organization only when analysis is smoothly integrated into the process of strategic decision-making. Van den Heuvel & Bondarouk (2017) also state that technical infrastructure and organizational preparedness are important preconditions for extracting value through analysis. This means that organizations that have access to reliable data and analysis capabilities are well-prepared to implement talent strategy.

Based on these theoretical foundations, the following hypotheses are formulated:

- **H1:** HR analytics maturity exerts a statistically significant positive effect on evidence-based decision-making in talent management.
- **H2:** Data quality exerts a statistically significant positive effect on evidence-based decision-making in talent management.
- **H3:** Analytical capability exerts a statistically significant positive effect on evidence-based decision-making in talent management.

## Research Methodology

### Research Design and Data Collection

The research was done through a quantitative approach whereby the connection between components of analytics maturity and decision-making process was evaluated. Data collection was mainly through a structured questionnaire that was filled by Human Resource practitioners and managers in different industry types. The responses in the questionnaire were all rated using a 5-point Likert scale where 1 represents "strongly disagree" and 5 "strongly agree". The research was conducted within ethical guidelines where participants were well informed about the scope of the research.

### Conceptual Framework and Operationalization

HR analytics maturity was operationalized across three core sub-dimensions:

1. Data Quality: Accuracy, completeness, consistency, and accessibility of workforce metrics.
2. Analytical Capability: The expertise, technical skill sets, and analytical processes of HR personnel.
3. Analytics Infrastructure: Software systems, database integration, and technological platforms.

The independent variable, Evidence Based Decision Making in Talent Management, measured the use of analysis-based evidence in five different functional areas as depicted in fig 1: recruitment, performance management, talent development, succession management, and retention management.

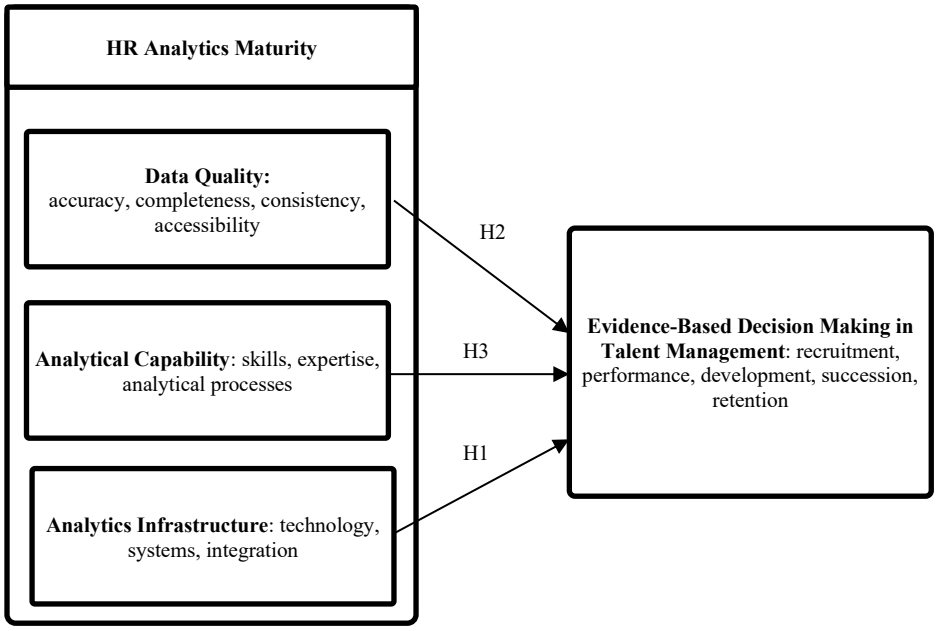



**Fig. 1: Conceptual Framework Linking HR Analytics Maturity Dimensions to Evidence-Based Talent Management Decisions**

### Statistical Analysis

The data analyses were performed through IBM SPSS. Internal consistency and construct validity were measured via Cronbach's Alpha coefficient. Variable correlations were analyzed via Pearson correlation, while the entire theoretical model and the hypotheses were examined using multiple linear regression analysis ($p < 0.05$ significance level).

## Results and Analysis

### Descriptive Analysis and Construct Reliability

Table 1 shows the measures of description, reliability, bivariate correlations, and regression analysis of all the variables analyzed. All the variables showed very good levels of reliability and thus produced Cronbach's alpha coefficients ranging from 0.84 to 0.90, above the required minimum of 0.70. The mean values of the variables ranged from 3.59 to 3.76 showing that the respondents had positive opinions concerning their analytics maturity and data-driven decisions.

**Table 1: Descriptive Statistics, Reliability, Pearson Correlation, and Regression Parameters**

| Variables | Mean | SD | Cronbach's α | Correlation (r) with EBDTM | β | t | p-value |
|---|---|---|---|---|---|---|---|
| **Data Quality** | 3.72 | 0.71 | 0.86 | 0.61** | 0.28 | 4.21 | < 0.001 |
| **Analytical Capability** | 3.68 | 0.74 | 0.88 | 0.65** | 0.34 | 5.03 | < 0.001 |
| **Analytics Infrastructure** | 3.59 | 0.77 | 0.84 | 0.57** | 0.19 | 2.96 | 0.004 |
| **Evidence-Based Decision Making (EBDTM)** | 3.76 | 0.69 | 0.90 | 0.68** | 0.38 | 5.09 | < 0.001 |

***Note:*** *EBDTM = Evidence-Based Decision Making in Talent Management; Correlation is significant at* $p < 0.01$.

**Correlation and Hypothesis Testing**

The results from bivariate Pearson correlation analysis showed significant positive relationships between all three maturity dimensions and evidence-based talent management. The highest positive correlations were recorded for Analytical Capability (r=0.65, p<0.01) and Data Quality (r=0.61, p<0.01) followed by Analytics Infrastructure (r=0.57, p<0.01).

Multiple regression analysis confirmed the ability of the model to predict. All three maturity dimensions proved to be significant predictors of evidence-based talent management:

- Data Quality ($\beta = 0.28, t = 4.21, p < 0.001$)
- Analytical Capability ($\beta = 0.34, t = 5.03, p < 0.001$)
- Analytics Infrastructure ($\beta = 0.19, t = 2.96, p = 0.004$)

Therefore, empirical evidence is provided to prove the two hypotheses H2 and H3. The total predictive power of the three dimensions proves hypothesis H1. Beta standard coefficients show that the influence of Analytical Capability (β=0.34) is most powerful to make decisions based on evidence in talent management systems.

## Discussion

The empirical findings demonstrate the positive influence of increased maturity in HR analytics on the ability of an organization to make talent decisions based on evidence. These findings coincide with those obtained by van der Togt & Rasmussen (2017) and Marler & Boudreau (2017). Thus, it is confirmed that sustainable human resources management is impossible without data transformation into actionable intelligence.

The relevance of Analytical Capability (β=0.34) is mainly supported by the findings of Dahlbom et al. (2020), who mentioned that technology alone cannot help much if there is no human resource that can understand the complex data sets. Furthermore, the contribution of Data Quality (β=0.28) is relevant as it helps support the argument made by Cech et al. (2018), according to which inaccurate workforce data undermines the confidence in evidence-based methods. Lastly, the relevance of Analytics Infrastructure (β=0.19) can be justified on the basis of the arguments made by Van den Heuvel and Bondarouk (2017) and McCartney & Fu (2022).

In summary, the results confirm that effective recruitment, performance assessment, employee development, succession planning, and retention policies depend on an appropriate combination of high-quality data, skilled people, and adaptive information technologies.

## Conclusion

In this research, the association between HR analytics maturity constructs and evidence-based decision making was assessed in order to show that a higher level of organizational analytics maturity considerably improves data-based talent decisions. In particular, it was revealed that analytics capacity, data quality, and analytics infrastructure are positive predictors of evidence-based talent management, and human analytics skills are the main predictor. From the standpoint of practice, it is important to note that executives and HR managers cannot depend only on purchases of various software; getting the maximum value from analytics investments requires giving preference to employee up-skilling to develop their statistical analysis skills, implementing strict data governance policies for increasing data accuracy, and unifying the organization's IT systems, such as HRIS, ATS, and LMS. Lastly, since the current study had a cross-sectional design and used self-report measures, further research should be longitudinal and take into account the influence of some moderating factors like the size of the firm, industry, company culture, etc.

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