Human Resources Analytics Usage in Turkish Organizations

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Abstract: Since the early 2000s, the use of analytics in Human Resources (HR) has become increasingly widespread. With the spread of analytical applications, it is thought that the Human Resources Department will contribute more to making effective decisions in organizations. This study investigates the fundamental differences between organizations that use and do not use Human Resources Analytics (HRA). The research was carried out by collecting data from organizations operating in different sectors in Turkey. The organizations participating in the survey were compared in terms of the organization's total age, turnover (2022) and number of employees, and it was investigated whether these variables had an impact on the use of HRA. In addition, in organizations that stated that they used HRA, it was also investigated how long these practices have been carried out and by which function they were carried out. The results have been analyzed in the context of descriptive statistics and finalized according to the responses received from a total of 175 organizations, and it was observed that the main difference in the use of HRA emerged in the context of the number of employees and organizational turnover. Moreover, by conducting a t-test for organizational age, it was concluded that the age of organizational age creates a difference in the use of HRA. Additionally, it has been determined that more than half of the organizations that apply analytics have been using HRA for less than 5 years and analytics applications are not carried out by a separate analytics team.

Keywords: HR analytics, Big data, Organizational management, Technology usage

Introduction

Data-driven decision making is becoming increasingly important in Human Resources Management (HRM) due to the realization of the potential contributions of the insights that it provides in the areas where it is applied. However, applying data-based approaches to HRM is quite complex (Shet et al., 2021). It has been on the agenda for a long time to use analytics for HR applications, which highlights the nature of this complexity. This is because the concept of measurement in HRM can be traced back to the 1980s (Marler & Boudreau, 2017). Although it is referred to by different names and definitions, HRA applications which determine the measurement, decisions and actions in HRM with an evidence-based approach using human-oriented data are carried out with HRA applications (Margherita, 2022).

Van den Heuvel and Bondarouk (2017) have suggested that HRA would have a major impact on the decision-making mechanisms of organizations. To be able to influence the decision-making mechanism, HRA must first be used. In this study, the general structures of organizations that use and do not use HRA were revealed and the differences between these organizations were tried to be determined.

The rest of the study is organized as follows: Section 2 summarizes the general literature and definitions related to HRA, Section 3 explains the purpose and methodology of the study, Section 4 presents the findings of the

analysis. The last section includes the conclusions of the study, managerial implications and suggestions for future work.

Literature Review

The term HRA has been studied in the literature under many different keywords such as "Human Capital Analytics", Human Resources Analytics", "Talent Analytics", "Workforce Analytics", "Collaboration Analytics", "Labor Analytics", "Relationships Analytics", "People Analytics" (Tursunbayeva et al., 2018). Although it has been referred to under many names in the literature, it basically refers to the use of analytics in HRM. Particularly with the ease of access to data after the acceleration of digital transformation, HRA has become more visible within organizations. For instance, data collection methods such as emails, calendars and even wearable technologies make it possible to understand employee behavior and thereby improve performance (Fernandez and Gallardo-Gallardo, 2021).

Ever since the emergence of the HR function in organizations, the main evaluation criterion has been the activities performed by the HR function in general. For instance, indicators such as how many employees have been hired and fired/left in the previous period, which trainings have been organized, etc. have been used to evaluate the HR function. These indicators are relatively easy to assess numerically, however, more important is the quality of the activities associated with these indicators. For instance, instead of determining how many people participated in the training provided in the previous activity period, it is necessary to have an advanced understanding of how the training increases customer satisfaction and how increased customer satisfaction impacts sales in an analytical way (McIver et al., 2018). Such measurements would be possible with the widespread use of HRA within the organization.

In order to use HRA in organizations, it is required to have data. Data are raw and unorganized facts. Data should be processed and organized to obtain information, and information should be transformed into meaningful knowledge according to the problem that needs to be solved. Organizations usually have huge amount of data and information can be provided through operational reports. On the other hand, HRA is the systematic identification and measurement of human factors affecting the business results and contributing to competitive advantage by transforming them into meaningful knowledge (Minbaeva, 2017). In other words, having data or information does not mean improving the performance of the organization by having HRA. HRA is a more systematic application throughout the organization. Shet et al. (2021) have examined the reasons why organizations cannot implement HRA and why organizations that use HRA cannot generate business value from HRA in the following categories: technological reasons, organizational reasons, environmental reasons, data management reasons and individual reasons. In this context, organizations which use and do not use HRA have been compared in terms of age, turnover and number of employees in this study.

Methodology

By contacting HR professionals working in different organizations via the LinkedIn social media platform in order to evaluate the differences between organizations that use HRA and do not, a survey has been sent to the relevant HR professionals to measure the concept of HRA. The survey has been prepared on the Google Forms platform and sent to 1378 HR professionals working in different organizations with different titles. The survey has been completed by 175 HR professionals in the period May 2023 - October 2023 with a return rate of 12.69%. The sectoral distribution of the 175 responses covers a wide range of sectors, including Information Technology; Glass, Cement and Soil; Education; Electricity and Electronics; Energy; Finance; Food; Holding; Construction; Chemistry; Mining; Machinery; Media; Metal; Automotive; Health; Insurance; Technology; Textile; Telecommunications; Trade (Sales and Marketing) ; Tourism; and Consumer Goods. For this reason, it can be said that the answers given represent different sectors in Turkey. Furthermore, 86 out of 175 participants who responded to the survey (i.e., 49.14%) have stated that HRA is used in their organizations.

The 175 respondent organizations have been evaluated in terms of their age, total number of employees (1-50 employees, 51-250 employees, 251-500 employees, 501-1000 employees, 1001-2500 employees, 2501-5000 employees and 5001 and above employees) and their turnover in 2022 (less than 1 million TL, between 1 million TL and 50 million TL, between 50 million TL and 100 million TL, between 100 million TL and 500 million TL, between 500 million TL and 1 billion TL and above 1 billion TL). In terms of the variables mentioned, organizations using and not using HRA have been compared using descriptive statistics. Besides this comparison, the 86 organizations which indicate that they use HRA have been examined in terms of how long

they have been using HRA, which department performs HRA applications and which tools/software are used for HRA applications.

Results

The main purpose of this study is to compare organizations that use and do not use HRA in terms of the age of the organization, number of employees and the turnover generated by the organization. The number of employees of the organization has been considered in a total range of 7 levels. Table 1 shows an overview of HRA usage by number of employees. According to Table 1, as the number of employees increases, the percentage of organizations that use HRA surpasses the percentage of organizations that do not use HRA. Figure 1 shows the general pattern of HRA usage percentage compared to the number of employees. As the number of employees within the organization is above 1,000, it is seen that, as a percentage, the organizations that use HRA are more than the organizations that do not. It can be said that as the number of employees increases, the number of people to be monitored increases and it is more difficult to achieve this monitoring through non-systematic means. According to this result, it is not surprising that organizations with more employees perform analytical applications more than organizations with fewer employees.

Table 1. HRA usage by number of employees

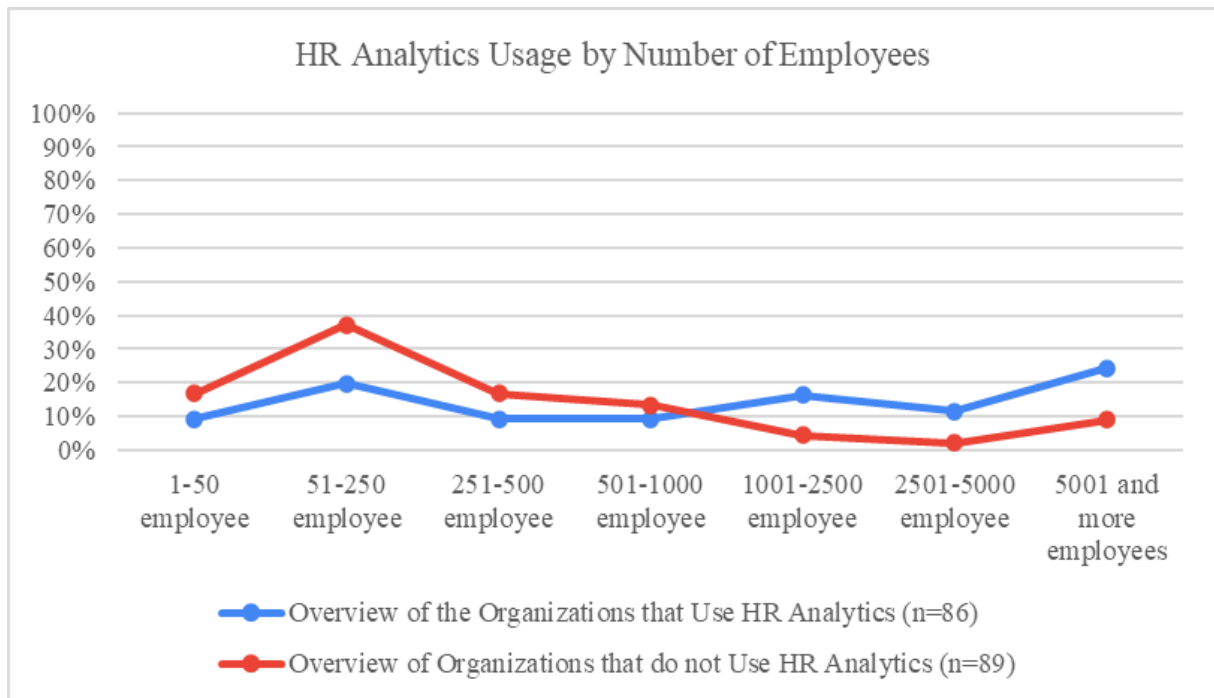| Number of Employees	Number of Organizations	Number of Organizations Using HRA	Percentage	Number of Organizations not Using HRA	Percentage
1-50 employees	23	8	9.30%	15	16.85%
51-250 employees	50	17	19.77%	33	37.08%
251-500 employees	23	8	9.30%	15	16.85%
501-1000 employees	20	8	9.30%	12	13.48%
1,001-2,500 employees	18	14	16.28%	4	4.49%
2,501-5,000 employees	12	10	11.63%	2	2.25%
5,001 and more employees	29	21	24.42%	8	8.99%
Total	175	86		89	

Figure 1. HRA usage by number of employees

The turnover generated by the organizations in this study has been divided into 6 levels. Table 2 shows the number and percentages of HRA usage by organizations according to their turnover range in 2022. According to Table 2, for organizations that have 100 million TL turnover or less, the rate of not using HRA is higher than the

rate of using HRA at every turnover level. However, if the turnover of the organization exceeds 100 million TL, the rate of using HRA in organizations surpasses the rate of non-users. At each level, the gap becomes larger. For organizations with turnover between 100 million TL and 500 million TL, the percentage of using HRA (10.47%) is almost equal to the percentage of non-users (10.11%), while for organizations with a total turnover more than 1 billion TL, the percentage of using HRA (43.02%) is much higher than the percentage of non-users (16.85%). In other words, it has been observed that after a certain turnover level, the usage of HRA keeps increasing. Figure 2 illustrates the percentages of HRA utilization by turnover in a similar way and visually demonstrates the aforementioned difference.

Table 2. HRA Usage by turnover in 2022

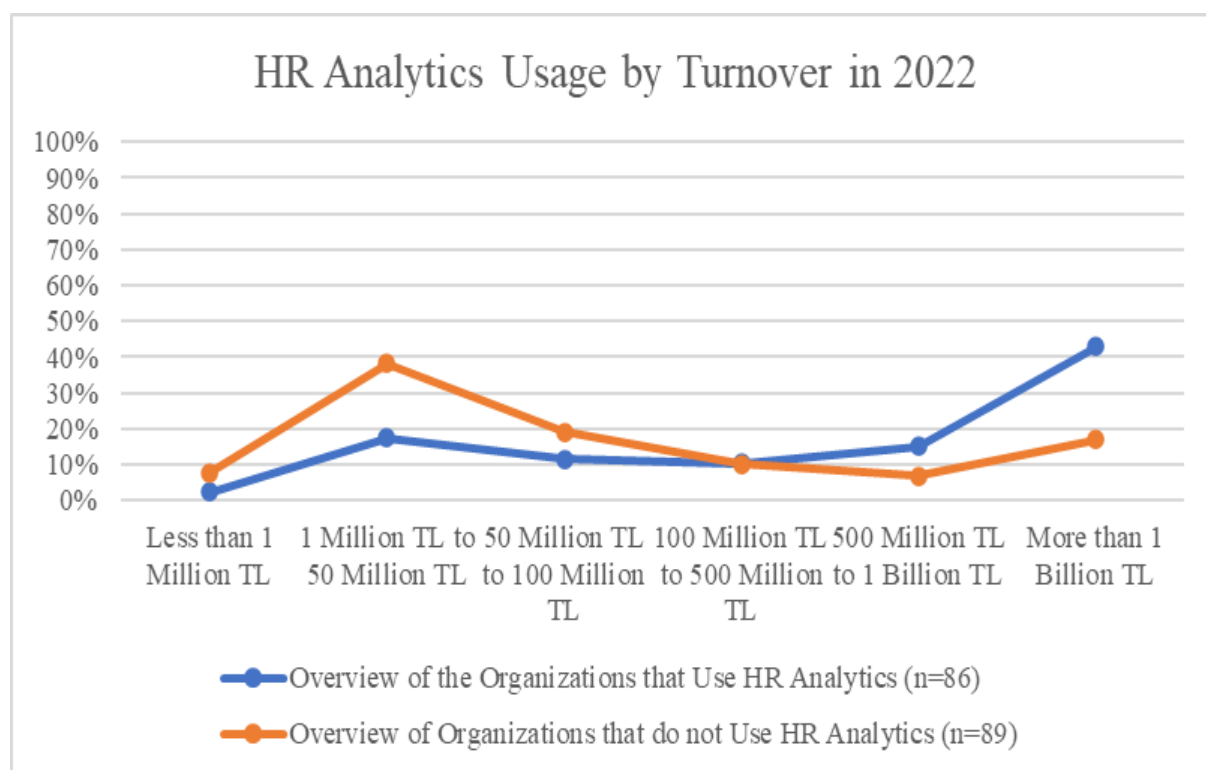| Turnover in 2022	Number Organizations	Number of ofOrganizations Using HRA	Percentage	Number of Organizations not Using HRA	Percentage
Less than 1 million TL	9	2	2.33%	7	7.87%
1 million TL to 50 million TL	49	15	17.44%	34	38.20%
50 million TL to 100 million TL	28	10	11.63%	17	19.10%
100 million TL to 500 million TL	18	9	10.47%	9	10.11%
500 million TL to 1 billion TL	19	13	15.12%	6	6.74%
More than 1 billion TL	52	37	43.02%	15	16.85%
Total	175	86		89	

Figure 2. HRA usage by turnover in 2022

Following the observation of whether there is a relationship between the organization's turnover and number of employees and HRA, it has been also investigated that whether there is a relationship between the age of the organization and the organization's use of HRA. Figure 3 demonstrates the usage of HRA according to the age of the organization. As can be seen in Figure 3, the average age of organizations that use HRA is 38.38 years with a median of 30, while the average age of organizations that do not use HRA is 22.34 years with a median of 15.5. In order to determine whether there is statistically significant difference in terms of the usage of HRA, an independent sample t-test has been conducted using the IBM SPSS program (Version 28.0.0.0.0). Table 3 summarizes the results of the independent sample t-test results at 95% confidence interval. According to the result of the test, there is a statistically significant difference between the age of the organization and the

organization's use of HRA. In other terms, organizations with a higher average age have a higher usage of HRA than the organizations with a lower average age.
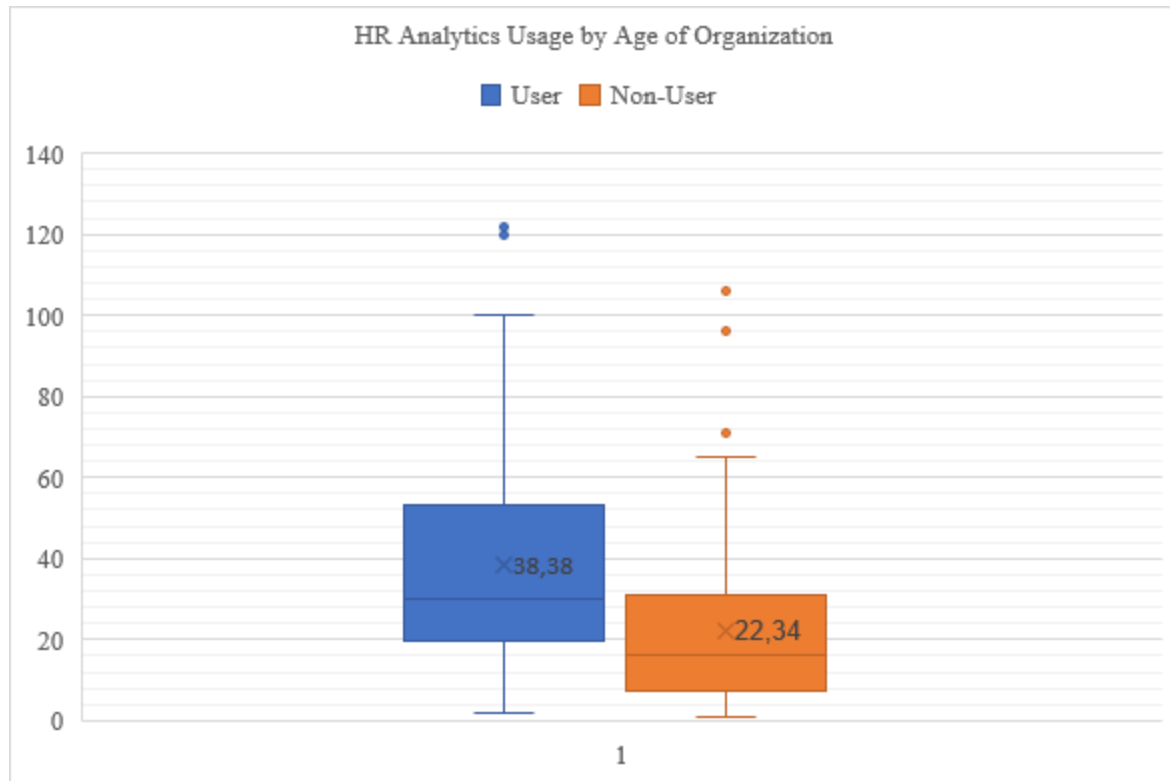

Figure 3. HRA usage by age of organization

Table 3. Independent sample t-test results

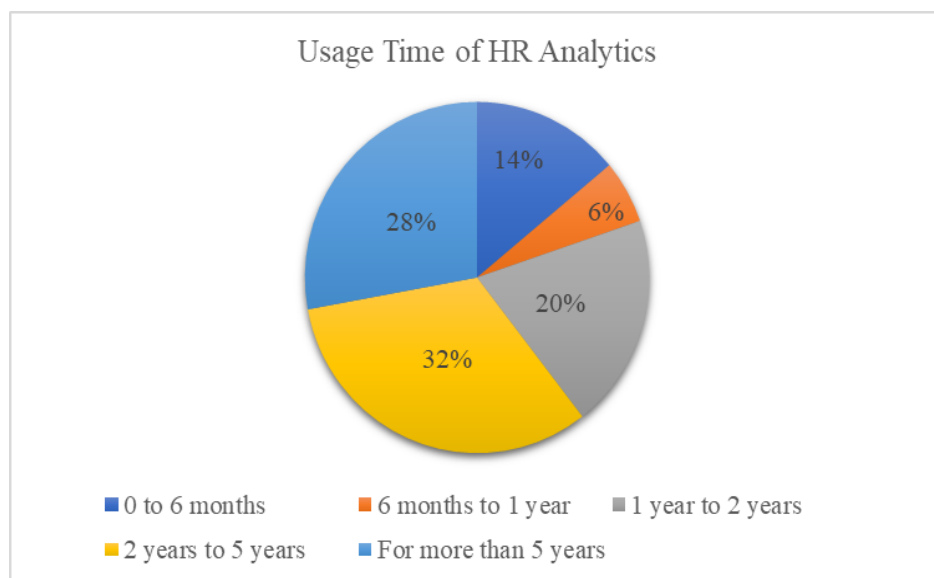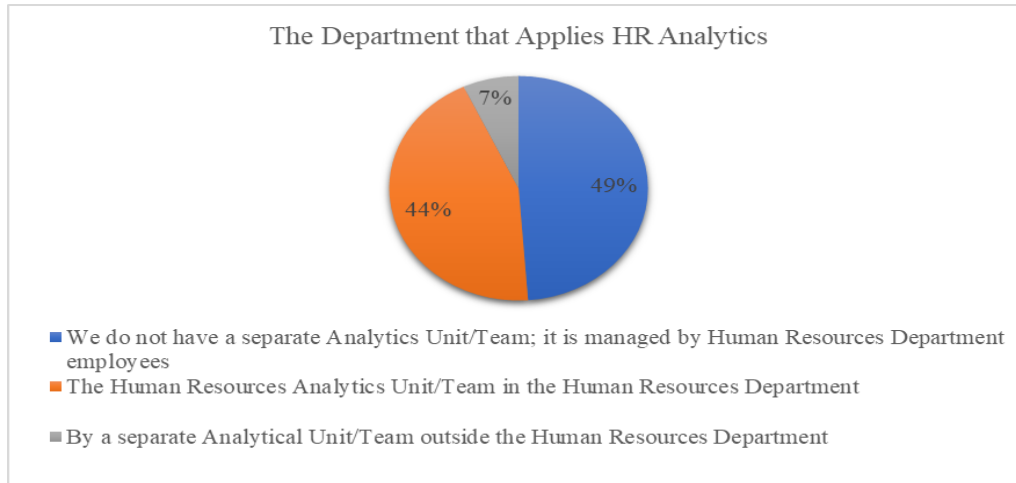| | | | | | | Significance | |
| | | | | | | One-Sided | Two-Sided |
		F	Sig.	t	df	p	p
Age of	Equal variances assumed	9,342	,003	-4,424	173	<,001	<,001
Organization	Equal variances not assumed			-4,402	156,533	<,001	<,001

Figure 5. Usage time of HRA

Figure 6. The department that applies HRA

Out of 175 organizations that responded, 86 of them use HRA. These organizations have also been investigated in terms of how long HRA has been used and how HRA activities have been carried out. Figure 4 displays how long organizations that use HRA have been using it. According to the results, 60% of the organizations have used HRA for more than 2 years and 28% for more than 5 years. In addition, it has been found that 20% of the organizations have used HRA for less than 1 year. Figure 5 illustrates the department that HRA applications are carried out under in organizations. It can be seen that almost half of the organizations that use HRA do not have a separate analytics team, and HRA applications are carried out by HR employees. Only 7% of all organizations have established an external analytical department apart from the HR function and this unit conducts HRA activities.

Conclusions and Managerial Implications

This study aims to explore the main differences between organizations that use and do not use HRA. In order to address the aforementioned objective, a survey has been designed and evaluations have been made based on the data collected from this survey. The usage of HRA within the organization has been evaluated in the context of the age of the organization, the number of employees and the turnover of the organization. According to the results, there is a statistically significant difference between the age of the organization and the usage of HRA by the organization. Levenson & Fink (2017) have mentioned the importance of continuous learning for the usage of HRA. Considering that organizations provide a continuity of learning from past to present, along with the corporate culture that is established along with the age of the organization, it can be said that organizations have become more ready for the use of HRA over the time since their establishment. Fernandez and Gallardo-Gallardo (2021) have stated that one of the key drivers for adopting HRA is financial readiness. According to the results of this study, the percentage of HRA usage increases when the turnover exceeds a certain level. Consistent with Fernandez and Gallardo-Gallardo (2021), the organization is required to be financially ready to adopt HRA. It is observed that when the number of employees in the organization exceeds a certain threshold similar to the turnover of the organization, the percentage of HRA usage surpasses the percentage of non-usage. As the number of employees increases, the organizational structure expands, in other words, the number of employees that need to be managed increases, therefore it is not surprising that above a certain threshold, the percentage of organizations that use HRA is greater than the non-user organizations.

Among the 86 organizations that participated in the study and used HRA, it has been observed that 20% of them have used HRA for less than 1 year. This rate has been found as 28% for HRA usage for more than 5 years. According to these results, it can be concluded that the use of HRA in Turkey is generally spread over the short and medium term and there are fewer organizations that have been using HRA for a long time. From this point of view, it can be stated that the usage of HRA applications among organizations in Turkey is relatively new. However, considering that the emergence of HRA after the 2000s and its development together with the digital structure (Tursunbayeva et al., 2018), it can be said that it is not too late for organizations to implement HRA. In addition, it has been observed that organizations that use HRA largely implement HRA applications within the HR function. It is observed that 49% of the organizations conduct HRA applications by HR department employees, not by a separate analytics team. Investigating whether the requirement of analytical competence of the implementing team for HRA applications, put forward by McCartney and Fu (2022) and Minbaeva (2018),

is met for organizations using HRA in Turkey may open an area for future studies. One of the major limitations of this study is that while investigating on the usage of HRA by organizations, the comparison between organizations is based on a limited number of variables, namely the age of the organization, the number of employees and the turnover of the organization. Especially in the context of organizational turnover, a single period has been taken as a basis and a comparison has been made over a single period. In future studies, inferences regarding HRA can be made by observing turnover over a wider period of time.

Scientific Ethics Declaration

The authors declare that the scientific ethical and legal responsibility of this article published in EPSTEM journal belongs to the authors.

Acknowledgements or Notes

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