Human Resources Analytics: Challenges and Opportunities for Businesses.

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Abstract

Today it is necessary to opt for a new approach, which will allow the HR function to make the right decisions. Studies agree that Human Resources (HR) analytics has the potential to become a permanent fixture in the habits of HR managers. HR analytics aims to help decision making thanks to powerful statistical and econometric tools that make it possible to cross-reference a very large number of data and variables. The analysis of the past would allow us to make the right decisions for the future. Analytics is above all a methodology, a step-by-step approach that is naturally quantitative, i.e., using data analysis techniques. The objective of this study is to provide a comprehensive classification of literature on human resources analytics, accompanied by a complete bibliography and a proposed research program for the future. To achieve this, a systematic literature review methodology was adopted, based on a database of multiple articles and books published in leading journals between 2013 and 2021. The results of this analysis capture the major developments in human resources analytics research. Significant findings as well as gaps in existing work are also highlighted. This study has the potential to stimulate future research directions.

Keywords: Human Resources, Analytics, HR Reporting, Big Data

1. Introduction

Human Resource Management (HRM) represents a fundamental field within organizations, aiming to optimize the human capital. It encompasses a wide range of functions, policies, and practices designed to select, train, motivate, and retain employees within a company. Currently, it is imperative that the Human Resources function continually reinvents itself and adapts to fulfill its mission while supporting organizational transformation. This belief currently holds a central place in discussions regarding the future of a function that seeks to gain the recognition and appreciation it deserves in order to contribute to organizational management. It is essential that the concepts and tools used in this field be oriented towards decision-making based on structured data from information systems.

Decision-making involves choosing the most relevant action among all possible actions to achieve the desired result while using available resources to the fullest. In this perspective, data related to the results of human resources activity, as well as the scope of various social phenomena, serve as valuable indicators. They enable the HR function to engage in a process of diagnosis, selection, evaluation, and optimization.

Human Resource Management encompasses a variety of activities, pursues multiple objectives, and can influence many components of organizational performance. Given the large number of potentially measurable indicators, HR experts must focus on the processes and methods that guide the design and selection of appropriate indicators.

Whether for making strategic decisions or tactically adjusting HR policies, the information available to decision-makers is crucial. Decision-making requires a cross-cutting analysis, beyond HR aspects, as HR metrics alone are often insufficient to legitimize HR decisions.

Today, it is necessary to adopt a new approach that will enable the HR function to make informed decisions. Studies emphasize the significant potential of HR analytics to become a permanent fixture in HR management practices. This prospect is all the more likely as the use of analytics is now commonplace within the company, particularly in its finance and marketing departments.

Human Resources Analytics, or HR analytics, is an emerging discipline within HR that relies on the use of data and statistics to make informed decisions in personnel management. Its aim is to assist in decision-making through powerful statistical and econometric tools, which provide the ability to analyze a vast amount of data and variables. Analytics of the past can guide the right decisions for the future.

It enables the collection, analysis, and interpretation of data related to employees, their performance, satisfaction, and other aspects of HR. The primary objective of HR analytics is to

enhance decision-making by providing precise and factual information to managers and business leaders.

HR analytics offers numerous advantages, such as optimizing recruitment, reducing employee turnover, enhancing employee productivity, managing talent, and strategic workforce planning. Through HR analytics, organizations can gain a better understanding of their workforce, identify trends and challenges, and take proactive measures to improve their human resources management.

The question then arises of how to encourage researchers to delve into the topic of HR analytics. The goal of this research is to provide a basic overview of HR analytics and its connection to human resources management. This article aims to address the following primary question: What is the significance of HR analytics in human resources management?

2. Literature Review

2.1 Human Resources Analytics: Definition, Framework, and Practices

In recent years, HR departments have become heavily digitized with the adoption of HRIS systems that allow them to centralize, prioritize, and track information about their human resources. However, this veritable goldmine of data is often used solely to manage human resources on an operational level. Time and activity management, payroll, skills management, training, etc. - while these are obviously essential processes for a company, one aspect is often forgotten: analytics.

Human Resource Analytics, first appears in the HR published literature in 2004 according to the literature review (Marler and Boudreau (2017).HR analytics is a method used to improve individual and organizational performance by improving the quality of decision-making, Mishra et al. (2016). The approach is relatively new, and its use has seen a noticeable rise in popularity recently (King. (2016)). However, researchers have found that the actual application of analytics by companies remains at the initial stages (Lismont et al (2017)).

The concept of HR analytics is increasingly emphasized in the field of personnel management. However, a preliminary question arises as to what is exactly meant by "HR analytics."

Analytics is defined as the intersection of computer science, decision-making, and quantitative methods to organize, analyze and explain the increasing amount of data generated by modern society (Mortensen et al. (2015). Adding the 'HR' component indicates that these analyses concern the people inside the organization (Heuvel and Bondarouk (2016). Therefore, HR analytics can be defined as a systematic identification and quantification of the people

drivers of business outcomes with the purpose of making better decisions (Heuvel and Bondarouk (2017).

The future of the HR profession lies in analytics. No professional entering the field can expect to succeed in their career without a strong understanding and in-depth practice of analytical tools to assist in making decisions related to personnel.

To implement their business strategies effectively, leaders must deal with people issues in a way that allows them to gain competitive advantage through people (Thomas et al (2013)).

The organizations that will win the 'war for talent' will be those which are better at identifying and keeping key talent, motivating high performance, developing and promoting staff and predicting future people needs accurately. HR professionals need analytics to address these challenges. For example, linking pay for performance has been a dogma of management, but recent research shows that most incentive plans do not produce the desired behaviour, and that pay, in fact, has little correlation to business results (Boudreau, (2010), Diez (2018)). To succeed in the business world, it is imperative that HR provide data-driven answers and insights on how to implement and execute strategy through the people in the organization.

Today's HR Function is expected to provide senior leadership with more information to run the business, and also provide more personalized services to employees. These demands encapsulate the arguments for the need of HR analytics in organizations: On the one hand, the HR professional that has a handle on analytics is better positioned to answer business questions from top management (e.g. 'Which profile of our sales force will best help us to increase sales revenue?'). On the other hand, HR analytics tools can also help deliver a better employment experience to employees (e.g. 'Which combination of employee benefits and work–life balance programmes delivers highest staff engagement?').

For the HR function to truly realize all the benefits that HR analytics promises, it needs to address various parameters, starting with the issue of a data culture, which is evidently lacking (Storhaye (2016)).

2.2 The field of application of Human Resources analytics

The primary specificity of HR analytics remains its ability to facilitate decision-making through the possibility of "predicting to decide," which implies identifying the areas where this approach is relevant. The first typically identified application domain today is recruitment, more specifically, personnel selection. It involves leveraging historical data to identify criteria that predict the future success of candidates.

The second related domain is employee retention. It involves predicting who is likely to leave among the employee population and anticipating the consequences of anticipated departures. In a diagnostic logic, one can also rely on performance statistics to identify high-performing employees and/or managers (Beaujolin and Oiry (2021)).

Another avenue is the implementation of assessment systems for HR policies and practices, following a cost-benefit analysis or return on investment logic, and more broadly, any element related to HR decision-making. In this regard, Dulebohn and Johnson (2013) propose an analysis of different types of personnel management decisions.

They distinguish the decision's level of structuring (structured, semi-structured, non-structured) and the level of the decision itself (strategic, functional, operational) to distinguish nine categories of HR decisions. Examples of decisions at the strategic level include workforce forecasting (structured), HR policy planning (semi-structured), and the impact of mergers/acquisitions (non-structured).

At the functional level, there are issues such as recruitment (structured), succession planning management (semi-structured), and the implementation of an HR information system (non-structured). At the operational level, one finds participation in employee benefits (structured), candidate selection (semi-structured), and absenteeism management (non-structured). According to the authors, HR information systems are entirely capable of producing indicators for decision-making for structured problems and can contribute to decision-making for semi-structured problems. Therefore, they constitute privileged application domains for HR analytics.

Ben-Gal (2019) provides three roles for HR analytics: optimizing decision-making in recruitment, retention, and personnel development; offering insights into personnel management; and contributing to the implementation of the company's strategy. The author conducts a review of articles published in peer-reviewed journals. She observes a shift in the focus of contributions, moving away from a dominance of conceptual articles toward more technically oriented contributions. This shift suggests that questions related to the implementation of HR analytics are emerging now that the broader aspects have been extensively addressed.

However, it is interesting to note that, given the limited number of studies, many of them consist of analyses of articles published in the field, with limited empirical contributions (Beaujolin and Oiry (2021)).

This reflects a strong reflexivity in this field, even though it has not yet been extensively developed. An exception is the work of Van den Heuvel and Boudarouk (2017), which shows

that the work conducted by practitioners primarily focuses on compiling traditional HR indicators without considering the predictive dimension typically associated with HR analytics. Tursunbayeva, et al. (2018) also note that the majority of publications in peer-reviewed journals are authored by consultants or employees of technology companies, similar to articles on HR information systems.

It is, however, challenging to interpret the causes of this situation, even though they might be similar for researchers and practitioners, namely, the need for advanced analytical skills, which may not be so common in the academic HR community.

3. Methodology

The literature review focuses on the synthesis of academic resources, including research papers and books, that delve into HR Analytics, with a specific focus on the determinants that exert an influence on its effective application within organizational contexts. This review was conducted using scholarly databases, including Scopus and Google Scholar, and employed search terms such as "HR Analytics" and "Human Resource Analytics."

The research revealed that there are numerous references, books, and reports addressing the concept of HR analytics. Consequently, it may not be perceived as a highly prioritized area of interest for management researchers. This has resulted in a predominance of non-empirical articles. The majority of the articles referenced in this literature review are of a non-empirical nature.

However, this non-empirical literature has contributed to the development of existing definitions of HR analytics and has enhanced our understanding of the topic under review. Additionally, the literature review covers the HR Analytics Process, which is an iterative process involving the collection, analysis, and utilization of data to enhance decision-making in the field of human resources.

Finally, the major findings pertaining to the topic under review are discussed.

3.1 The field of application of Human Resources analytics

Human resources analytics (HR analytics) is a process of developing, modeling, and analyzing metrics from various sources to optimize human resources decisions. It allows organizations to improve their HR performance by providing them with valuable insights into their employees, processes, and outcomes. The HR analytics process typically consists of the following steps:

The first step is to define the objectives of HR analytics. These objectives should be aligned with the organization's strategic objectives. For example, an organization may want to improve its employee retention rate, reduce its recruitment costs, or increase employee productivity

Collect data

The second step is to collect the data needed for analysis. This data can come from a variety of sources, such as HR systems, surveys, social media, and financial data.

Prepare data

Once the data is collected, it needs to be prepared for analysis. This may involve cleaning the data, normalizing it, and aggregating it.

Analyze data

The fourth step is to analyze the data. This may involve using statistical techniques, machine learning, or artificial intelligence.

Communicate results

The results of the analysis should be communicated to HR decision-makers. This helps them to make informed decisions.

Implement actions

The results of the analysis should be implemented in the form of concrete actions. These actions may aim to improve HR processes, develop employee skills, or optimize compensation.

HR analytics can be used to improve many aspects of human resources management. It can be used, for example, to:

- Determine skill needs
- Improve recruitment and selection
- Develop employee skills
- Manage employee performance
- Reduce HR costs
-

3.2 The challenges of Human Resources Analytics

We have presented the entire analytical process along with its value proposition. Several challenges need to be overcome for it to fully manifest.

- The first challenge relates to the collection of social data. Companies must undertake both qualitative and, more importantly, quantitative efforts to better leverage existing data and generate new data with strong descriptive power. This "data culture" must be nurtured by leadership and embodied in dedicated resources.

- The second challenge involves demonstrating the tangible added value of analytics through proof of concepts. While these proofs exist, they are still too few and too inconspicuous to drive meaningful change. HR analytics represents a shift in practice, and this change must be accompanied by supportive measures.

- The next issue concerns raising awareness among HR professionals about this innovative approach. While they may not be tasked with leading HR analytics projects, HR professionals should possess a sufficient knowledge base to understand, evaluate, and, of course, support them.

- Lastly, the development of HR analytics specialists should be prioritized. Expertise in statistics is available but is seldom directed towards analyzing a company's social data.

Figure 1: Challenges in HR Analytics
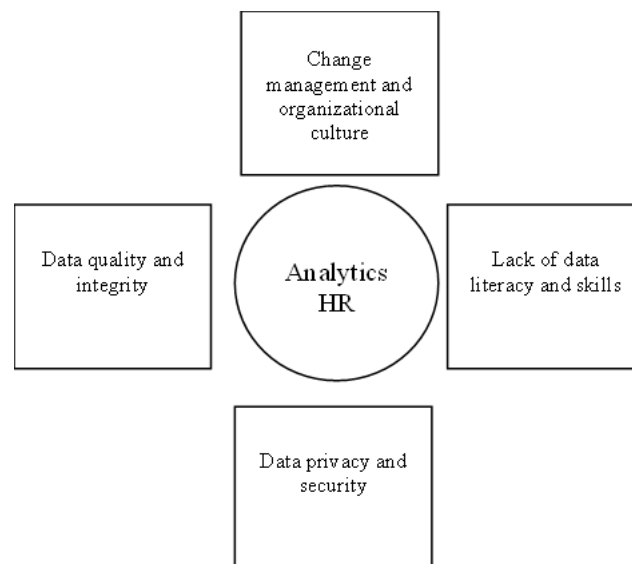
Source : G. Pertinant et al. (2017). HR analytics: Benefits approach, Challenges**.**

4. Presentation of the results

Most articles on HR analytics are based on abstract theories and concepts, and provide little empirical evidence on its practical implementation and application. Current research is dominated by qualitative case studies that rely on existing management frameworks at a very general level. This means that the results of these studies are often difficult to generalize to other contexts.

As a result, there is limited consensus on the effectiveness of HR analytics. Some researchers believe that it is a promising innovation with the potential to improve organizational performance, while others are more skeptical.

To contribute to the development of HR analytics, academic researchers must conduct rigorous scientific research that examines the impact of this approach on concrete variables, such as productivity, employee satisfaction, and profitability. This research must be conducted in a variety of organizational contexts in order to be generalizable.

5. Conclusion

The field of HR analytics is still in its early stages, and there is no objective evidence to date to support the relevance of implementing HR analytics (Marler and Boudreau, (2017)).

This is despite the abundance of articles in the professional press, blogs, white papers, consulting reports, and testimonials that have accumulated over the past fifteen years. This suggests a certain lack of interest on the part of researchers, the origin of which would be interesting to explore.

It is also quite possible that HR analytics will remain at the stage of managerial fashion. Rasmussen and Ulrich (2015) provide a rather critical assessment of current practices and believe that only anchoring in the company's overall management system will ensure a future for HR analytics.

Stuart et al. (2016) are rather pessimistic about the possibility of implementing HR analytics and even suggest the possibility of counterproductive effects.

Regardless of the ability of HR analytics - allied with its two privileged partners big data and artificial intelligence, Yano (2017) - to develop concepts, methodologies, and tools that allow it to fulfill its promises, it remains that the underlying justifications for the quantification of the HR function will remain valid in the future and that a need for information will always exist.

The use of social dashboards - in an internal management logic - and social reporting - in an external legitimization logic - will remain essential for the HR function.

It remains to be seen if these practices will be sufficient to legitimize the role of the HR function and the competence of its actors. It is also imperative to note that this raises a number of conceptual, methodological, and ethical problems. These offer just as many avenues of investigation for researchers.

References

Beaujolin R., Oiry E. (2021). Les grands courants en gestion des ressources humaines. *Ed Ems.*

Ben-Gal C. (2019). An ROI-based review of HR analytics: practical implementation tools. *Emerald Publishing Limited.*

Boudreau J. (2010). Pay for performance: A critical review. *Compensation & Benefits Review, 42(2), 12-26.*

Diez A. (2018). The unintended consequences of pay for performance: A review and synthesis of the evidence. *Human Resource Management Review, 28(2), 163-177.*

Dulebohn J., Johnson R. (2013). Human resource metrics and decision support: A classification framework. *Human Resource Management, 23(1) :71-83. DOI: 10.1016/j.hrmr.2012.06.005.*

Heuvel V. D. S., and Bondarouk T. (2016). The rise (and fall ?) of HR Analytics: A study into the future applications, value, structure, and system support. *The 2nd HR Division International Conference (HRIC).*

Heuvel V., Bondarouk T. (2017). The impact of HR analytics on employee well-being. Human *Resource Management Journal, 27(3), 253-269.*

Heuvel V., Bondarouk T. (2017). The rise (and fall?) of HR analytics. *Journal of Organizational Effectivness, People and Performance Vol. 4 No 2, 2017, pp.127-148*

Lismont J., Vanthienen., B. Baesens W. Lemahieu. (2017). Defining analytics maturity indicators: A survey approach, Int. J. Inf. Manage. *37 (3) (2017) 114–124.*

King D. (2016). Data analytics in human resources: A case study and critical review, Human Resource. *Dev. Rev. 15 (4) 487–495.*

Marler R., Boudreau W. (2017). Human resource analytics: An overview and future directions. *In H. R. Marl, & J. W. Boudreau (Eds.), Handbook of human resource management (pp. 147-171). Edward Elgar Publishing.*

Mishra, D., Singh V., Ahluwalia, P. (2016). The role of human resource analytics in driving business performance: A review and synthesis of the evidence. *Human Resource Management Review, 26(4), 344-357.*

Mortensen M., Doherty N., and Robinson., S. (2015). Operational research from Taylorism to terabytes: A research agenda for the analytics age. *European Journal of Operational Research, 241(3), 583-595.*

Pertinant G., Richard S., Storhaye P. (2017). HR analytics: Benefits approach, Challenges. *EMS Management et Société*

Rasmussen T., Ulrich D., (2015). Learning from practice: how HR analytics avoids being a management fad. *Organizational Dynamics, Elsevier. DOI : 10.1016/j.orgdyn.2015.05.008.*

Storhaye P. (2016). Transformation RH et digital : De la promesse à la feuille de route. *Ed EMS management et société.*

Stuart M., Mann S., Pocock S. (2016). HR analytics: A review of the literature and a framework for future research. *Journal of human resource management, 27(1), 21-49.*

Trusunbayeva A., Di Lauro S., Pagliari C. (2018). People analytics-A scoping review of conceptual boundaries and value propositions. *International Journal of Information Management, Volume 43, pp 224-247. Elsevier.*

Thomas, D. A., Smith., Diez A. (2013). Strategic human capital management: Creating people advantage in the era of globalization, technology, and demographic change. *In R. I. Baron & H. W. Smither (Eds.), Human resource management: Gaining a competitive advantage (11th ed., pp. 9-40). Prentice Hall.*

Yano T. (2017). The future of HR analytics. *Human Resource Management Review, 27(3), pp 241-252.*