

Industry 4.0 and Sustainable HRM: A Vosviewer and Biblioshiny Software Overview using Dimension Database

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Abstract: The current study aims to quantitatively analyze the English-language publications from the Dimensions database that cover the period from early 2013 to 2023 in relation to Industry 4.0 and sustainable HRM. The research describes the structure and development of the field using a bibliometric method, including co-citation, co-authorship, and bibliographical coupling using the bibliometric package in R programming. Thousands of documents are discovered when searching for the keywords Industry 4.0 and Sustainable HRM in the Dimensions database. Finally, the search turned up 65 papers. The search engine finally suggests 50 research papers on Industry 4.0 and Sustainable HRM after eliminating duplicates. Thus, the database search revealed that there is potential for employing bibliometric analysis in research on industry 4.0 and sustainable HRM.

Keywords: Industry 4.0, Sustainable HRM and bibliometric analysis.

INTRODUCTION

Industry 4.0 (I4.0) and sustainable human resources (HR) were the subjects of this paper's investigation of scholarly trends. The Dimensions database was searched between 2013 and 2023 for all articles on the topic that had been reviewed and published. With a focus on technology, industry 4.0 has several themes relating to the workplace. Topics linked to human resources management have over time been incorporated into studies on Industry 4.0. The current study aims to quantitatively analyze the English-language publications from the Dimensions database that cover the period from early 2013 to 2023 in relation to Industry 4.0 and sustainable HRM.

RESEARCH OBJECTIVE

The goal of this study was to conduct a literature review and evaluate the studies using statistical techniques. For the literature review, a small number of focused, relevant studies were chosen from a pool of publications. In the current study, English-language publications from the Dimensions database that cover the time from early 2013 to 2023 will be quantitatively analysed in relation.

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LITERATURE REVIEW

Technology advancements in cyber-physical systems, such as high-capacity connectivity, new human-machine interaction paradigms, like touch interfaces and virtual reality systems, and improvements in translating digital instructions to the real world, like robotics and additive manufacturing, the Internet of Things (IoT), "big data" and cloud computing, artificial intelligence-based systems, and improved data transfer are all considered to be part of the Fourth Industrial Revolution [1].

According to Bratton and Paulet [2], sustainable HRM is "the adoption of HRM strategies, practices, leadership behaviors, and the alignment of technologies which enable the achievement of organizational, social, individual, and environmental goals; with an impact inside and outside of the organization for all present and future humans in an equitable manner, while living within the limits of supporting ecosystems."

For investigating and analyzing vast amounts of scientific data, bibliometric analysis is a well-liked and exacting technique. It allows us to explore the subtleties of a particular field's evolutionary history while illuminating its frontiers. However, its use in business research is still somewhat new and frequently undeveloped.

RESEARCH METHODOLOGY

We used secondary sources to collect the data for this article [5].

The research describes the structure and development of the field using a bibliometric method, including co-citation, co-authorship, and bibliographical coupling using the biblio-

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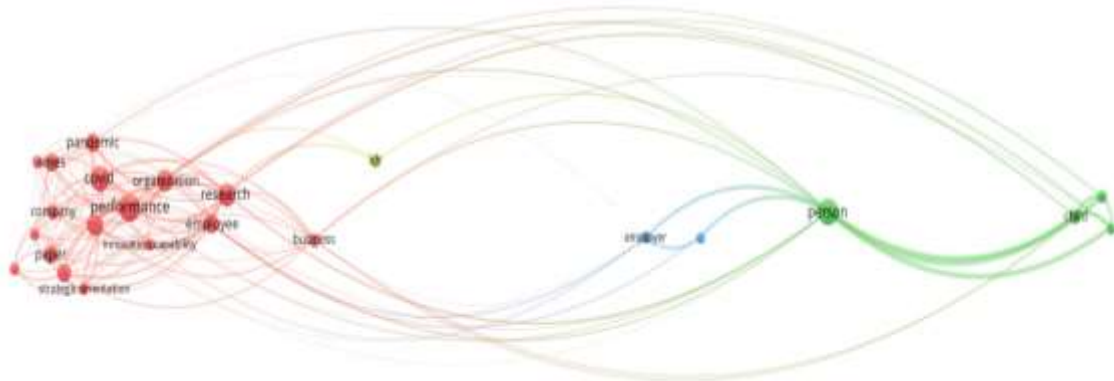
metric package in Vosviewer software and biblioshiny in R programming.

Bibliometric analysis is a branch of research that examines the literature's current trends in each field and offers suggestions and inspirations for further investigation. Two network-based techniques that have been extensively utilized for ex-

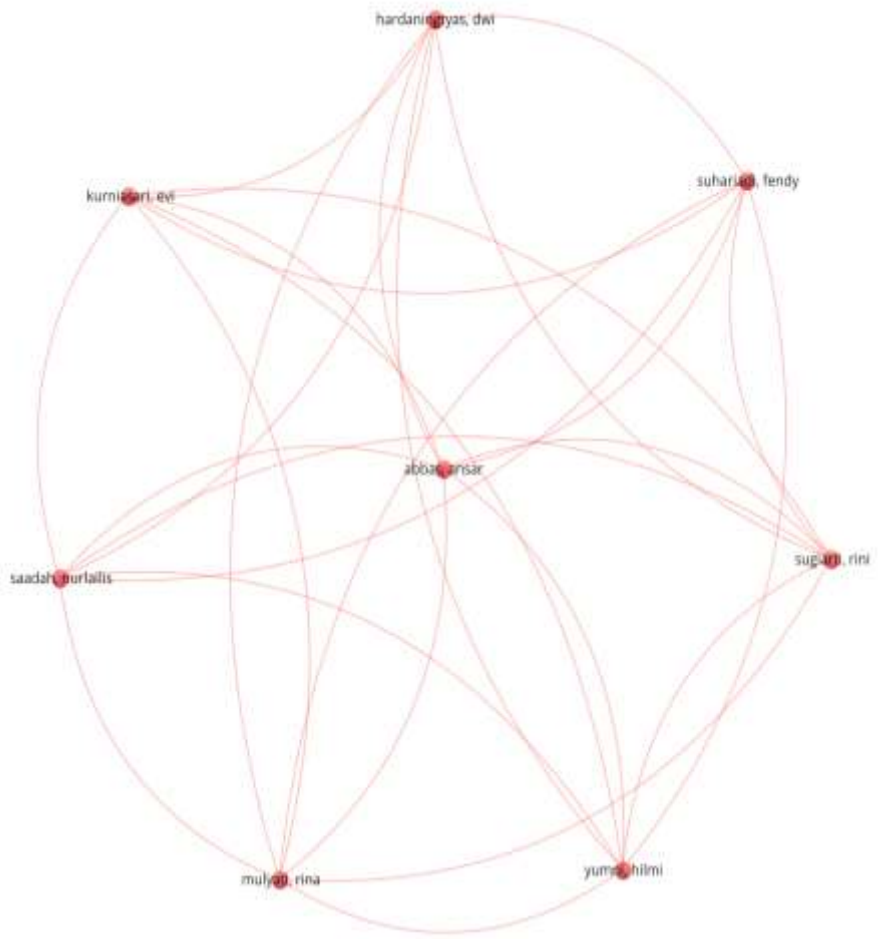
aming the contents of scientific articles are the citation network and Keyword Co-occurrence Network.

FINDINGS

Results from Vosviewer and Biblioshiny



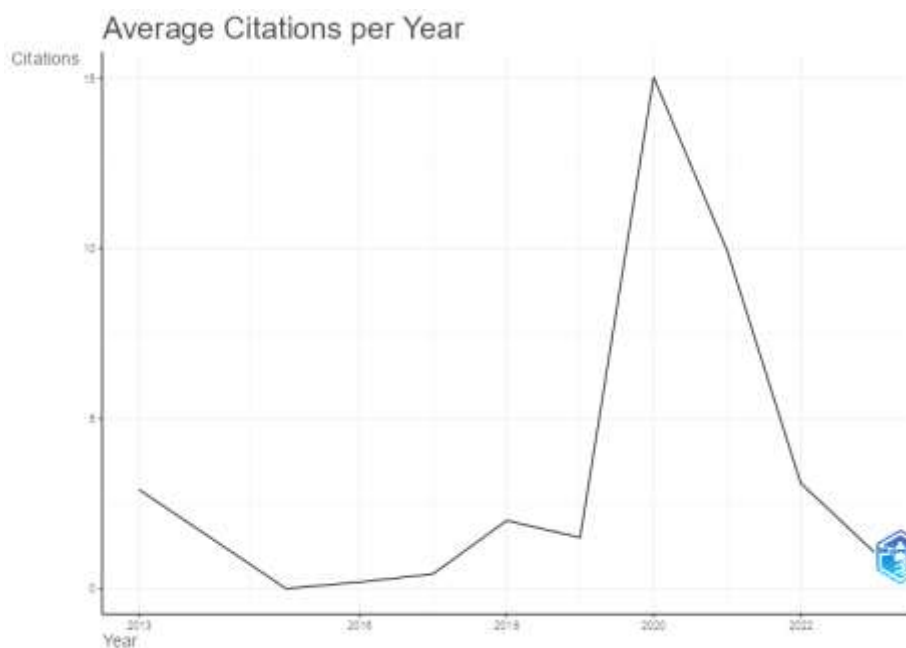
Source: term co-occurrence in Vosviewer



Source: Co-author in vosviewer

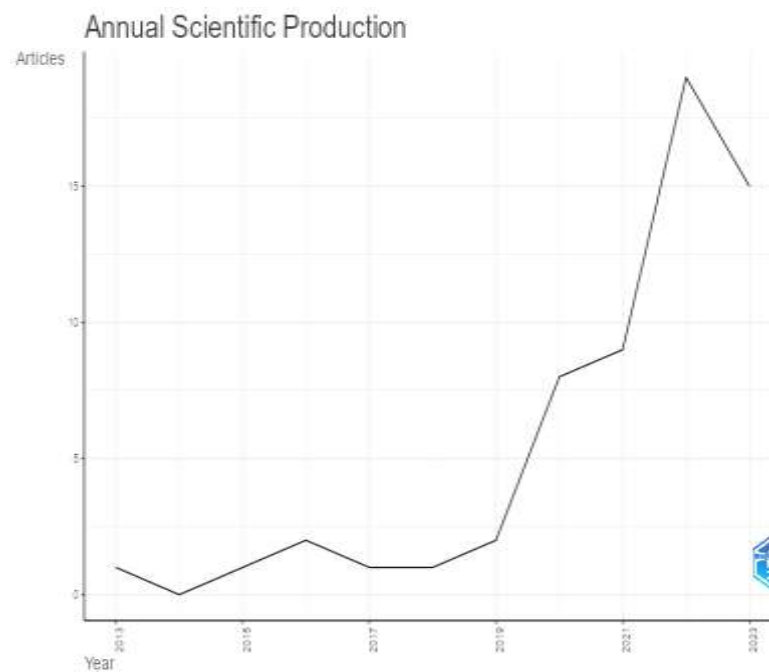
Utilizing the Bibliometrix R library and the Biblioshiny version of the statistical open-source software R, data processing and representation for the bibliometric study was completed [7].

| Year | MeanTCperArt | N | MeanTCperYear | CitableYears |
|------|--------------|----|---------------|--------------|
| 2013 | 32 | 1 | 2.91 | 11 |
| 2015 | 0 | 1 | 0 | 9 |
| 2016 | 1.5 | 2 | 0.19 | 8 |
| 2017 | 3 | 1 | 0.43 | 7 |
| 2018 | 12 | 1 | 2 | 6 |
| 2019 | 7.5 | 2 | 1.5 | 5 |
| 2020 | 60.12 | 8 | 15.03 | 4 |
| 2021 | 29.78 | 9 | 9.93 | 3 |
| 2022 | 6.21 | 19 | 3.1 | 2 |
| 2023 | 1.07 | 15 | 1.07 | 1 |



Source: Average citations per year in Biblioshiny software

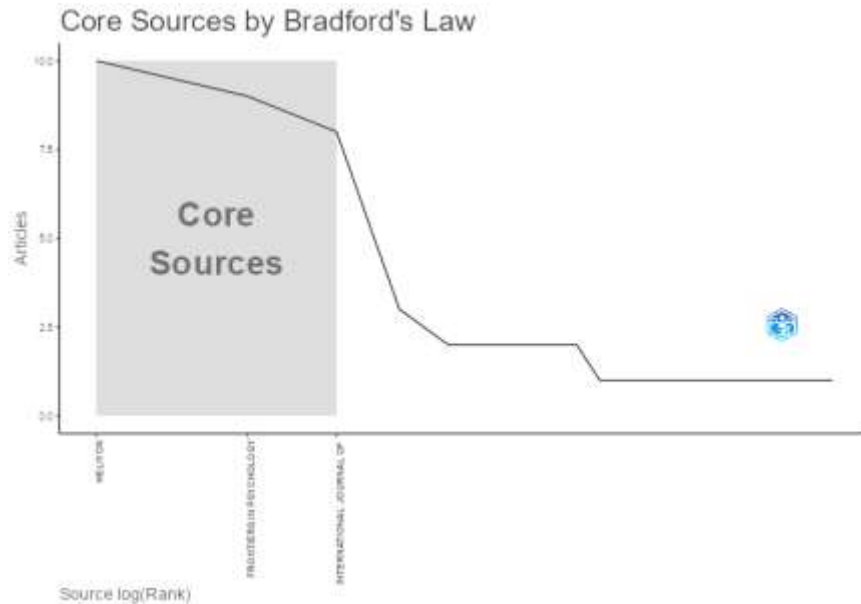
| Year | Articles |
|------|----------|
| 2013 | 1 |
| 2014 | 0 |
| 2015 | 1 |
| 2016 | 2 |
| 2017 | 1 |
| 2018 | 1 |
| 2019 | 2 |
| 2020 | 8 |
| 2021 | 9 |
| 2022 | 19 |
| 2023 | 15 |



Source: Annual scientific production in Biblioshiny software

| SO | Rank | Freq | cumFreq | Zone |
|---|------|------|---------|--------|
| Heliyon | 1 | 10 | 10 | Zone 1 |
| Frontiers in psychology | 2 | 9 | 19 | Zone 1 |
| International journal of environmental research and public health | 3 | 8 | 27 | Zone 1 |
| Journal of food protection | 4 | 3 | 30 | Zone 2 |
| Environmental science and pollution research | 5 | 2 | 32 | Zone 2 |
| Journal of business ethics | 6 | 2 | 34 | Zone 2 |
| Journal of innovation and entrepreneurship | 7 | 2 | 36 | Zone 2 |
| Plos one | 8 | 2 | 38 | Zone 2 |
| Technological forecasting and social change | 9 | 2 | 40 | Zone 2 |
| | 10 | 1 | 41 | Zone 2 |
| Angewandte chemie international edition | 11 | 1 | 42 | Zone 3 |
| Annals of nutrition and metabolism | 12 | 1 | 43 | Zone 3 |
| Behavioral sciences | 13 | 1 | 44 | Zone 3 |
| Computational intelligence and neuroscience | 14 | 1 | 45 | Zone 3 |
| Disability and rehabilitation | 15 | 1 | 46 | Zone 3 |
| Forensic science international synergy | 16 | 1 | 47 | Zone 3 |
| Healthcare | 17 | 1 | 48 | Zone 3 |
| Ieee access | 18 | 1 | 49 | Zone 3 |
| Innovation in aging | 19 | 1 | 50 | Zone 3 |
| International journal of hospitality management | 20 | 1 | 51 | Zone 3 |
| Journal of managed care & specialty pharmacy | 21 | 1 | 52 | Zone 3 |
| Journal of medical economics | 22 | 1 | 53 | Zone 3 |

| | | | | |
|--|----|---|----|--------|
| Journal of the international aids society | 23 | 1 | 54 | Zone 3 |
| Journal of vocational behavior | 24 | 1 | 55 | Zone 3 |
| Obesity facts | 25 | 1 | 56 | Zone 3 |
| Sahara-j journal of social aspects of hiv/aids | 26 | 1 | 57 | Zone 3 |
| Technology in society | 27 | 1 | 58 | Zone 3 |
| The journal of technology transfer | 28 | 1 | 59 | Zone 3 |
| Virchows archiv | 29 | 1 | 60 | Zone 3 |



Source: Bradfords law in Biblioshiny software.

DISCUSSION & IMPLICATIONS

The purpose of this article was to look into academic developments surrounding the topics of Industry 4.0 and human resources. Industry 4.0 is centered on technology. Most of the necessary technology to replace many of the present-day HR-related tasks is already in place. Consequently, HR 4.0 is a revolution that needs to be researched in the area of human resources.

One significant application of Industry 4.0 is the rise in the requirement for human resource capabilities. Human resources departments have been improving in areas like finding qualified personnel, fostering a positive work environment, and other tactics that directly affect the strategic outcomes of the company.

The current research shows the interpretation after following certain steps. Literature search has been conducted using Dimensions database, from a pool of research papers a selection of 60 papers has been done. After removing duplicate files, 50 research papers has been finalised for the current research. The selected papers have been imported to software Publish or Perish in order to convert a file from csv file to vosviewer file format in order to create keyword network analysis in Vosviewer. To determine research productivity in a different domain, keywords analysis is the most beneficial aspect

CONCLUSION

The goal of bibliometric analysis is to identify the primary research trends in a specific field or in any written works. It's a practical way to obtain information on a particular study topic for a particular time frame.

The study has some shortcomings, while being significant. First, the necessary data was gathered using the Dimensions database; publications from other databases, such Scopus and Web of Science, were not included. The results cannot be generalized as a result. Second, only English-language publications are included in this analysis. Third, because this is a bibliometric analysis, a systematic qualitative assessment that incorporates the findings from other databases is required to gain a thorough grasp of the subject.

The findings of this study have demonstrated that both IT and human resources are crucial for enhancing a company's operational efficiency.[6]

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