

Research Gap Of E-Hrm: A Systematic Review

Harry Yulianto ✉ Iryani²

Sekolah Tinggi Ilmu Ekonomi YPUP Makassar

Sekolah Tinggi Ilmu Ekonomi Wira Bhakti Makassar

Abstrak

Penelitian ini bertujuan mengidentifikasi lima pertanyaan riset: (RQ1) tren publikasi E-HRM di database Google Scholar tahun 2000-2023; (RQ2) penerbit yang menerbitkan artikel E-HRM paling banyak; (RQ3) peneliti yang aktif; (RQ4) judul artikel yang paling banyak dikutip; dan (RQ5) peta jaringan publikasi. Metode penelitian menggunakan sistematik review. Data bersumber dari database Google Scholar yang dibatasi aspek: (1) jenis bibliografi yang digunakan; dan (2) keywords yang digunakan "E-HRM". Pemetaan kesenjangan riset menggunakan VOSviewer, dan teknik analisis data menggunakan statistik deskriptif. Hasil penelitian mengindikasikan (1) publikasi bertema E-HRM sebanyak 980 artikel; (2) ResearchGate merupakan penerbit yang terbanyak menerbitkan artikel bertema E-HRM; (3) penulis yang aktif meneliti E-HRM yakni H.J.M. Ruël; serta (5) terdapat 10 kluster yang berpeluang menjadi riset gap terkait tema E-HRM. Hasil penelitian mengindikasikan tema E-HRM masih kurang diteliti dan berpotensi menjadi riset gap di bidang manajemen, khususnya MSDM.

Kata Kunci: Kesenjangan Penelitian, E-HRM, Tinjauan Sistematik.

Abstract

The aim of this study to identify five research questions: (RQ1) the trend of E-HRM publications in the Google Scholar database in 2000-2023; (RQ2) publishers that published the most E-HRM articles; (RQ3) active researcher; (RQ4) most cited article titles; and (RQ5) publication network map. The research method uses a systematic review. The data is sourced from the Google Scholar database which is limited in terms of: (1) the type of bibliography used; and (2) keywords used "E-HRM". Research gap mapping using VOSviewer, and data analysis techniques use descriptive statistics. The results of the study indicated (1) 980 E-HRM-themed publications; (2) ResearchGate is a publisher that publishes the most E-HRM-themed articles; (3) the writer who actively researches E-HRM namely H.J.M. Ruël; and (5) there are 10 clusters that have the opportunity to become research gaps related to the E-HRM theme. The results of the study indicate that the E-HRM theme is still under-researched and has the potential to become a research gap in management, especially HRM.

Keywords: Research Gap, E-HRM, Systematic Review.

Copyright (c) 2023 Harry Yulianto

✉ Corresponding author :

Email Address : harryyulianto.stieypup@gmail.com

INTRODUCTION

The development of Information, Communication, and Technology (ICT) has an impact on human life. Various areas of human life can be fulfilled easily and quickly through the use of ICT (Yusoff et al., 2010). The rapid development of ICT has become a means to fix lagging behind, update the system, as well as a means of improving various aspects of life. For organizations, the development of ICT was a new form of innovation for quality improvement (Ruël et al., 2004). ICT has changed the way organizations operate, thus contributing to

changes in structure, function, and improving performance and effectiveness. The development of ICT was a new path that brings organizations to success (Parry, 2011).

The key to organizational success lies in Human Resources (HR), because it plays a central role in the organization to achieve its goals, so the organization takes various strategies to improve HR quality, one of which is to take advantage of ICT developments. One form of ICT development developed and used by various organizations to improve the quality and performance of human resources was Electronic Human Resource Management (E-HRM). The concept of E-HRM was inseparable from the general understanding of HRM. E-HRM as a form of implementing HRM functions into ICT applications. E-HRM bases on the decentralization of HRM functions for management and employees in the organization.

E-HRM is a set of methods or patterns used to manage HR in organizations with the aim of creating competitive advantage and realizing organizational goals (Marler & Fisher, 2013). E-HRM is a way to create and implement quality Human Resource Management (HRM) based on technology, information, and communication (Ruël et al., 2004). E-HRM as a technology initiative to improve and provide added value to the role of HR in the organization (Marler & Fisher, 2013). E-HRM can be in the form of ICT applications that support HR activities in organizations. The characteristics of ICT-based E-HRM, so activities supported by E-HRM do not depend on direct face-to-face activities (Arenawati, 2012).

E-HRM has various functions that can be carried out with technology to develop the potential of the organization. E-HRM implementation provides positive benefits for organizations, such as: helping employees to catch up on work (Tavakoli et al., 2015) and provide the HRM function with the opportunity to forge new avenues to contribute to organizational effectiveness through knowledge management and the creation of intellectual and social capital (Yusoff et al., 2010). E-HRM helps organizations build a more committed workforce (Manivannan & Chandramohan, 2013). Its in line with Urmila's opinion. The implementation of E-HRM provides convenience in business processes, increases information flow and organizational performance, centralized data management, optimizes HR development and productivity, and increases employee satisfaction which will have an impact on work productivity.

E-HRM was created to provide convenience for electronic-based staffing services in an effort to move manual processes to electronic ones, so that the employment process becomes fast, precise and up-to-date. Even though the implementation of E-HRM provides positive benefits for the organization, if it is not planned properly and implemented wisely, it can cause problems and obstacles for the organization. There were obstacles to the implementation of E-HRM in the form of technical barriers, i.e. internet networks, unattractive designs, the level of complexity in operating applications, and the strong traditional culture in carrying out tasks and work by employees (Manivannan & Chandramohan, 2013).

In order not to cause problems and have a negative impact in implementing E-HRM, organizations need to pay attention to several important things were key to implementing E-HRM, i.e. sufficient costs, ICT infrastructure (computers and other hardware), the level of internet network connectivity, readiness of human resources, application design that facilitates work and guarantees the confidentiality of employee personal data, legal instruments (E-HRM relates to the creation, distribution of data or information, as well as intellectual property rights that must be protected by regulation), and a paradigm shift. Therefore, it takes the role of management to change the paradigm, way of thinking, way of behaving, way of working, and way of behaving, so employees can properly accept the implementation of E-HRM in the organization. The paradigm shift in viewing human resources has consequences for changes in the perspective of thinking and the practice of managing human resources (Yulianto & Iryani, 2021).

The E-HRM theme is a new topic to study (Pant & Chatterjee, 2008). The topic of E-HRM has begun to be widely studied by researchers, but the research conducted only examines certain parts of E-HRM. The role of HRM greatly determines the success and failure of an

organization in achieving its goals (Yulianto, 2006). This researcher will conduct a study on the E-HRM research gap using the systematic review method. This study aims to identify five research questions, i.e. (RQ1) the trend of E-HRM publications in the Google Scholar database for the period 2000-2023; (RQ2) publishers that published the most E-HRM articles; (RQ3) researchers who were actively researching E-HRM; (RQ4) most cited E-HRM article titles; and (RQ5) publication network map based on E-HRM keywords. The results were expected to provide implications for future research regarding the theme of E-HRM related to the scientific field of management. Management science cannot be separated from various perspectives as philosophies that were integrated with each other as a unit in the synergy of the management process (Yulianto, 2021).

METHOD

This research method uses a systematic review with a bibliometric analysis approach. Systematic review was a research method that summarizes the results of primary research to present more comprehensive and objective facts and information. Meanwhile, bibliometric analysis was an approach to examine the evolution of research domains, including topics and authors, based on social, intellectual, and conceptual structures of scientific disciplines (Donthu et al., 2021). Bibliometrics was a scientific study that has existed since the 1980s and it was included in the field of library science, but in its development bibliometric analysis can be applied and studied in all fields of science (Rohanda & Winoto, 2019). Bibliometrics as a research method was descriptive in nature and based on the pattern of authorship used to identify the gender of the author, type of work, level of collaboration, productivity of the institution where he works, as well as the subject of the article (Pattah, 2013). The purpose of the bibliometric analysis was to explain written communication, the nature and direction of developing descriptive means of calculating and analyzing the various facets of communication (Basuki, 2002).

This study uses data from international publications on the theme of E-HRM sourced from the Google Scholar database. Google Scholar was a service from Google that allows users to search for educational references and scientific research in a variety of scientifically justifiable formats (Istiana, 2016). Google Scholar was chosen because it is one of the largest databases that provides scientific literature, both journals and other publications that have been properly validated. The advantages of Google Scholar are: easy access, cost efficient, efficient storage space, time efficient, and Google Scholar as a scientific publication media.

The data search was limited to: (1) the type of bibliography used (type of journal, article title, abstract, and keywords); and (2) the keywords used were "E-HRM" for the 2000-2023 publication period. Research data in the form of number of publications per year, journal name, author name, year of publication, publisher, and number of citations were obtained using Publish and Perish, then the data were analyzed using Excel. Meanwhile, to analyze the trend of the development of international publications using VOSviewer. VOSviewer was software used to create maps based on network data, visualize, and explore maps. Data analysis techniques use descriptive statistics, i.e. the process of transforming data in tabular form, so that it was easy to understand and interpreted (Yulianto, 2016) Descriptive statistics only describe and analyze data groups, without making conclusions to generalize to larger data groups.

RESULTS AND DISCUSSION

Results

Searching for E-HRM keywords in the Google Scholar database for the 2000-2023 period uses Publish or Perish, which was an application that was useful for researchers to analyze and evaluate scientific publications that have been published. Publish or Perish allows users to find out the number of scientific publications that have been published by researchers, the number of citations from scientific publications that have been published by researchers,

hierarchical indexes and citation indexes obtained by researchers. The following table illustrates the results of E-HRM themed reference searches using Publish or Perish.

Table 1. Summary of Publish or Perish

Publication years	:	2000-2023
Citation years	:	23 (2000-2023)
Papers	:	980
Citations	:	15721
Cites/year	:	683,52
Cites/paper	:	16,04
Authors/paper	:	1,91
h-index	:	58
g-index	:	110
hi, norm	:	39
hi, annual	:	1,70
hA index	:	17
Paper with ACC > = 1, 2, 5, 10, 20, 347, 222, 106, 44, 16		

Based on the search results, a total of 980 articles were obtained with a total of 15,721 citations, of which 683.52 citations per year. The productivity of researchers in publishing articles on the theme of E-HRM was 1.91 for each article. It means there was still a research gap for E-HRM-themed publications.

Discussion

RQ1. Trends in E-HRM publications

Based on search results on the Google Scholar database during the 2000-2023 period, it shows the fluctuating development of research trends on the theme of E-HRM. Research on the theme of E-HRM began in 2000 with five articles published in the Google Scholar database.

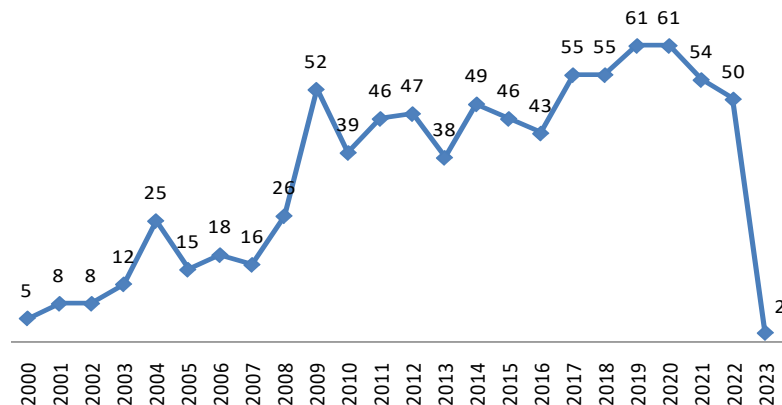


Figure 1. Trends in E-HRM publications

The development of research on the theme of E-HRM increased significantly from 2004-2022. The period prior to 2004 showed fluctuations in the number of E-HRM-themed scientific publications. At the beginning of 2023, there was a drastic decrease in the number of publications. These findings indicate that research on the theme of E-HRM has a great opportunity to become a research gap for the latest studies in the field of management.

RQ2. Publishers that publish the most E-HRM articles

Based on search results with the keyword E-HRM on the Google Scholar database, it shows there were 920 scientific publications during the 2000-2023 period. Of these, the publisher that published the most startup performance articles was ResearchGate (36

publications). Figure 2 illustrates the trend of publishers publishing the most E-HRM themed articles.

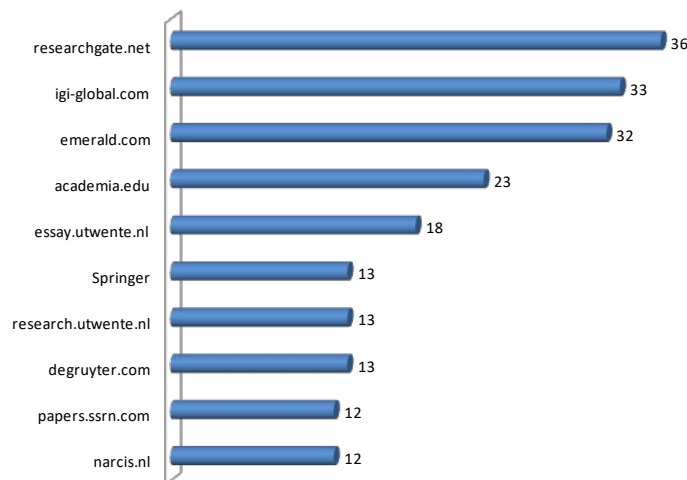


Figure 2. Publishers that publish the most E-HRM articles

ResearchGate was a social networking site that is provided free of charge, and it was used as a collaboration tool by scientists from various disciplines. ResearchGate provides various applications on the website, including semantic search (searching the entire abstract), file sharing, publication database sharing, forums, methodological discussions, groups, and various other informational applications. Many research organizations and institutions have used ResearchGate to seek information, collaborate, and communicate with scientists or scientific experts.

ResearchGate has developed an algorithm to search for research papers from internal sources and external databases such as PubMed, CiteSeer, arXiv, NASA Library, and so on. The search algorithm was developed to analyze a wider range of words and expressions than was commonly used by other search engines, viz. by analyzing the entire abstract of a research paper so as to obtain more accurate results. ResearchGate can show papers/similar discussion materials on a topic when users upload their own writings. ResearchGate makes it easy to find like-minded scientists complete with their writing. These findings indicate research on the theme of E-HRM has a high chance of being published in international publishers, and has the potential to collaborate with international scientific networks.

RQ3. Researchers who were actively researching the theme of E-HRM

Based on search results with the keyword E-HRM in the Google Scholar database for the period 2000-2023, it shows the author who was actively researching the theme of E-HRM: H.J.M. Ruël from Windesheim University with 31 articles. Table 2 illustrates the most active researchers researching the E-HRM theme.

Table 2. Researchers who were actively researching the theme of E-HRM

Articles	Author	Affiliation
31	H.J.M. Ruël	Windesheim University
23	Tanya Bondarouk	University of Twente
13	Stefan Strohmeier	Universität des Saarlandes
7	Miguel R. Olivas-Lujan	Clarion University
7	Rita Bissola	Universita Cattolica del Sacro Cuore
6	C Tansley	Nottingham Business School
6	Jukka-Pekka Heikkilä	Aalto University
6	Barbara Imperatori	Universita Cattolica del Sacro Cuore
6	Ralf Burbach	Technological University Dublin
5	Emma Parry	Cranfield University School of Management
5	Mushfiqur Rahman	University of Bradford
5	Girisha M C	Government College (Autonomous) Mandya, Karnataka

The findings of this study indicate there were only a few researchers who publish articles on the theme of E-HRM. The research results indicate there was a great opportunity to conduct research on the theme of E-HRM, especially in the field of management, because the productivity of researchers who carry out publications was still lacking.

RQ4. The title of the most cited article

Based on search results with the keyword E-HRM on the Google Scholar database for the period 2000-2023, an article written by Stefan Strohmeier in 2007 entitled "Research in e-HRM: Review and implications" was the most widely cited, namely 874 citations. Table 3 illustrates the most cited article titles.

Table 3. The title of the most cited article

Cites	Title (Journal)	Authors	Year
874	Research in e-HRM: Review and implications (Human resource management review)	Stefan Strohmeier	2007
752	E-HRM: Innovation or irritation. An explorative empirical study in five large companies on web-based HRM (Management revue)	Huub Ruël; Tanya Bondarouk; Jan Kees Looise	2004
444	An evidence-based review of e-HRM and strategic human resource management (Human resource management review)	Janet H. Marler; Sandra L. Fisher	2013
384	Desired goals and actual outcomes of e-HRM (Human resource management journal)	Emma Parry; Shaun Tyson	2011
371	The contribution of e-HRM to HRM effectiveness: Results from a quantitative study in a Dutch Ministry (Employee relations)	Huub J.M. Ruël; Tanya V. Bondarouk; Mandy Van der Velde	2007
325	Attitude towards E-HRM: an empirical study at Philips (Personnel review)	M. Voermans; Marc Van Veldhoven	2007
292	An examination of e-HRM as a means to increase the value of the HR function (The International Journal of Human Resource Management)	Emma Parry	2011
287	E-HR adoption and the role of HRM: Evidence from Greece (Personnel Review)	Leda Panayotopoulou; Maria Vakola; Eleanna Galanaki	2007
277	Human resource management, strategic involvement and e-HRM technology (The International Journal of Human Resource Management)	Janet H. Marler; Emma Parry	2016
228	Organizational adoption of e-HRM in Europe: An empirical exploration of major adoption factors (Journal of Managerial Psychology)	Stefan Strohmeier; Rüdiger Kabst	2009

RQ5. *Publication network map based on E-HRM keywords*

Figure 3. Network vizualization

Cluster	Cluster 1 (11 items)	Cluster 2 (9 items)	Cluster 3 (9 items)	Cluster 4 (8 items)	Cluster 5 (8 items)
Items	determinant e hrm adoption e hrm research e hrm usage extent firm hr professional intention review usage value	acceptance e hrm e hrm technology electronic human resource hr function hr practice hris human resources management term	change consequence e hrm implementation economy insight need organization understanding work	banking sector e hrm practice employee performance function importance influence organization performance relationship	e human resources management e recruitment internet process recruitment relational e hrm service training

756 | SEIKO : Journal of Management & Business, 5(2), 2022

Based on the visualization overlay illustration, it shows the E-HRM keyword has a green node, which means the article was published around 2016-2017. The title of the article with the E-HRM keyword in green is related to several items in each cluster. It means there were still opportunities to conduct research on these keyword themes, because there were still very few who publish on the theme of E-HRM.

SEIKO : Journal of Management & Business, 5(2), 2022 | 757

Figure 5 shows the density visualization which was the result of an analysis using all E-HRM themed articles during the 2000-2023 period. Density visualization results show that each point has a color that indicates the density of items at that point. Color categories range from blue to green to yellow. The greater the number of items around the dot and the higher the weight of the items, the closer the dot's color is to yellow. Conversely, the smaller the number of items around the point and the lower the weight of the items, the closer the color of the point is to blue. Based on the illustration, the density visualization shows the highest weight, i.e. E-HRM, while the others have a fairly low weight because there was still a faint yellow color. This means there were still opportunities to conduct renewable research by taking these items as sub-themes for further research.

CONCLUSION

The results indicate (1) publications with the theme of E-HRM in the Google Scholar database for 2000-2023 totaling 980 articles; (2) ResearchGate was the publisher that publishes the most articles on the theme of E-HRM; (3) the writer who actively researches the E-HRM theme: H.J.M. Ruël; and (5) there were 10 clusters that have the opportunity to become research gaps related to the E-HRM theme.

The results have implications for further research, because the E-HRM theme was still under-researched and has the potential to become a research gap in management, especially HRM. Several items in each cluster can be correlated with the E-HRM research theme, so it can become a novelty for future research.

The limitation of this research was the use of the database only on Google Scholar. Some databases that can be used for further research were: Scopus, PubMed, SINTA, Croosref, Microsoft Academic, and Web of Science. If using a combination of these databases, the results will be more varied in detecting research developments on the theme of E-HRM. In addition, this research period was only during 2000-2023. Further research was suggested not to limit the period, so that the early developments of research publications on the theme of E-HRM can be identified.

REFERENCES

- Arenawati. (2012). Efisiensi Pengelolaan Sumber Daya Manusia Dalam Birokrasi Melalui E-HRM. *Jurnal Adminsitrasi Publik*, 3(1), 44-55.
- Basuki, S. (2002). *Pemetaan Ilmu Pengetahuan. Kumpulan Makalah Kursus Bibliometrika. Masyarakat Informetrika Indonesia*. Pusat Studi Jepang, Depok: Universitas Indonesia.
- Donthu, N., Kumar, S., Mukherjee, D., Pandey, N., & Marc, W. (2021). How to Conduct a Bibliometric Analysis : An Overview and Guidelines. *Journal of Business Research*, 133, 285-296. <https://doi.org/10.1016/j.jbusres.2021.04.070>.
- Istiana, P. (2016). Pentingnya Pemahaman Pustakawan Terhadap Bentuk Komunikasi Ilmiah Pada Profil Google Scholar. *Pustakaloka*, 8(1), 131-144. <https://doi.org/https://doi.org/10.21154/pustakaloka.v8i1.450>.
- Manivannan, S. K., & Chandramohan, A. (2013). A Conceptual Model of User Satisfaction For Electronic Human Resource Management Portal. *Ndira Management Review -*, 7(2), 31-44.
- Marler, J. H., & Fisher, S. L. (2013). An Evidence-Based Review of e-HRM and Strategic Human Resource Management. *Human Resource Management Review*, 23(1), 18-36.

<https://doi.org/10.1016/j.hrmr.2012.06.002>.

- Pant, S., & Chatterjee, A. (2008). *e-HR Systems Implementation : A Conceptual Framework*. Americas Conference on Information Systems (AMCIS).
- Parry, E. (2011). An examination of e-HRM as A Means to Increase The Value of The HR Function. *The International Journal of Human Resource Management*, 22(5), 1146–1162. <https://doi.org/10.1080/09585192.2011.556791>.
- Pattah, S. H. (2013). Pemanfaatan Kajian Bibliometrika sebagai Metode Evaluasi dan Kajian dalam Ilmu Perpustakaan dan Informasi. *Khazanah Al-Hikmah : Jurnal Ilmu Perpustakaan, Informasi, Dan Kearsipan*, 1(1), 47–57.
- Rohanda, & Winoto, Y. (2019). Analisis Bibliometrika Tingkat Kolaborasi , Produktivitas Penulis , Serta Profil Artikel Jurnal Kajian Informasi & Perpustakaan Tahun 2014-2018. *PUSTABIBLIA: Journal of Library and Information Science*, 3(1), 1–15. <https://doi.org/10.18326/pustabiblia.v3i1.1-15>. <http://dx.doi.org/10.18326/pustabiblia.v3i1.1-15>.
- Ruël, H., Bondarouk, T., & Looise, J. K. (2004). E-HRM: Innovation or Irritation . An Explorative Empirical Study in Five Large Companies on Web-Based HRM. *Management Revue*, 15(3), 364–380. <https://doi.org/10.5771/0935-9915-2004-3-364>.
- Tavakoli, G., Nazari, Y., Ahmadi, M. M., & Niknam, O. (2015). The Analysis of the Impact of Electronic Human Resource Management (E-Hrm) On the Internal Marketing in the Melli Bank of Khoram Abad. *Journal of Social Issues & Humanities*, 3(1), 180–185.
- Yulianto, H. (2006). Dimensi-dimensi Organizational Justice: Perspektif Manajemen Sumber Daya Manusia. *Jurnal Fenomena*, 3(2), 156-170.
- Yulianto, H. (2016). *Statistik 1*. Yogyakarta: Lembaga Ladang Kata.
- Yulianto, H. (2021). Philosophy of Management Science: Ontology, Epistemology, and Axiology Perspectives. *Cross-Border Journal of Business Management*, 1(1), 152–162.
- Yulianto, H., & Iryani. (2021). Pergeseran Paradigma Manajemen Sumber Daya Manusia. *Cross-Border*, 4(2), 141–153. <http://journal.iaisambas.ac.id>
- Yusoff, Y. M., Ramayah, T., & Ibrahim, H. (2010). E-HRM: A Proposed Model Based on Technology Acceptance Model. *African Journal of Business Management*, 4(13), 3039–3045.