STRATEGIC TRENDS IN MANAGEMENT BY COMPETENCIES: A BIBLIOMETRIC REVIEW

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ARTICLE INFO	ABSTRACT
	Purpose: The objective of this study was to present a current and exhaustive analysis of the contributions and studies carried out by experts regarding strategic management by competencies as a result of a bibliometric review. **Theoretical framework:** Recent literature, in the last decade, has reported the increase of the need for companies to obtain a sustainable competitive advantage. So, this study about trends in management by competencies becomes essential to review all these works. **Design/Methodology/Approach:** The bibliometric study was conducted using the SCOPUS database, examining 624 publications from 1966 to 2023. The main findings of this review show that only in the 21st century did the idea of people management by competencies models stand out in the scientific and business scenario. **Findings:** The evidence shows that the concept of "management," present in 75% of the clusters found (high occurrence), strongly correlates with the theme of the people management model by competencies. The symbiosis between them can become one of the most important strengths (competitive differential) in a significantly changing business scenario. **Research, Practical & Social implications:** We suggest a future research agenda and highlight the contributions made to other leaders and human resource managers. **Originality/Value:** The bibliometric analysis allows us to identify that research has been carried out that contributed with elements to the models of competencies and their advances, in order to understand the model of competency management as an integrated and strategic system of evaluation and improvement of the organizations and/or people that compose it. Doi: https://doi.org/10.26668/businessreview/2023.v8i9.3371

TENDÊNCIAS ESTRATÉGICAS EM GESTÃO POR COMPETÊNCIAS: UMA REVISÃO BIBLIOMÉTRICA

RESUMO

Objetivo: Apresentar uma análise atual e exaustiva das contribuições e estudos realizados por especialistas sobre gestão estratégica por competências a partir de uma revisão bibliométrica.

Referencial teórico: A literatura recente, na última década, tem relatado o aumento da necessidade das empresas obterem uma vantagem competitiva sustentável. Assim, este estudo sobre tendências na gestão por competências torna-se essencial para rever todos esses trabalhos.

Desenho/Metodologia/Abordagem: O estudo bibliométrico foi realizado na base de dados SCOPUS, examinando 624 publicações no período de 1966 a 2023.

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Resultados: Os principais achados desta revisão mostram que somente no século 21 a ideia de gestão de pessoas por competências se destacou no cenário científico e empresarial. As evidências mostram que o conceito de "gestão", presente em 75% dos clusters encontrados (alta ocorrência), correlaciona-se fortemente com a temática do modelo de gestão de pessoas por competências. A simbiose entre eles pode se tornar um dos pontos fortes mais importantes (diferencial competitivo) nos cenários empresariais.

Pesquisa, Implicações práticas e Sociais: Sugerimos uma agenda de pesquisa futura e destacamos as contribuições feitas a outros líderes e gestores de recursos humanos.

Originalidade/Valor: A análise bibliométrica nos permite identificar que foram realizadas pesquisas que contribuíram com elementos para os modelos de competências e seus avanços, a fim de compreender o modelo de gestão de competências como um sistema integrado e estratégico de avaliação e melhoria das organizações e/ou pessoas que o compõem.

Palavras-chave: Gestão de Competências, Estratégia, Recursos Humanos, Desempenho Profissional, Vantagem Competitiva.

TENDENCIAS ESTRATÉGICAS EN GESTIÓN POR COMPETENCIAS: UNA REVISIÓN BIBLIOMÉTRICA

RESUMEN

Objetivo: Presentar un análisis actual y exhaustivo de las contribuciones y estudios realizados por especialistas en gestión estratégica por competencias a partir de una revisión bibliométrica.

Marco teórico: La literatura reciente, en la última década, ha informado de la creciente necesidad de las empresas de obtener una ventaja competitiva sostenible. Por lo tanto, este estudio sobre las tendencias en la gestión de competencias se vuelve esencial para revisar todos estos trabajos.

Diseño/Metodología/Enfoque: El estudio bibliométrico se realizó en la base de datos SCOPUS, examinando 624 publicaciones desde 1966 hasta 2023.

Resultados: Los principales hallazgos muestran que sólo en el siglo 21 la idea de gestión de personas por competencias se destacó en el escenario científico y empresarial. La evidencia muestra que el concepto de "gestión", presente en 75% de los conglomerados encontrados (alta ocurrencia), se correlaciona fuertemente con el tema del modelo de competencias. Así que la simbiosis entre ellos puede convertirse en una de las fortalezas más importantes (diferencial competitivo) en los escenarios empresariales.

Implicaciones de investigación, Prácticas y Sociales: Sugerimos una agenda de investigación futura y destacamos las contribuciones realizadas a otros líderes y gerentes de recursos humanos.

Originalidad/Valor: El análisis bibliométrico permitio identificar investigaciones que han aportado elementos a los modelos de competencias y sus avances, con el fin de entender la gestión por competencias como un sistema integrado y estratégico de evaluación y mejora de las organizaciones y/o personas que la componen.

Palabras clave: Gestión de Competencias, Estrategia, Recursos Humanos, Desempeño Profesional, Ventaja Competitiva.

INTRODUCTION

Faced with the aggressiveness of competitors in the global market, change has become a way of life within organizations, whether industrial or service and the only certainty that remains is that continued success can only come from faster adaptive and responsive capabilities or competencies (Libbrecht & Vandevyvere, 2005). Undoubtedly, companies worldwide try to obtain advantages and competitive positions that, in turn, are not a product of chance or chance; in fact, they have to be built with work and perseverance (Romero et al., 2020) and have a long-term impact on the survival of companies (Chatzoudes et al., 2022). As a result of this situation, in recent years, it has been suggested that it is going through not an era

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of changes but a change of era (Pique 2013). The business scenario and its environment have become more complex, and organizations are trying to face this challenge using new forms of business management. (Alfalla-Luque et al., 2012)

Under this search for new management alternatives that contribute to companies' competitive advantage, the concept of competencies is probably one of the most diffuse in the history of organizational development theories(Pohontu et al., 2012), considering that labor competencies are presented as the vehicle to increase the potential of human talent and fulfill organizational purposes (Monsalve, 2016), given that they are based on the imperative management of the intellectual capital of a company (Towers 2022).

Therefore, the recognition of the competence of professionals (human resources) is one of the competitive advantages (Porter, 2010), and has been driving a growing number of organizations to adopt a people management model based on competencies in the search for development and sustainability (Zago and Return 2013).

The management by competencies model, as a strategic form of management, has its merits and stands out for encompassing the concept of synergy between knowledge, skills, and attitudes that impact professional performance, linking both to individual behaviors and to the organization strategy itself (Brandão et al., 2008; Fleury & Fleury, 2004). Therefore, the model covers all human talent subsystems, such as personnel selection, training by skills or competencies, performance evaluation, etc. (Leache & Martínez, 2013a; Rosso et al., 2022).

However, measuring and evaluating performance and the adoption of the competencies model remains a challenge because many leaders remain reluctant to discuss performance with their employees (Fabrizio Rosso 2003), which is reflected, for example, in poor employee retention (56.7%), lack of qualified staff (35.1%), and lack of a performance appraisal system (28.9%) results that were reported in 61 Lebanese hospitals"(El-Jardali et al., 2009).

Additionally, this is due to the lack of competencies or capacities of professionals, as reflected in a study in health institutions in Valencia, Spain(Vivas-López & Fernández-Guerrero, 2011); it is concluded that it is impossible to draw up skills development plans without a precise diagnosis from adopting the performance evaluation tool by competencies since the real contributions the evaluated should provide are unknown.

The people management by competencies model contributes to reducing these performance gaps in the corporate world, and its contributions to companies' competitive strategy is an excellent point that can also be linked to other management tools such as the "Balanced Scorecard"(Boada-Grau & Gil-Ripoll, 2009; Brandão et al., 2008) to strengthen the

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competitive position of the institution through the development of both organizational and individual competencies. Thus, one way to achieve sustained competitive advantage is to develop competencies that competitors cannot easily duplicate (Barney & Wright, 1998) and, finally, recognize the competitive advantage of people: their contribution to productivity, the role that management by competencies plays in the development of skills, and strategic positioning, are factors that lead human resources to the field of strategic management. (Amaya, 2021; Bradley, 2019; Löffler et al., 2018; Ramírez et al., 2019; Torre et al., 2015)

The present study proposes, due to the growing need for more effective models and people management systems in the face of competitiveness, to map the literature from a bibliometric review. Bibliometric methods or "analysis" are now firmly established as scientific specialties and are integral to research evaluation methodology, especially in the scientific and applied fields. (Ellegaard & Wallin, 2015). This type of study has the advantage of introducing a systematic, transparent, and reproducible review process, improving the quality of the reviews, and becoming a valuable tool in literature reviews by guiding the researcher to the most influential papers and mapping the research field, dampening subjective bias (Fachada et al., 2022; Zupic & Čater, 2014).

Some available review studies have been carried out related to some aspects of the management by competencies model. As background, from the search in the SCOPUS database, we found the study carried out on the multilevel approach of management by competencies for small and medium-sized companies (Loufrani-Fedida & Aldebert, 2021) from a limited number of 09 documents found according to the search criteria of the authors. His conclusion reports that human resources strategies should not remain at a micro level (individual) but have a multilevel approach (meso, macro, and meta). Another antecedent identified in our search was a bibliometric review that was carried out on the subject of leadership (managerial) competencies in hospitals from a literature search with exclusion criteria that generated 13 articles analyzed from different databases (WOS, PubMed, Medic, etc.). The study concluded that the development of medical and nursing leaders' managerial and leadership competencies would strategically and systematically improve organizational performance and produce new, motivated, and potential managers and leaders.(Pihlainen et al., 2016). According to what has been observed and reviewed, some bibliometric studies focused on specific points of competencies that only took as a line of research a part, a perspective, or a more particular approach to that subject. On the other hand, it has not been possible to identify broader reviews that cover the trends in management by competencies as a management model.

Unlike the available research, this study aims to review the literature from its inception. In the Scopus database, under the search criteria adopted, the first article found dates from 1966, from which the bibliometric analysis will be carried out to fill the existing scientific gap and establish the foundations for future empirical research on strategic people management by competencies.

MATERIALS AND METHOD APPLIED

Instead of doing a literature review, the research proposal of this article is to specify a bibliometric analysis that is a method used in multiple fields of knowledge (Mongeon & Paul-Hus, 2016), adopting all the results from the search in the SCOPUS database. Intentionally, this study did not apply exclusion criteria, given that the first objective was to track all the documents found in SCOPUS on the subject since its inception. The research has not discarded or ignored any document produced over the decades and identified in the primary search. This database was chosen because it is one of the largest and most significant impacts among the existing databases, even considered one of the "Titans" of bibliographic information in the world (Prankute 2021).

The search was carried out in SCOPUS on April 3, 2023, with the concept of management by competencies and the most linked terms as keywords in its formula. In this way, 624 documents were found that met the established requirements (Table 3) and covered the period from 1966 to 2023. A temporary exclusion criterion was not adopted in the research in order to keep all documents produced on the subject available for trend analysis. Therefore, the first article with the selected keywords dates back to 1966, which addressed communication as a competence within the organizational environment.(Kuriloff, 1966)

To guarantee exhaustive coverage of the literature, meet the stated objectives, and facilitate the reproduction of this study by other researchers interested in the topic addressed, Table 1 reproduces the formula used to search this bibliometric study.

Table 1 - Research formula in the SCOPUS database

Items	Description
Time frame	Open, that is, without a limited time restriction
Document Type	**All:** Article, Session Paper, Review, Book Chapter, Conference Review, Book, Editorial, Abstract Report, and Note.
Search Criteria	Title, keywords, and abstract
Search Formula	• "competence management" • OR "management of competencies" • OR "management by competencies" • OR "recruitment by competencies"

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- • OR "selection by competencies"
- • OR "recruitment by skills"
- • OR "selection by skills"
- • OR "Competence performance assessment"
- • OR "Individual competencies development"
- • OR "Individual skills development"
- • OR "Competencies Compensation"
- • OR "Skills Compensation"
- • OR "Competencies Job Profile"
- • OR "Skills Job Profile"

Number of documents found	624

Source: Research formula in the SCOPUS database and prepared by the authors (2023)

The next step after the search was the critical analysis of the statistics offered by the SCOPUS data platform, with graphic representations and tables based on the results found.

Then, a technical separation was made of the documents that dealt exclusively with a review to analyze them more deeply, comment on their approaches and main findings (introduction) and compare them with the study's objectives (scientific gaps).

Finally, the documents (data) were analyzed with the support of the VOSviewer software since the visualization of bibliometric networks and correlations, called "science mapping," constitutes an advanced tool for analyzing these networks (Facade et al. 2022).

RESULTS AND DISCUSSION

The analysis and discussion of the results characterize the context of the research, such as the development and the findings of the study, in the sense of "responding" to the objectives to which this work proposes.

Statistical Analysis

From the search carried out in the Scopus database, of the 624 documents found (on April 3, 2023), we have identified that almost all of them are concentrated in articles or session (conference) documents, as shown in Table n.2. Only 3.9% are literature reviews, among which we have not identified any research addressing the issue from the point of view of management by competencies as a serious and strategic alternative to the traditional management model of human talent within companies (Fleury & Fleury, 2004; Sáiz, 2011)

Table 2 – Types of Documents

Document Type	Amount	Percentage
Article	291	46.6%
Conference Paper	269	43.1%
Review	24	3.9%

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Book Chapter	22	3.5%
Conference Review	12	1.9%
Book	2	0.3%
Editorial	2	0.3%
Abstract Report	1	0.2%
Note	1	0.2%
TOTAL	624	100%

Source: Types of Documents found in the Scopus database and prepared by the authors (2023)

It is important to understand the historical evolution of the subject in the last decades, as mentioned in the graphic representation (Figure 1) below. The first document dates from 1966, which worked on the concept of competencies in isolation within communication in companies as a specific event under the umbrella of other organizational issues(Kuriloff, 1966).

Like the first document identified in Scopus, the following articles or other types of documents focused on points that were very tangential to the term management by competencies until 1994, when in the investigated timeline, we found the first scientific article that linked competencies to a human resources model (Nordhaug and Renhaug 1994). Interesting to note that, coincidental or not, at the beginning of the same year Edward E. Lawler, one of the primary references in management by competencies worldwide, publishes an article that will be widely distributed in the world of business management (Leache and Martinez 2013b). Its text title: "From Job-Based to Competency-Based Organizations," refers to the transformations in the business world from applying the competencies model (Lawler 1994).

Figure 1 - Documents found by year.
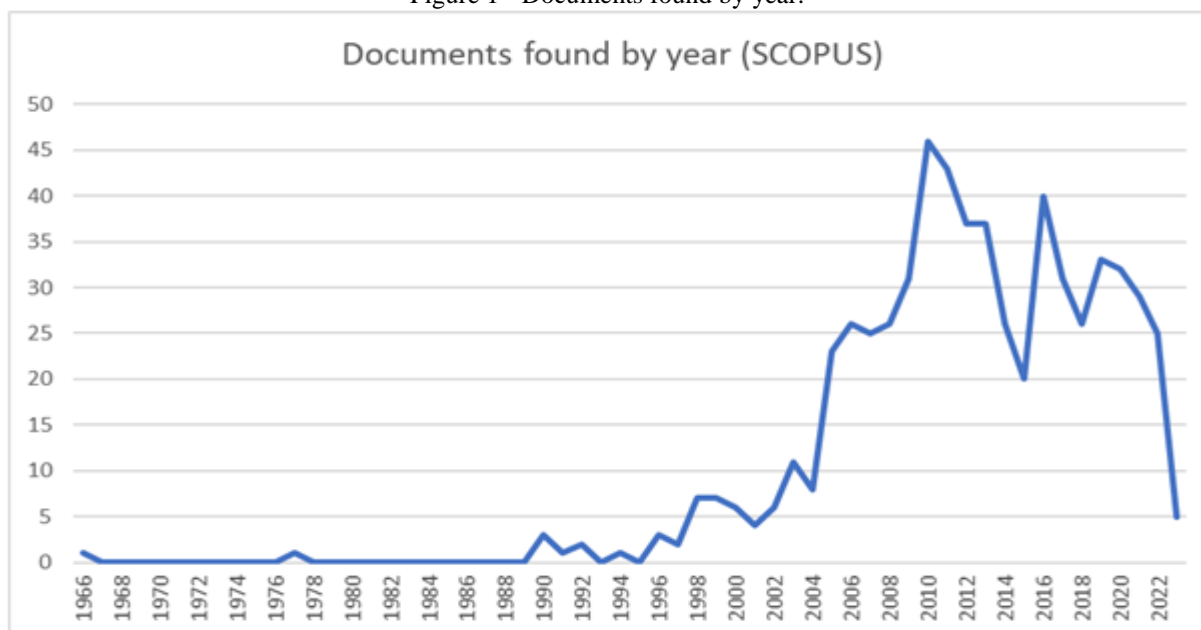
Source: Number of documents found per year from the first search document, from SCOPUS.

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It is also important to emphasize that 2010 and 2016 were the years in which the most research on the subject was generated (46 and 40 documents identified). As of 2020, production has had a significant drop in the amount produced, most likely due to the COVID-19 pandemic. It was even identified that in the year 2022, of the 24 scientific documents that were produced, 2 studies dealt with competencies and the variables of the global health crisis (COVID-19), such as the moderating effect of exhaustion in the relationship between the competencies of nurses, professional competence and professional values (Grande et al., 2022).

Based on the statistics on scientific production on the subject of competencies, in the chosen database, three major countries were found in the publication of documents, with Germany leading the statistics in the first place (90 documents found), then France (55 studies) and then England (49 documents), as can be seen in Figure 2.

In all of Latin America, only Brazil (36 documents found) appears on the list of countries that publish the most on the subject, occupying fifth place in the "ranking" offered by the analysis of results from the Scopus database, which unfortunately also It seems to capture the little importance given in Latin America t lities and its impact on positive results within companies.(Brandão & Bahry, 2005)

Figure 2: Documents by Country
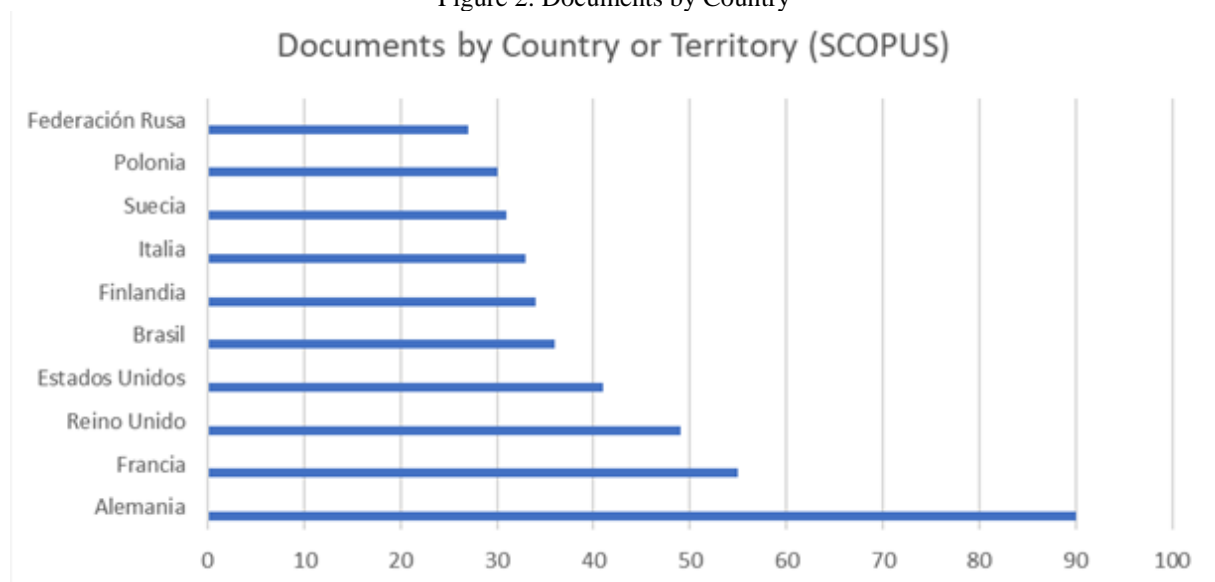
Source: Number of documents found by country or territory that published the most since the first search document, from SCOPUS.

According to the search, the 10 authors who most researched some aspects of the subject were also verified: "competencies", as reflected in the graphic representation - Figure 3.

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Figure 3 – Documents by Author
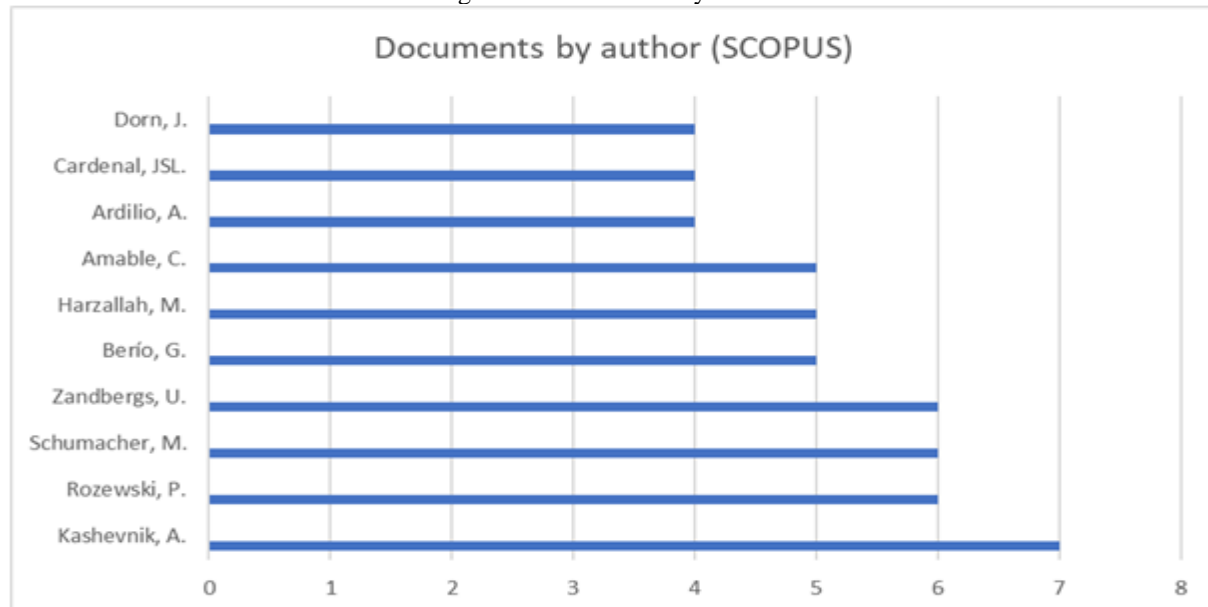
Source: Number of documents found by authors who published the most since the first search document, from SCOPUS.

Among these authors who published the most on the subject, the first on the statistical list is a Russian (Kashevnik) affiliated with the Federal Research Center in St. Petersburg. Despite bringing concepts about competencies, his scientific production is undoubtedly more focused on technological evolutions (computer science) and only tangential competencies models.

The three authors, in sequence, hold 06 published documents each on aspects of the subject investigated, with Schumacher approaching it from the perspective of virtual teams and their management or technology management model from an approach of the human dimension and competence (Schumacher et al., 2010) more similar to Kashevnik. The following authors, Rózewski and Zandbergs, adopt more of the concepts of management by competencies model for the educational area in such a way that formal and non-formal education providers provide goal-setting competencies management as a double-loop learning process to help organizations become learning organizations (Zandberg et al., 2018) Management by competencies still allows knowledge to be managed efficiently and effectively, even at the level of those learning or developing their skills as students (Rózewski and Malachowski 2009)

Moreover, the authors Berio and Harzallah seem to somehow integrate technology and management by competencies, with a general approach to developing competencies management information systems to enable such a model at all levels of business control, which means strategic, tactical, and operational.(Harzallah et al., 2006)

When analyzing Figure 4, it is possible to realize that Brazil, Russia, and France are the countries that stand out at the top of the list. The University of São Paulo, which shares first place

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with the University of Saint Petersburg with 11 documents produced, presents several studies that focus on human competencies or, in more detail, on managers and talk about management by competencies models. Although no Brazilian author appears in many articles or documents on the subject (Figure 3), according to the ranking of the best universities in Latin America, a significant proportion of the scientific articles published by Brazilian researchers are produced at the University of São Paulo which in 2022 occupied the 2nd. Position among the best educational institutions in Latin America. ("Latin American University Ranking 2022 | Times of Higher Education (EL)" n.d.). One of the documents draws attention due to its focus on analyzing the results ten years after the implementation of the management by competencies models, which makes it possible to understand that only from a valid model does the organization have the capacity to identify the necessary skills to develop and improve to achieve your strategic objectives (Munck et al., 2011). These management issues, such as competencies, will be gradually assimilated by companies since the process of change in human resources has begun to stop being only reactive (Fischer & de Albuquerque, 2007)

In Russia, the analysis of the documents (articles, conference papers, etc.) indicates a tendency of scientific production mainly on the competencies model associated with technology, especially the context-oriented competencies management in expert networks (Stepanenko et al., 2018), considering that in the face of economic instability, competencies management allows recruiters, directors, and other managers to manage their resources more effectively (Stepanenko and Kashevnik 2017; Stepanenko, Kashevnik, and Gurtov 2018).

As a final highlight of the affiliations (Figure 4), it is important to mention France and one of its most prestigious engineering schools École Centrale de Paris. Evaluating the generation of scientific articles and other documents by researchers from that institution, it is noted that the tone is less focused on classic management by competencies models and more on the association of competencies to virtual teams, such as remote team building systems assisted (Schumacher et al., 2010).

Figure 4 – Documents by Affiliation
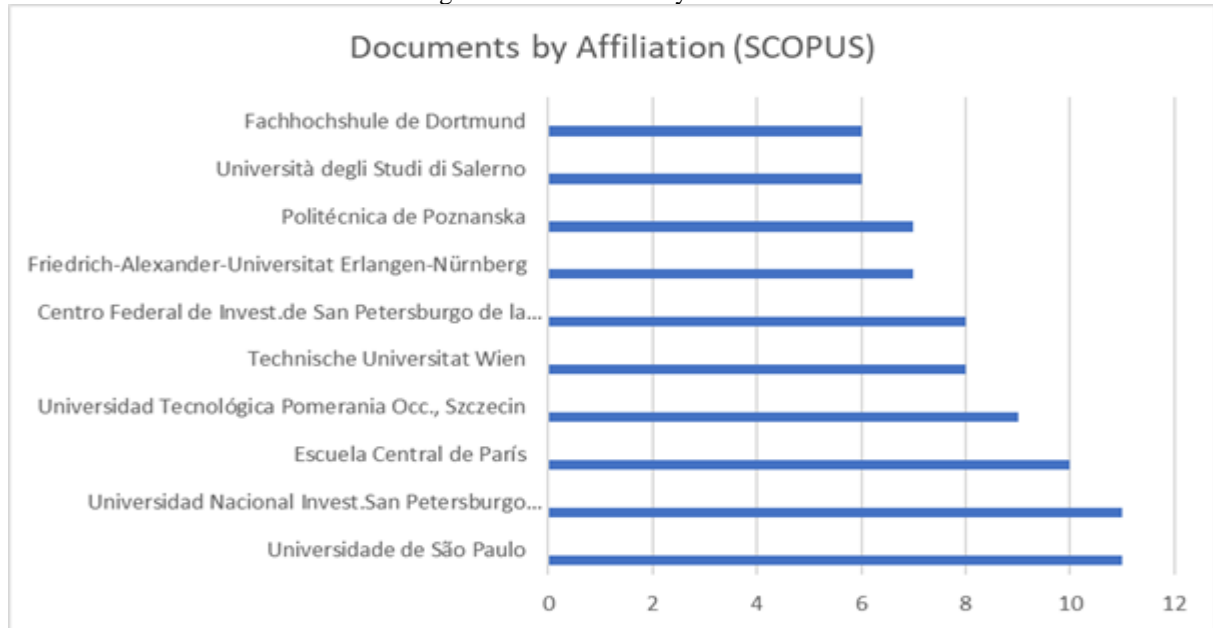
Source: Number of documents found by affiliation since the first search document from SCOPUS.

Bibliometric Maps

The VOSviewer program was used for this correlation analysis to map and visualize hidden patterns and collaboration among themselves (Vlase & Lähdesmäki, 2023).In Figure 5 it is possible to verify a keyword analysis with the established condition of a minimum of 15 occurrences per keyword. It was necessary to use as an exclusion factor words unrelated to the topic and/or that referred to the human race, such as: "Male; female; adult; Students; etc.

As can be seen through the "clusters" or correlated groups both in Figure 5 and in Table 3, the two most frequently mentioned keywords in studies on the subject are: "Competence Management" and "Knowledge Management," from which branch out to another 25 terms with a citation frequency greater than 15 times.

Figure 5 - Keyword Analysis - Clusters (15 occurrences or more)
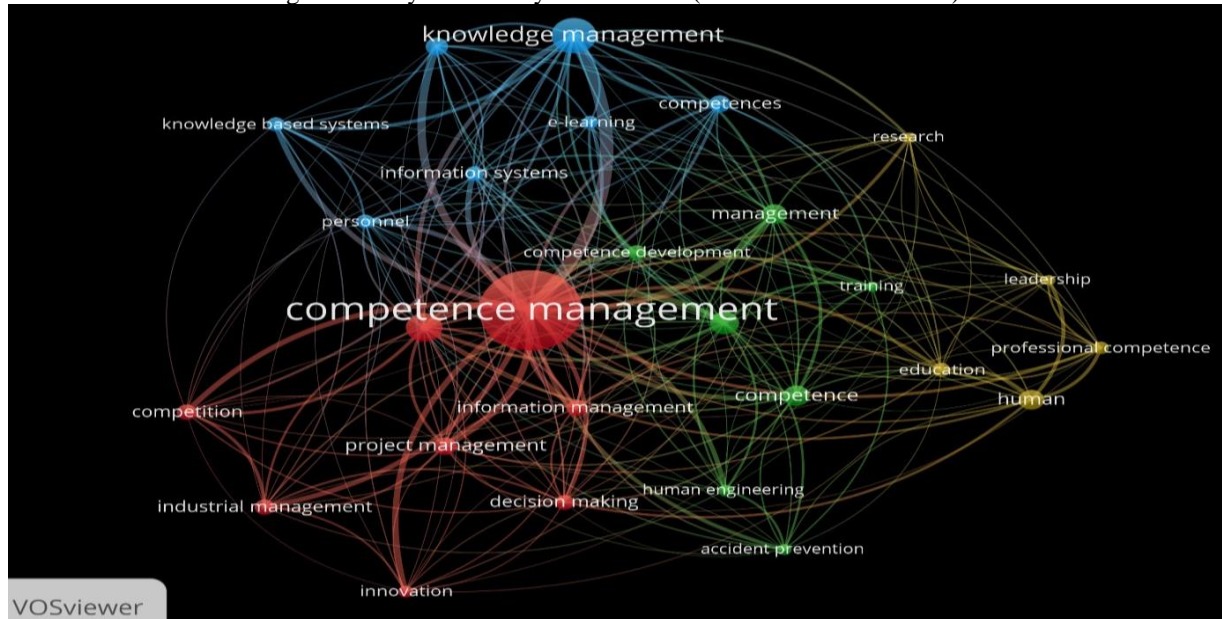
Source: Keywords grouped into 04 Clusters from the VOSviewer program.

As a result of the analysis and the exclusion criteria, twenty-seven keywords were selected and divided into 4 groups or clusters, as shown in Table 3. The red and blue clusters are the two that grouped the most keywords and occurrences. In terms of added percentage, they represent 70.7% of the total occurrences in the 624 analyzed documents.

Table 3 – Keywords (level of occurrence)

Clusters	Keywords and Occurrences	Percentage
RED (08 keywords)	competition management (294); human resource management (65) project management (34) information management (29) competition(28); industrial management (27) decision-making (26); innovation (19)	47.8%
22 BLUE (07 keywords)	knowledge management (90) ontology (34) competences (32) information systems (26) knowledge-based systems (24) personnel (24) e-learning (20)	22.9%
GREEN (07 keywords)	personal training (47) competition (42) management (39) competence development (25) human engineering (18) accident prevention (17) training (16)	18.7%

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YELLOW (05 keywords)	human (40) education (24) professional competence (21) leadership (16) research (15)	10.6%
TOTAL	27 words 1,092 occurrences	100%

Source: Analysis of the correlation between the keywords obtained from the VOSviewer program.

Red Cluster: Management by competencies as a people management model and competitive advantage

The red cluster stands out the implications for business practice by contrasting the traditional perspective on human resource management with an alternative competencies-oriented view focused on the success of organizations (Karwehl & Kauffeld, 2021). It still stands out that the strong link between the concept of competencies and management models can be seen even by the significant repetition of the same word in the group's key concepts. In this bibliometric review, the first document found that adds competence and human resources management dates from 1994 and begins a first discussion on the importance of individual and collective competencies on the one hand and their application in markets that demand mobility and competitive advantages, on the other side (Nordhaug & Grenhaug, 1994).

With almost 50% of the incidents in the group with the color red, the words "management by competencies" and "human resources management" together with "competition" suggest strong relationships between the subject and the economic and corporate scenarios under which the companies are subjected, since management by competencies models are presented as strategic people management tools, also contributing to organizational strategies (Fernandes et al., 2021).

In this group, it is possible to verify some concepts that have influence within the management models, such as Innovation or Decision Making. Two important correlations to promote the achievement of competitive advantages, despite not being directly within the topic addressed, that is, they are keywords that are more strongly related to the competition variables in the business market, whether they are large companies or multilevel models in innovative SMEs (Loufrani-Fedida & Aldebert, 2021)

Blue Cluster: The Interface between Competition and Technology

This group is purely dedicated to studying computer systems, networks or virtual equipment, and other items linked to the digital world in direct or indirect association with the concept of competencies.

In this cluster, it is possible to identify why, in the course of this study, documents were found on the concept of competencies from the point of view of technology. We also note that some authors use a general approach for developing competencies management information systems to allow this model to be applicable at all levels of business control, that is, strategic, tactical, and operational (Harzallah et al., 2006).

The strongest correlation in the blue cluster is centered on the key idea of "knowledge management," to which are added two very similar concepts: "information systems" and "knowledge based on systems." In addition, it is also possible to note that several authors use these terms mapped within that bibliometric review and mentioned above (Schumacher et al., 2010; Stepanenko et al., 2018). In some documents, it was possible to find a very interesting interface between human resources and the area of information technology, where HR has to collaborate with IT to help employees increase their digital competence.(Palmi et al., 2020)

However, it was also identified that the keyword "skills" are used in technology studies in a sometimes isolated or partial way, not always fully linked to people management models by skills, such as articles or documents focused on the usability of information systems for competencies management (Buhanist et al., n.d.) or focused on "software" that supports and supports the assignment of personnel and their competencies (Lindgren, 2011).

Green Cluster: The Development of human competencies

This cluster groups documents that mainly associate results based on the development and improvement of skills or competencies. The focus of this group is mainly dedicated to training and human development management within organizations. It is noted that even small and medium industrial companies need to support their employees' personal development to succeed in the long term in a changing world of work (Decius & Schaper, 2021).

This group of keywords represents the connection between people management and developing competencies, skills, or abilities necessary to evolve productivity in the work environment. An essential item in the people management model by competencies.

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**Yellow Cluster: The Link between Leadership and Competencies**

Although this is the correlation group with the lowest occurrence among the four clusters, with only one 10 percent representativeness, two of its concepts are important to fully understand the scenario and trends regarding the management model of people by competencies. The two keywords that stand out for their degree of importance are: "Leadership" and "Professional Competencies," which are directly linked to the word with the most occurrences in that group: "Human." For example, it was identified that it is vital to reduce the fragmentation of leadership and management theories in the implementation of a competencies model appropriate to the organization's needs, contributing to leadership effectiveness (Figueiredo et al., 2022).

There is no doubt that the trend is to incorporate the competencies model through leadership competencies, considering that the advance in competitiveness has caused essential changes in the composition of the "knowledge economy", where companies are beginning to demand more and more professional skills, knowledge and skills from their leaders and employees (Pizzete & Birck, 2019).

Evolution of key concepts over time.

If we go deeper into the analysis of the exact 27 keywords over the decades (Figure 6), it is possible to understand their advances and their correlations with the business world based on a positive relationship between management practices of human talents in conjunction with business strategies, increasing the level of competitiveness of organizations (Lopes et al., 2021).

The words management by competence (competence management) and knowledge management (knowledge management), despite having obtained a very high number of occurrences, are presented as important and outstanding keywords from 2012 to 2015, from which other concepts begin to gain strength and importance in the competitive scenario, given that globalized competition has fostered a "war for talent" (Karwehl and Kauffeld 2010). Terms such as 1. Human Resource Management; 2. Human; 3. E-learning, and 4. Leadership appears more frequently given that the concept of competence is a vital organ of human resource management (Madhavi and Mehrotra, 2020) even because organizations still do not sufficiently use the knowledge of employees to achieve their strategic objectives, and digital media (e-learning) are still valid only for a few selected objectives (Judrups et al., 2015). Finally, the term "leadership" begins to appear on the stage as a piece associated with the competencies, as previously mentioned in the yellow cluster.

Figure 6 – Keywords and Concepts Evolution
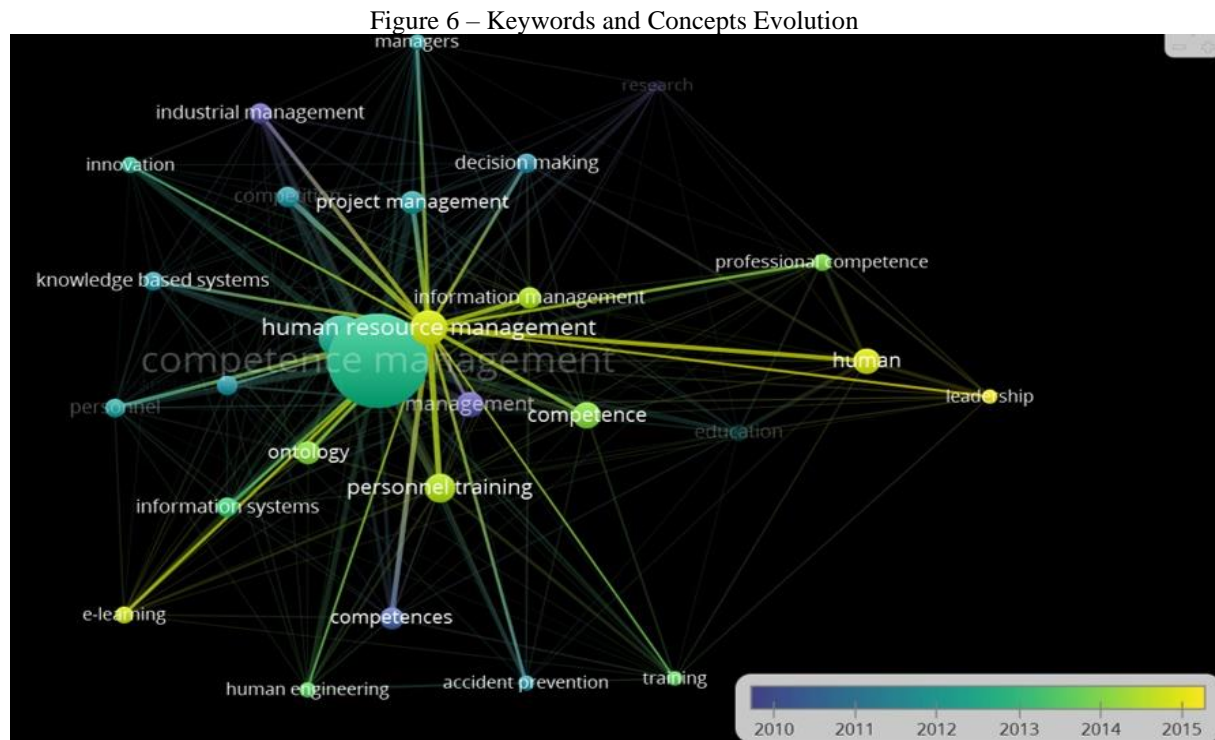
Source: Keywords and their evolution over time according to VOSviewer program.

By formulating the initial search in the SCOPUS database and adopting all the documents for this study's analysis, the bibliometric review's breadth was increased, allowing us to understand how the topic has evolved since its inception.

It is possible to trace an initial path with the theme to identify some of its tendencies. For example, very few studies were conducted in the first four decades (Figure 1). Even in these few documents, it was not possible to identify management by competencies models. They dealt with competencies such as isolated organizational or individual skills without connection to the human resources area or with effective management practices or systems.

Over the years, especially in the 21st century, the production of articles, reviews, and other documents has increased significantly. However, since the definition of competence has become complex and scientists have not yet agreed, various meanings of the term have formed and/or multiplied in multiple disciplines (Pihlainen, Kivinen, and Lammintakanen 2016), which opened up a range of uses for the concept of competencies, from work and educational contexts to technological or digital ones. That, indeed, pulverized in various fields of knowledge the concept on this subject and, many times, in a superficial or specific way, as something linked, for example, to developing individual skills for preventing accidents at work. (Walker, 1977) Alternatively, computer systems propose an integrating architecture to manage skills digitally (Berio & Harzallah, 2007).

The findings of this study make it possible to mention that, despite the existence of many documents that do not fully address the subject, the strategic concept of establishing a more effective people management model based on the required competencies is gaining strength in several studies from 2000's (Fleury & Fleury, 2007; Rózewski & Małachowski, 2009; Zandbergs et al., 2019). Moreover, even it is already possible to identify the beginning, although timid, of the intersections or interactions of processes between technology and management by competencies (Kohl et al., 2021). These movements are a natural trend coming from the scenarios that mark business competitiveness and directly impact the demand for a higher qualification of human resources. (Martin-vares, 2006), given that after the pandemic (COVID-19), the technological contribution (integrated systems) became even more important with the increase in virtual work teams. Additionally, even in that digital world, the management of human talents develops activities that should stimulate the generation of competencies so that companies can successfully reach their goals. (Amaya, 2021)

In this way, it is not by chance that the keyword correlation analysis can be visualized among the 624 studies found (Figure 5), where the strongest cluster has as a stem cell (almost 300 occurrences) the term: "competence management." Moreover, suppose we extend this statistic towards a systemic vision of the interfaces between the four clusters of key concepts (terms with the highest incidence). In that case, it is possible to identify correlations between all of them, involving some current trends such as the importance of the information technology area and its software to manage competencies models more effectively, whether in the face-to-face or virtual day-to-day work teams in addition to the need for training and improvement of skills and competencies for human development and the achievement of more competitive results in the business market, where leadership plays a strategic role for the success of management models.

Naturally, the bibliometric study carried out allows us to perceive that there is a trend in the adoption of strategic people management, based on a competencies model by the corporate world, based on the construction of the profiles of each job with a focus on the required competencies or skills (Rosso et al. 2020). This adoption still occurs in a business universe in transformation, driven by technological innovations, guided by a liberal logic that emphasizes the flexibility of productive activities, competitiveness, and quality.(Kraemer & de Aguiar, 2009).

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CONCLUSIONS

The competencies management model consists of an integrated system of evaluation and improvement of organizations and/or people that compose it. It is presented as a process in which three moments interact: identification, evaluation, and development of competencies.(Martin-vares, 2006) Furthermore, it has long ceased to be considered a "fashion," endorsing the validation of its techniques through implementation experiences in various countries (Landim, 2018). Ultimately, the human capital is the backbone, and its development implies cross-cutting and continuous training and updating processes to strengthen their management competencies(Heredia-Quito & Narváez-Zurita, 2021), directing the organization towards the conquest of a sustainable competitive advantage (Almeida et al., 2015)

The bibliometric analysis shows us that research has been carried out that has contributed elements to the competencies models and their advances. While reviewing the documents, we also realized there are limitations of analysis and opportunities for new, even deeper research on the management by competencies model.

The most critical limitation identified is that when accepting the 624 documents extracted from the SCOPUS database, based on the search formula mentioned above, we did not imagine that we would find in this review many documents that only tangentially touched the subject, given that the concept of competencies continues to be pulverized by multiple areas of human knowledge and not only from the point of view of business management.

Consequently, the window of scientific opportunity is to carry out other studies considering this technical detail on the subject and selecting in an even deeper way the search for more effective results in the investigation of management models by competencies, excluding more isolated concepts of the central theme from the analysis.

The contributions of this bibliometric study suggest that there is still a latent need for more research on the subject, with lines of research that can address outstanding variables in the correlation of keywords (Figure 6), such as knowledge, management, leadership, etc.

Strengthening these common threads in new studies will contribute to the connection between management by competencies and strategic leadership models that, indeed, represent a determining factor in the development of organizations (Urrego 2020). In an integrative way, the four clusters with the highest occurrence and their analyzes mentioned in this review of the literature will allow new scientific research starting points to deepen this theme.

In conclusion, it is important to emphasize that the trends do not replace judgment and human capacity; they are mere projections that make up a broader picture of options. (Fischer & de Albuquerque 2007), which gives us the possibility of going beyond expectations, exceeding expectations and trends to create management by competencies models that, in their latest analysis, promote human talent in favor of companies, progress, and, why not, of humanity itself.

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