
MAPPING THE LANDSCAPE OF HUMAN RESOURCES AND HUMAN CAPITAL: A BIBLIOMETRIC APPROACH

Resti Indriarti, Abi Sopyan Febrianto, Riske Faldesiani

Universitas Pendidikan Indonesia, Jalan Dr. Setiabudi No.229 Bandung

E-mail: restiarti@upi.edu, abisopyan@upi.edu, riskefaldesiani@upi.edu

ABSTRACT

This research is structured to examine the research landscape on Human Resources and Human Capital through a bibliometric computational mapping analysis using VOS viewer. The Publish or Perish Reference Manager application is used to retrieve the Google Scholar database in order to fulfill research data. The title and abstract of the article are used to provide guidance on the search process based on the keywords "Human Resources and Human Capital". The results showed 500 relevant articles. The search for publication data used as study material was carried out in the last five years (2018-2023). The results showed that this research could be separated into two terms, namely: Human Resources and Human Capital. The term "Human Resources" is associated with 28 links with a total link strength of 221; and the term "Human Capital" is associated with 29 links with a total link strength of 206. The results of the research landscape on Human Resources and Human Capital analysis in the last five years show a declining trend, from 116 publications to 22 publications. There was only one increase in 2019, from 116 publications to 122 publications. Based on a downward trend, publications on Human Resources and Human Capital in the last five years were dominated by 2019 (122 publications). The results of this study are expected to inspire and develop the theme of related articles in the future.

Key words: Bibliometric; Computational Mapping Analysis; Human Capital; Human Resources; VOS viewer

INTRODUCTION

In recent years, research in the field of Human Resources and Human Capital has developed rapidly in the context of an ever-changing business world. HRM, as an integral part of organizational management, plays a key role in Human Resources management with a focus on planning, development, and management of the workforce (Piening, Salge, & Homscheid, 2013; Ghosh & Rouse, 2018). Human Resources Management has experienced significant development in its role and practice, from a traditional administrative function to a strategic partner that supports the achievement of organizational goals (Jiang, Lepak, Hu, & Baer, 2012; Boselie, Paauwe, & Jansen, 2017).

Meanwhile, human capital refers to the knowledge, skills and experience of individuals in an organization, which are considered valuable assets that can provide competitive advantages (Bontis, Crossan, & Hulland, 2002) and face ongoing economic changes (Van Den Heuvel & Bondarouk, 2017). Organizations are increasingly realizing that investment in the development, utilization and retention of human capital is an important factor for improving business performance and sustainability (Rasmussen, Mosey, & Wright, 2014).

Research trends on Human Resources and human capital are always developing, reflecting developments in the business and technological environment. Changes such as digital technology, diversity management, organizational sustainability, and paradigm shifts in Human Resources management influence many aspects in these two fields (Strohmeier, Piazza, & Iglesias, 2019; Wright, Strohmeier, & Marín, 2019).

Therefore, it is important to conduct in-depth bibliometric analysis to understand research trends and the latest developments in Human Resources and human capital. By conducting bibliometric analysis, we can identify key researchers, dominant research topics, and relationships between concepts and terms that appear in the scientific literature.

This research aims to carry out a bibliometric analysis of literature regarding the term Human Resources and human capital. Through this analysis, we can gain a deeper understanding of the research landscape, research evolution, main trends, and the contributions of researchers in these two fields.

METHOD

The data used in this study are research publications indexed by Google Scholar. As an open source, Google Scholar was chosen to access the database of publications that are the main study material for this research. The Google Scholar database is accessed via the Publish or Perish Reference Manager Application. Detailed guidelines for installing and operating the related software, as well as the steps for obtaining and analyzing data, have been described in a previous study conducted by Al Husaeni et al (2022). In addition, information about searching the publication database on Google Scholar has been explained in a previous study conducted by Azizah et al (2021).

The steps taken in the process of compiling this research are:

- a) Collecting publications based on the Google Scholar database through Publish or Perish Reference Manager Application,
- b) Processing bibliometric data using Microsoft Excel software,
- c) Performing bibliometric and computational mapping analysis using VOS viewer application, and
- d) Perform analysis on the results of computational mapping.

In accordance with the title of the publication, the search for article data with the keywords "Human Resources and Human Capital" is carried out through the help of the Publish or Perish Reference Manager Application. The publications used as research study materials are related publications published within the last five years, namely in the range of 2018 to 2023. Data were obtained and processed in October 2023. Data that has been collected and deemed relevant to the research criteria, is exported into research information system (.ris) and comma separated value format (.csv). In addition, the VOS viewer application is used to visualize and evaluate trends using a bibliometric map with the results of three visualizations, namely: network visualization, overlay visualization, and density visualization. The three visualizations are based on the network (co-citation) between existing items. When creating a bibliometric map, the keyword frequency is set so that it is found at least five times. Therefore, in this study found 35 terms. However, out of the 35 terms found, terms that are deemed less relevant to this study have been omitted.

RESULTS AND DISCUSSION

Publication Data Search Results

Based on the search results of the Google Scholar database through the Publish or Perish Reference Manager application, 500 publications relevant to the research criteria were obtained. The data obtained is in the form of publication metadata consisting of the author's name, title, year of publication, journal name, publisher name, number of citations, article links, and related links. Table 1 shows some examples of publications used in the VOSviewer analysis of this study. The data samples taken were the 30 best publications that had the highest number of citations. The number of citations from all articles used in this study is 77527, the number of citations per year is 15505.40, the number of citations per article is 155.05, the average author in published articles is 3.08, all publications have an average h-index of 164 and g-index 242.

Tabel 1. Human Resources and Human Capital Publication Data

No.	Authors	Title	Year	Cites
1.	M Ghobakhloo	The future of manufacturing industry: a strategic roadmap toward Industry 4.0	2018	1304
2.	AM Abubakar, H Elrehail, MA Alatailat, A Elçi	Knowledge management, decision-making style and organizational performance	2019	925
3.	YJ Kim, WG Kim, HM Choi, K Phetvaroon	The effect of green Human Resources management on hotel employees' eco-friendly behavior and environmental performance	2019	913
4.	G Tang, Y Chen, Y Jiang, P Paillé...	Green Human Resources management practices: scale development and validity	2018	720
5.	R Cole, M Stevenson, J Aitken	Blockchain technology: implications for operations and supply chain management	2019	690
6.	X Xu, Y Lu, B Vogel-Heuser, L Wang	Industry 4.0 and Industry 5.0—Inception, conception and perception	2021	688
7.	A Newman, M Obschonka, S Schwarz, M Cohen...	Entrepreneurial self-efficacy: A systematic review of the literature on its theoretical foundations, measurement, antecedents, and outcomes, and an agenda for ...	2019	615

No.	Authors	Title	Year	Cites
8.	SS Kamble, A Gunasekaran, SA Gawankar	Achieving sustainable performance in a data-driven agriculture supply chain: A review for research and applications	2020	611
9.	AA Zaid, AAM Jaaron, AT Bon	The impact of green Human Resources management and green supply chain management practices on sustainable performance: An empirical study	2018	610
10.	S Ren, G Tang, SE Jackson	Green Human Resources management research in emergence: A review and future directions	2018	583
11.	RS Nason, J Wiklund	An assessment of resource-based theorizing on firm growth and suggestions for the future	2018	562
12.	M Matarazzo, L Penco, G Profumo, R Quaglia	Digital transformation and customer value creation in Made in Italy SMEs: A dynamic capabilities perspective	2021	548
13.	R Ulucak, F Bilgili	A reinvestigation of EKC model by ecological footprint measurement for high, middle and low income countries	2018	538
14.	C Boon, R Eckardt, DP Lepak...	Integrating strategic human capital and strategic Human Resources management	2018	517
15.	S Yildiz Çankaya, B Sezen	Effects of green supply chain management practices on sustainability performance	2019	499
16.	C Boon, DN Den Hartog...	A systematic review of Human Resources management systems and their measurement	2019	490
17.	B Suárez-Eiroa, E Fernández...	Operational principles of circular economy for sustainable development: Linking theory and practice	2019	485
18.	J Abbas, M Sağsan	Impact of knowledge management practices on green innovation and corporate sustainable development: A structural analysis	2019	474
19.	N Bloom, J Van Reenen, H Williams	A toolkit of policies to promote innovation	2019	461
20.	A Papa, L Dezi, GL Gregori, J Mueller...	Improving innovation performance through knowledge acquisition: the moderating role of employee retention and Human Resources management practices	2020	446
21.	J Kandampully, TC Zhang, E Jaakkola	Customer experience management in hospitality: A literature synthesis, new understanding and research agenda	2018	441

No.	Authors	Title	Year	Cites
22.	SK Mousa, M Othman	The impact of green Human Resources management practices on sustainable performance in healthcare organisations: A conceptual framework	2020	430
23.	AM Aleixo, S Leal, UM Azeiteiro	Conceptualization of sustainable higher education institutions, roles, barriers, and challenges for sustainability: An exploratory study in Portugal	2018	426
24.	VN Amrutha, SN Geetha	A systematic review on green Human Resources management: Implications for social sustainability	2020	425
25.	E Gallardo-Gallardo, M Thunnissen...	Talent management: context matters	2020	412
26.	JY Yong, MY Yusliza, T Ramayah...	Nexus between green intellectual capital and green Human Resources management	2019	400
27.	J Abbas	Impact of total quality management on corporate green performance through the mediating role of corporate social responsibility	2020	398
28.	SP Chuang, SJ Huang	... of environmental corporate social responsibility on environmental performance and business competitiveness: The mediation of green information technology capital	2018	392
29.	J Macke, D Genari	Systematic literature review on sustainable Human Resources management	2019	387
30.	M Ghobakhloo, M Fathi	Corporate survival in Industry 4.0 era: the enabling role of lean-digitized manufacturing	2019	377

(Source: 30 best publications that had the highest number of citations -results of the Google Scholar database through the Publish or Perish Reference Manager-)

Research Numver on Human Resources and Human Capital

Table 2 shows the research number on Human Resources and Human Capital published in Google indexed journals Scholar. Based on the data attached to Table 2, it can be seen that in the last five years (2018-2023) the number of research publications on Human Resources and Human Capital was 500 articles. In 2018 there were 116 publications. In 2019 there were 122 publications. In 2020 there were 118 publications. In 2021 there were 89 publications. In 2022 there were 33, and in 2023 (until October 2023) there were 22 publications. From the number of publications, it can be seen that research on Human Resources and Human Capital has a trend that tends to decline, especially in the last ten years, as shown in Figure 1.

Figure 1 shows the development of research on Human Resources and Human Capital for the last five years, in the period 2018 to 2023. The number of researches on Human Resources and Human Capital is known to experience a significant decline every year, from 116 articles in 2018 to 22 articles in 2023.

Tabel 2. Number of Publication on Human Resources and Human Capital

Year of Publication	Number of Publication
2018	116
2019	122
2020	118
2021	89
2022	33
2023	22
Total	500
Average	83,33

(Source: Google Scholar database through the Publish or Perish Reference Manager)

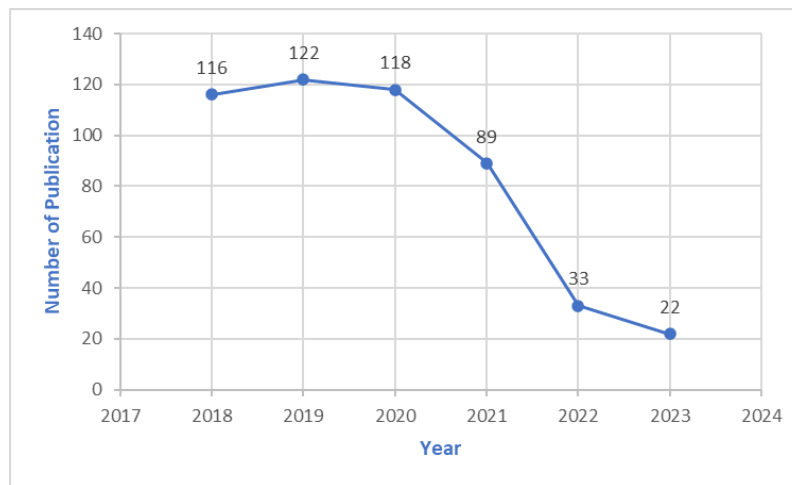


Figure 1. Level of Number in Human Resources and Human Capital Publication

Visualization of Human Resources and Human Capital Research Landscape using VOS viewer

Computational mapping analysis was performed on published data using VOS viewer. The results of the computational mapping analysis found that there were 31 relevant items. In mapping the publication data, each item found regarding Human Resources and Human Capital researches was divided into four clusters, namely:

- Cluster 1 has contained 11 items. The 11 items are: corporate social responsibility, employee, GHRM, Green Human Resources Management, HRM, Human Resources Management, Human Resources Management, influence, leadership, mediating role
- Cluster 2 has contained 9 items. The 9 items are: ability, challenge, covid, Human Resources, opportunity, person, SMEs, technology, training
- Cluster 3 has contained 7 items. The 7 items are: capital, economic growth, evidence, human capital, intellectual capital, literature, social capital
- Cluster 4 has contained 4 items. The 4 items are: barrier, company, implementation, industry.

The relationship between one term and another is shown in each existing cluster. Labels are assigned to each term with colored circles. The size of the circle for each term varies depending on the frequency of occurrence of the term (Nandiyanto, et al., 2021). The size of the label circle shows a positive correlation with the occurrence of terms in the title and abstract (Nandiyanto, and Al Husaeni, D. F., 2021). The larger the size of the label, the more often the term is found (Al Husaeni, D. F., & Nandiyanto, 2022). In this study, there are three parts of mapping visualization analysed, namely: network visualization (see Fig.2), overlay visualization (see Fig.3) and density visualization (see Fig.4) (Hamidah, et al., 2020).

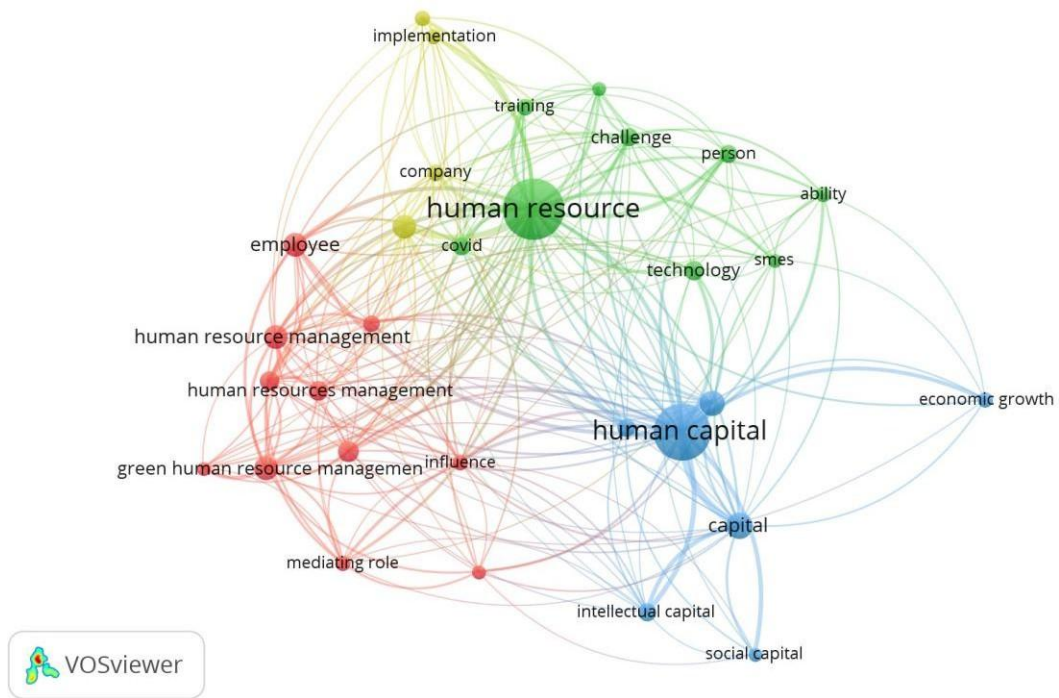


Figure 2. Network Visualization of Human Resources and Human Capital Terms

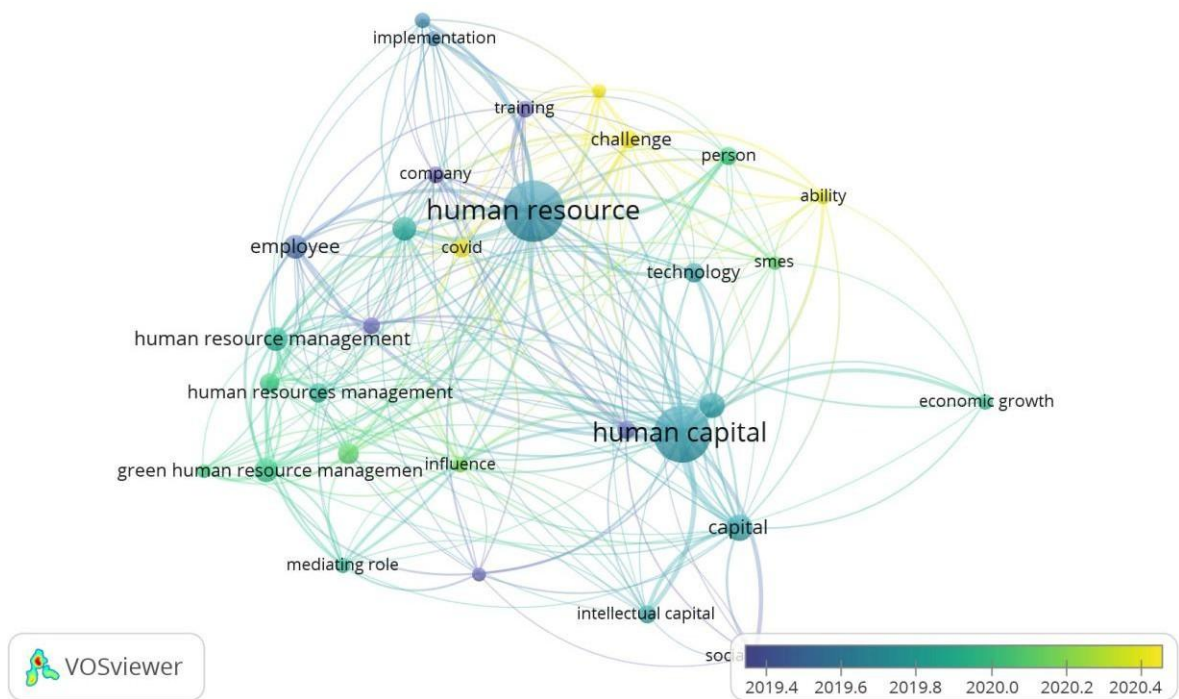


Figure 3. Overlay Visualization of Human Resources and Human Capital Terms

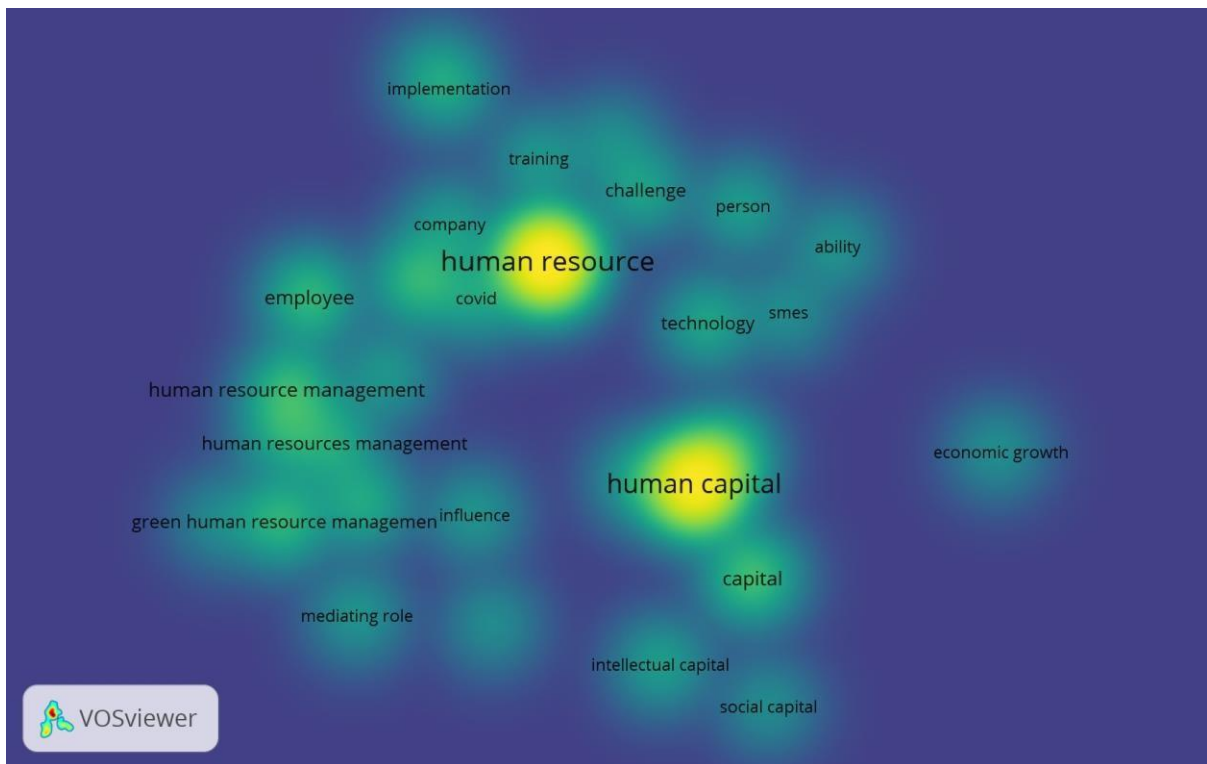


Figure 4. Density Visualization of Human Resources and Human Capital Terms

Figure 2 shows the relationship between terms described in an interconnected network. Figure 2 also shows the clusters of each term studied on the research topic of Human Resources and Human Capital. From the clusters contained in the network visualization, it can be seen that research on Human Resources and Human Capital can be separated into two terms, namely “Human Resources” term which is included in cluster 2 with 28 links in total, 221 total links strength, and 199 occurrences (see Fig.5). The second term is “Human Capital” which belongs to 3 clusters with a total of 29 links, a total link strength of 206, and occurrences of 169 (see Fig.6).

Figure 3 shows the overlay visualization in of Human Resources and Human Capital research. This overlay visualization shows the novelty on related terms (Hamidah, et al., 2020; Nandiyanto, et al., 2021; Nandiyanto, and Al Husaeni, D. F., 2021; Al Husaeni, D. F., & Nandiyanto, 2022). However, the popularity of publications on of Human Resources and Human Capital over the last five years, has been around for a long time, namely in 2019. Therefore, this should be our inspiration to develop publications with the theme of Human Resources and Human Capital.

Figure 4 shows the density visualization. Density visualization means that the more often a term appears, the brighter the yellow colour, and the larger the diameter of the circle (Schrlau, M. G., 2016; Nandiyanto, et al., 2021; Nandiyanto, and Al Husaeni, D. F., 2021; Mulyawati, and Ramadhan, 2021). This means that there has been a lot of research on related terms. On the other hand, if the number of studies on a term is still relatively small, the colour of the term will fade closer to the background colour. Based on Figure 4, we can see that research related to the term h of Human Resources and Human Capital has a high number of studies.

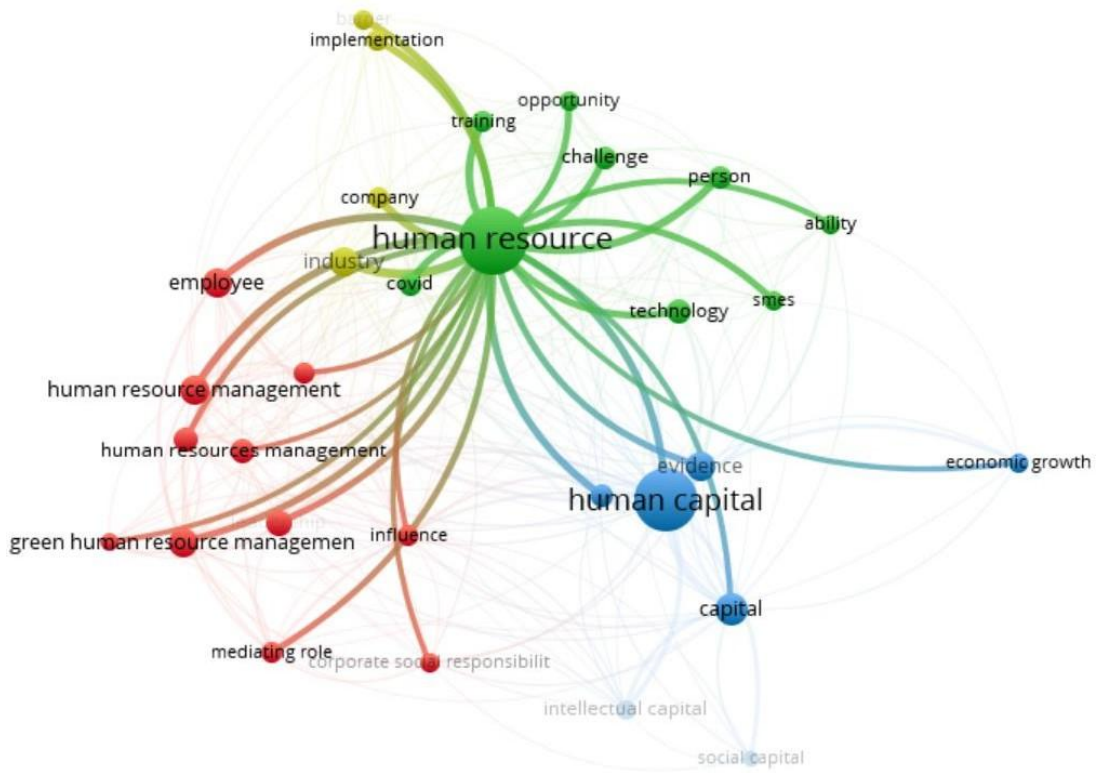


Figure 5. Network Visualization of Human Resources Term

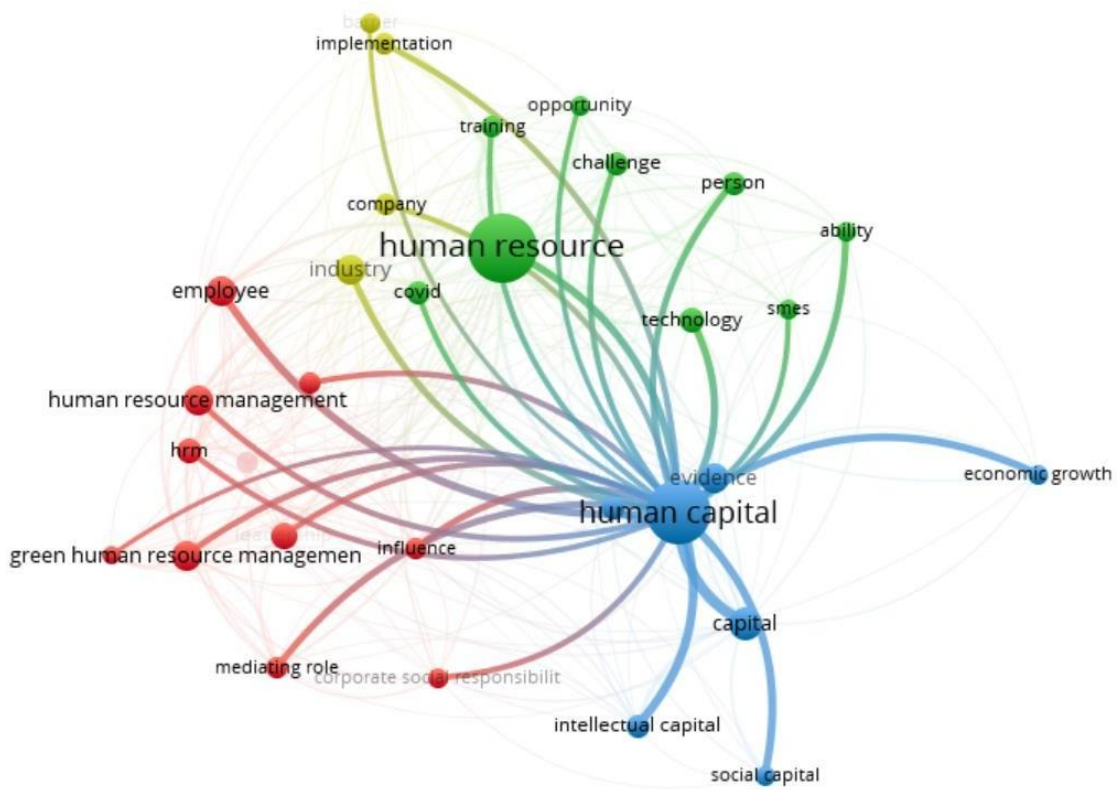


Figure 6. Network Visualization of Human Capital Term

Based on the results of mapping the collected article data, it can be concluded that the term Human Resources and Human Capital have almost same number of clusters, links, and total links strength as we mentioned above. However, the trend of research on Human Resources and Human Capital, which has been declining in the last five years, still needs to be developed and updated. Thus, this will have a higher impact on the novelty of the research.

CONCLUSION

This study was to perform computational mapping analysis on the bibliometric data of research articles. The publication theme taken in this research is " Human Resources and Human Capital". The articles used are taken from the Google Scholar database via the Publish or Perish Reference Manager Application. The results of the data search found that there were 500 relevant articles published in the period 2018 to 2023. The results showed that publications on the Human Resources and Human Capital tended to experience a declining trend in the last five years. This shows that there is still a high opportunity to update research on Human Resources and Human Capital.

REFERENCES

- Al Husaeni, D. F., & Nandiyanto, A. B. D. (2022). Bibliometric using Vosviewer with Publish or Perish (using google scholar data): From step-by-step processing for users to the practical examples in the analysis of digital learning articles in pre and post Covid-19 pandemic. *ASEAN Journal of Science and Engineering*, 2(1), 19-46.
- Azizah, N. N., Maryanti, R., & Nandiyanto, A. B. D. (2021). How to search and manage references with a specific referencing style using google scholar: From step-by-step processing for users to the practical examples in the referencing education. *Indonesian Journal of Multidiciplinary Research*, 1(2), 267-294.
- Bontis, N., Crossan, M. M., & Hulland, J. (2002). Managing an organizational learning system by aligning stocks and flows. *Journal of Management Studies*, 39(4), 437-469.
- Ghosh, S., & Rouse, M. J. (2018). Human Resources practices in software firms: A content analysis of job advertisements. *The International Journal of Human Resources Management*, 29(6), 1054-1077.
- Hamidah, I., Sriyono, S., & Hudha, M. N. (2020). A Bibliometric analysis of Covid-19 research using VOSviewer. *Indonesian Journal of Science and Technology*, 34-41.
- Mulyawati, I. B., & Ramadhan, D. F. (2021). Bibliometric and visualized analysis of scientific publications on geotechnics fields. *ASEAN Journal of Science and Engineering Education*, 1(1), 37-46.
- Nandiyanto, A. B. D., Al Husaeni, D. N., & Al Husaeni, D. F. (2021). A bibliometric analysis of chemical engineering research using vosviewer and its correlation with covid-19 pandemic condition. *Journal of Engineering Science and Technology*, 16(6), 4414-4422.
- Nandiyanto, A. B. D., & Al Husaeni, D. F. (2021). A bibliometric analysis of materials research in Indonesian journal using VOSviewer. *Journal of Engineering Research*.
- Piening, E. P., Salge, T. O., & Homscheid, D. (2013). Understanding the antecedents, contingencies, and performance implications of Human Resources information systems. *Journal of Management Information Systems*, 30(2), 113-146.
- Rasmussen, T. C., Mosey, S., & Wright, M. (2014). The influence of university departments on the evolution of entrepreneurial competencies in spin-off ventures. *Research Policy*, 43(1), 92-106.
- Schrlau, M. G., Stevens, R. J., & Schley, S. (2016). Flipping Core Courses in the Undergraduate Mechanical Engineering Curriculum: Heat Transfer. *Advances in Engineering Education*, 5(3), n3.
- Strohmeier, S., Piazza, F., & Iglesias, C. A. (2019). Preparing for a data-driven future: Developing data and analytics capabilities. *Long Range Planning*, 52(3), 319-349.
- Van Den Heuvel, S., & Bondarouk, T. (2017). Different shades of green: Exploring the green behavior of managers in a Dutch municipality. *Public Personnel Management*, 46(2), 89-117.
- Wright, P. M., Strohmeier, S., & Marín, A. P. (2019). Human Resources analytics and its role in Human Resources management: Evidence from the literature. *The International Journal of Human Resources Management*, 30(2), 161-183.