Intellectual capital' effect on firm strategic performance:" Bibliometric study"

أثر رأس المال الفكري في الأداء الاستراتيجي: دراسة ببليومترية

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Abstract:

Through a Bibliometric literature review related to the firms performance from a strategic perspective, this study aims to explore and determine how intellectual capital can explain the strategic performance of firms. We have relied on a collection of articles published in the period (1998-2020), in peer-reviewed journals and found in the Web of Science database are descriptively analyzed.

The most important findings revealed that intellectual has a positive effect on firm performance, where human capital is the most vital component of intellectual capital, which explains the firm performance. through creating distinctive value also its ability to achieve strategic flexibility. This study suggested the need for firms to pay attention to their intellectual assets, dynamic strategic capabilities generally, and human capital specifically by attracting competencies, talents and people with knowledge, developing, maintaining it.

Keywords: Intellectual capital, Strategic capabilities, Firm performance, Strategic performance, Bibliometric literature review.

JEL Classification Codes: M30, L10.

ملخص:

من خلال الدراسة المنهجية للأدبيات الإدارية المتعلقة بموضوعات الأداء من منظور استراتيجي، هدفت هذه الدراسة إلى اكتشاف وتحديد تأثير رأس المال الفكري في الأداء الاستراتيجي في المنظمات. فقد اعتمدنا على حصر مجموعة من المقالات في الفترة الممتدة من (1998-2020) في المجلات

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المحكمة في قاعدة البيانات Web of Science والتي تم تحليلها بالمنهج الوصفي. وقد توصلت هذه الدراسة الى مجموعة من النتائج كان من أهمها : أن هناك أثر ايجابي لرأس المال الفكري في أداء المنظمات، أين يعتبر رأس المال البشري المكون الحيوي في رأس المال الفكري، والذي يفسر أداء المنظمات من خلال خلق قيمةمميزة وكذلك قدرتها على تحقيق المرونة الاستراتيجية؛ كما اقترحت هذه الدراسة ضرورة اهتمام المنظمات بأصولها الفكرية، وقدراتها الاستراتيجية الديناميكية عموما ،ورأسمالها البشري على وجه الخصوص من خلال جذب الكفاءات والمواهب وذوي المعرفة ، والعمل على تطويرها والمحافظة عليها

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كلمات مفتاحية: رأس المال الفكري، قدرات استراتيجية، أداء المنظمة ، الأداء استراتيجي، دراسة بيبليومترية

تصنيفات JEL : M30, L10

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1. Introduction

In the knowledge-based economy, interest in intellectual capital is constantly growing, especially its effect impact on firm performance. Many studies have focused on the role that intellectual capital can play in enhancing firm performance, especially with the strategic orientations to intangible resources. Although, realizing the importance of intellectual capital as a crucial engine for development, remains unclear. Where intellectual capital has for decades been the focus of great interest among many academics and practitioners due to the realization of its importance and recognition as an intangible strategic asset, linked to the outstanding performance as well as the competitive advantage of the firms, and as it is an intangible asset; this makes it difficult to measure and define its features, indicators, and effects, especially on the strategic performance, which is considered one of the most complex aspects in terms of the capabilities of agility in a dynamic environment. This study draws on the importance of the subject matter, which is a broad framework for analysis and is linked to the study variables. It is based on linking two variables that many modern administrative literatures have pointed out to their increasing importance, especially in the context of the knowledge-based economy and the unique individuals' intellectual capabilities.

In the context of a knowledge-based economy, intangible assets are the main stone to create a firm's value (Xu & Wang, 2019). The current

business environment, complexity, hyper-competition, and rapid technological change have created a real challenge for each firm to keep up with a knowledge-based economy through the distinctive innovative capabilities (Al-Jinini & Bontis, 2019). The theories of strategic management were directed towards resources and capabilities, considering individuals as the most important and adaptive available resources to the firm (Brockner, et al., 2006).

For the effective implementation of the firm strategy, it is necessary to determine what distinguishes the firm from its competitors and determine the necessary capabilities to maintain and develop this advantage (Massa & Testa, 2009). Intellectual capital is a strategic resource to achieve a competitive advantage in the context of the fiercely competitive market (Xu & Wang, 2019). The building of a powerful social network for the firm would develop the firm's intellectual capital (Davies, 2009). In the capital market, the resources of knowledge, strategic orientation, managerial qualities, innovative skills, experience, integrity, and transparency are critical factors that are important in determining the parameters of the firm's performance at the strategic level (Hidalgo, L., & Martínez, 2011). There are a variety of technological developments in the business environment on individuals who are seeking to exploit their human capital on the one hand and the use of intellectual capital on the other hand (Lumpkin, T., & Wright, 2011). The firm can achieve higher performance through the development of new technologies and structures (Hurmelinna, Kyläheiko, & Jauhiainen, 2007).

The components of intellectual capital can contribute to accumulating and distributing knowledge through individuals, organizational structures, processes, systems, relationships, and networks (Subramaniam & Youndt, 2005). Its acquisition develops and maintains the intellectual capital is crucial and necessary to achieve strategic agility and flexibility of the firm and thus improve performance, especially in the context of complex and accelerated business environment change (Oliveira, Roth, & Gilland, 2002). Following the classification of firms by intellectual capital standard including the combination of knowledge assets are linked to the results of the performance development of those firms (Erickson & Rothberg, 2015). Often, the intellectual capital measure is for comparison between the intellectual value and the market value of the firm and the development of firms to improve the firm's performance (Dombrowski, et al., 2007).

The firm needs to develop human resources management practices in support of the human capital that would acquire and develop the knowledge, skills, and experience; human resources management practices that overcome the structural border, and support effective communications network and the information systems to capture and dissemination the knowledge, all of these elements will strengthen the intellectual capital of the firm and this, in turn, has a direct impact on the improvement of the firm's capacity to manage and integrate knowledge within the firm. Where organizational learning is important, it depends on intellectual capital and represents a unique combination of elements of human capital, structural capital, and relational capital. The firm's performance can be explained by the effects from the special relations between the previous elements in addition to the absorptive capacity of the firm (Brockner, et al., 2006). The strong level of intellectual capital contributes to strengthening the firm's absorptive capacity and allows the acquisition and application of knowledge more effectively (Garcia Martinez, Zouaghi, & Sanchez Garcia, 2019). Furthermore, intellectual capital is the main engine factor that speeds the competitiveness (García-Zambrano, Rodríguez-Castellanos, & García-Merino, 2018).

Based on the above, the research paper's questions are:

- Is there any significant relationship between intellectual capital and a firm's strategic performance?
- How can intellectual capital affect firm performance?
- What are the most important developments in the literature of intellectual capital and its effect on strategic performance?

Aims of the research are:

The main goals of this systematic literature review are:

- Tracking the most important developments in the literature of intellectual capital and its relationship to firm performance.
- Determine the gap in this literature through the systematic literature review.
- Explore how intellectual capital with its component can explain the strategic performance of the firm.

2. Literature review

So far, there is no universal definition of intellectual capital, it is a complex concept (Yitmen, 2011). Bontis (2001) defined intellectual capital as "the collective intangible assets and their stream of knowledge" (Al-Jinini & Bontis, 2019). IC is "the sum of intangibles resources (knowledge, information, intellectual property, and experience) that have been

formalized, captured and leveraged to create assets of higher value" (Capatina, Bleoju, & Vairinhos, 2017). It can include also knowledge assets, intangible resources, and capabilities, which contribute to the development of processes that contribute to achieving a competitive advantage (Martín-de-Castro, Delgado-Verde, López-Sáez, & Navas-López, 2011). While O'Regan (2000) suggested that IC = People x Internal capital x External capital (Tseng & Goo, 2005).

As Morgan (1998), measuring intellectual capital had its advantages on Skandia Assurance and Financial Services (the administrative costs have been reduced by 75% and the productivity have been increased by 400% over the last 6 years (Tseng & Goo, 2005). A balanced scorecard is a tool also to assess intellectual capital (Shih, Lin, & Lin, 2011).

In this context, Bontis (1998) suggested a framework to measure intellectual capital and its link with a firm's performance (Dombrowski, et al., 2007). Therefore, measuring a firm's performance is technically linked to the objectives to be achieved, in other words, the objectives of measuring performance differ according to the desired goals in each field (Piber, Demartini, & Biondi, 2019). BSC is the main tool to achieve a balance in firm management (Faizova, Ivanova, & Pozhuieva, 2019).

To facilitate the measurement of intellectual capital, some scholars have attempted to classify intellectual capital according to certain criteria. Miller et al (1999) and Stewart (1997), have classified intellectual capital into three components: Human capital, structural capital, and customer capital. Human capital refers to the employees 'knowledge, innovative capabilities, expertise, competencies, and commitment that employees possess that can create value for an organization. Structural capital refers to strategic and organizational assets such as organizational culture, processes, patents, copyrights, and trademarks. Costumer capital refers to the value resulting from the excellent relationship between stakeholders which is a result of establishing and maintaining human capital and structural capital (Xu & Wang, 2019). These three dimensions of intellectual capital are related to each unit and each department in the firm, as it contributes to the development of new products and services (Carmona-Lavado, Cuevas-Rodríguez, & Cabello-Medina, 2013). Innovation may include products and processes in addition to intellectual property resulting from the patent and trademarks (Cieślik, Qu, & Qu, 2018).

Besides human capital, distinctive human resources can contribute to the acquisition and improvement of social capital as well (Lumpkin, T., & Wright, 2011). The resource and knowledge-based view as a theoretical

framework contribute to the evolution of the theoretical framework of intellectual capital. The literature of intellectual capital provides a comprehensive vision on value creation under the strategic management orientation (Yitmen, 2011). Knowledge-based view is an extension of the resources-based view, where KBV provides a strong logical base to explain the contribution of intellectual capital to strengthen the firm's performance (Ruiz, Sanchez De Pablo, Muñoz, & Peña, 2018). In this context, organizational knowledge is a strategic resource, furthermore, Nonaka (1994) and Drucker consider it one of production elements (Claver-Cortés, Zaragoza-Sáez, & González-Illescas, 2018).

Firms seek to achieve higher levels of performance in the long term, so, it is invested in qualifications, abilities, skills, practices that strengthen staff expertise (Krausert, 2018). As intellectual capital is an intangible asset that is associated with human and structural capital, it leads to higher performance (Parshakov & Shakina, 2018). The common belief is that intellectual capital affects positively the firm's performance (Xu & Wang, 2019). Through the knowledge of individuals and of human capital, knowledge generated on social relationships (social capital) and the knowledge contained in the procedures, processes, and systems (organizational capital), which is a vital entry point in the organizational learning process through exploration and exploitation of knowledge (Brockner, et al., 2006). To sustain the firm’s performance, it is necessary to invest and build upon core competencies to create knowledge value (Teo, Reed, & Ly, 2014). Human capital is the most important element in intellectual capital, Human capital is the main basis for the creation of other (Teo, Reed, & Ly, 2014) elements of intellectual capital, and effects on a firm’s performance (Shih, Lin, & Lin, 2011). This performance can be expected based on the managerial team, where the characteristics of the firm's performance outcome from managers, attitudes, skills, capabilities, and personality traits (González-Loureiro, Dabic, & Puig, 2014). Depending on the knowledge-based view, human capital is the main stone and it has indirect links with the firm’s performance unless through structural capital (Dabic, González-Loureiro, & Furrer, 2014). So, remaining the individuals who have the human capital is critical in synergy, integration plan, and enhancing firm’s performance (Younge, Tong, & Fleming, 2015). Individuals through their human capital can improve a firm’s performance where it is difficult to determine that contribution, and what constitutes also a challenge that these individuals can leave the firm unlike physical assets (Belenzon & Schankerman, 2015).

The knowledge-intensive firms in the context of a knowledge-based economy based on knowledge as a source of competitive advantage to achieve higher than the competitors' performance, by integrating that knowledge and apply it effectively more than competitors, from the perspective of the resource-based view, which assumes that internal resources are the crucial source of sustainable competitive excellence (Teo, Reed, & Ly, 2014). RBV is the predominant approach in strategic management (Bagis, Karaguzel, Kryeziu, & Ardic, 2019). Intellectual capital is a strategic resource, which affects the firm's performance and innovative solutions, the management of this crucial asset is vital in achieving competitive advantage (Yitmen, 2011). Intellectual capital is a link between human resources management practices and the performance of the firm (Kong & Thomson, 2009). From the financial side of a firm's performance, it is known that human capital has an important impact on financial performance (Reed, Lubatkin, & Srinivasan, 2006). The elements of IC integrate each other in each level within the firm and as a result enhance the firm's performance (Fernández-Pérez de la Lastra, García-Carbonell, Martín-Alcázar, & Sánchez-Gardey, 2017).

3. Methodology

Many methodologies and approaches can be appropriate and can be adapted for a particular research paper. A systematic literature review of the available academic research was carried out on the topic of this research paper. Many sources and databases can be used to review the literature, the authors searched the Web of Science (WoS) database, which is one of the largest databases of scientific documents, by simultaneously using: [intellectual capital and performance], [strategic performance], as keywords to identify articles related to this research paper. Searching for articles published from 1998 to 2020. The search was limited to peer-reviewed journal [articles] written in [English] in [Business Economics] area. This research was carried out on December 24^{th,} 2019.

These search criteria yielded 125 articles. We analyzed the content of (40) articles the other articles are not allowed to open -not open access- the full text where only the abstract is available. This number is relatively small, indicating that the search in this field and the subject is still developing. The articles that were accessed do not address the same topic but are at least related to one variable of the study variables.

We have summarized the above mentioned in table 1.

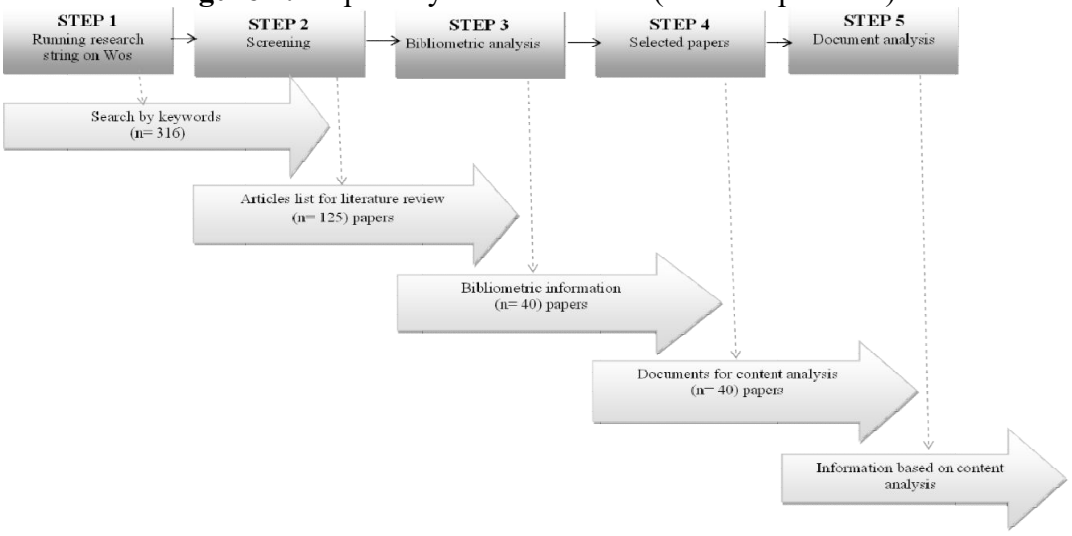
Table 1: Details of the search string ran on Web of Science

Search field	Selected criteria
Data range	Published from 1908 to 2019
Language	English
Run on	Abstract, title, keywords
Scientific field	Business Economics
Date of running search string	October 24th 2019
Total articles yielded in WoS	125

Source: Collaborated by the authors

This research was carried out using Microsoft Excel to construct graphics to construct bibliometric maps and clusters and references networks. Figure 1 demonstrates the research protocol.

Figure 1: Steps of systematic review (research protocol)



Source: Collaborated by the authors

4. Results

According to the scientific publications resulting from searching the database (WoS) using keywords; [intellectual capital and performance], [strategic performance]. The following demonstrates the most five cited studies.

Based on it, the top 5 and most cited studies are:

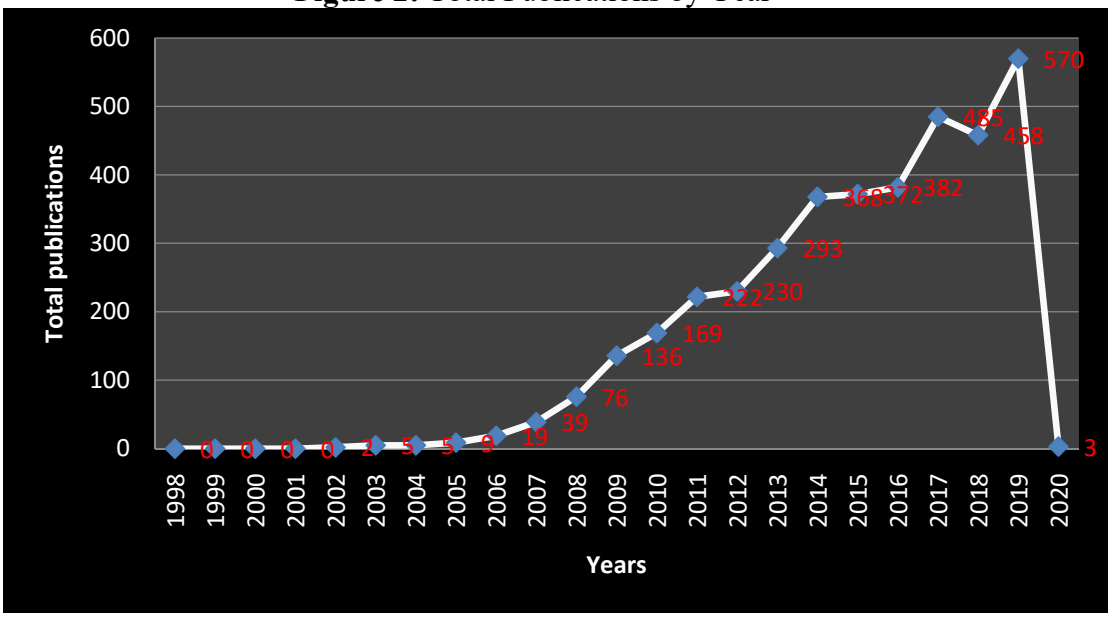
1. Subramaniam, M; Youndt, MA. (2005), "The influence of intellectual capital on the types of innovative capabilities", Academy of Management Journal, V. 48, No. 3, pp. 450-463, is quantitative study with 1252 citations.
2. Reed, KK; Lubatkin, M; Srinivasan, N. (2006). "Proposing and testing an intellectual capital-based view of the firm", Journal of management studies, V. 43, No. 4, pp. 867-893, is quantitative study with 236 citations.

3. Zahra, SA; Bogner, WC. (2000). "Technology strategy and software new ventures' performance: Exploring the moderating effect of the competitive environment", Journal of business venturing, V. 15, N. 2, pp. 135-173, is quantitative study with 221 citations.
4. Tseng, CY; Goo, YJJ. (2006). "Intellectual capital and corporate value in an emerging economy: an empirical study of Taiwanese manufacturers", R & D Management, V. 35, No.2, pp. 187-201, is quantitative study with 178 citations.
5. Autio, Erkko; Acs, Zoltan. (2010), "INTELLECTUAL PROPERTY PROTECTION AND THE FORMATION OF ENTREPRENEURIAL GROWTH ASPIRATIONS", Strategic Entrepreneurship Journal, V. 4, No. 3, pp. 234-251, is quantitative study with 178 citations.

Based on this studies order in this paper, we may say that quantitative reviews are alongside and integrated with systematic and qualitative reviews by relying on quantitative data to come up with qualitative approaches, especially since these approaches and theories are still in continuous development in order to crystallize more accurate concepts of intellectual capital as well as strategic performance in various fields, as for the citations, they also indicate the credibility and reliability of these studies and the extent of interest in these variables, which provides an opportunity for researchers to develop integrated qualitative and quantitative approaches.

The most five cited studies focused on Intellectual capital and its importance in creating value for the firm. Figure 2 demonstrates the evolution in the number of articles in the field of research paper term, for the period from 1998 to 2020.

Figure 2: Total Publications by Year



Source: Collaborated by the authors

Through figure 1 we represented the evolution of publications, where the first publications were only in the year 2002 on the (WoS) database approved for this research paper while the research in the database covered the period from 1998 to 2020, where the number of publications has risen rapidly, significantly in recent years, which indicates the increasing interest about the study and the increasing interest it receives from researchers. The peak of publications was in the year 2019, when it reached 570 articles after it was 485 publications in the year 2017, and then it decreased to 458 in 2018 to rise to a peak in 2019.

Below we include the graphic representation of the top ten cited journals.

Table 2: Top ten most cited journals

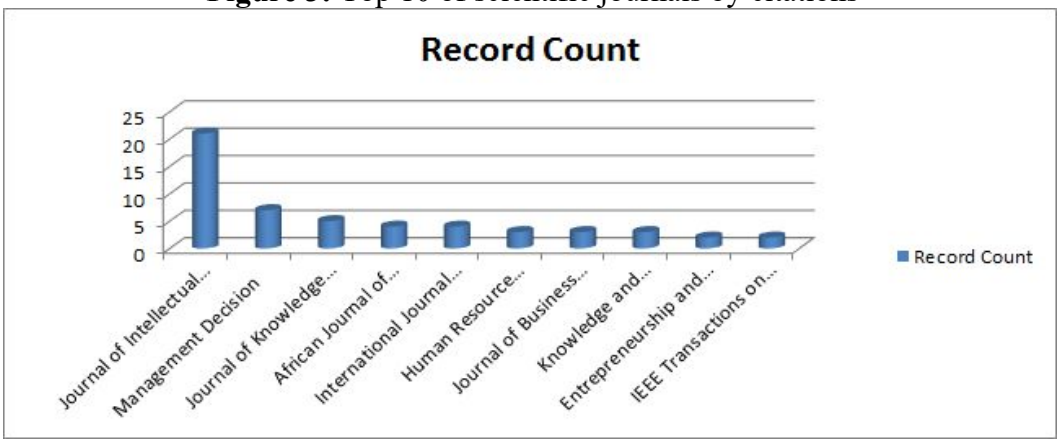
Ranking	Source Title	Record Count
1	Journal of Intellectual Capital	21
2	Management Decision	7
3	Journal of Knowledge Management	5
4	African Journal of Business Management	4
5	International Journal of Human Resource	4
6	Human Resource Management	3
7	Journal of Business Ethics	3
8	Knowledge and Process Management	3
9	Entrepreneurship and Regional Development	2
10	IEEE Transactions on Engineering Management	2

Source: Collaborated by the authors

In table 2, we demonstrated the top 10 scientific journals with the largest number of citations in the field of this paper research subject, and the "Journal of Intellectual Capital" the top referenced, which indicates the quality of this journal as a reference on this topic, followed by Management Decision, then Journal of Knowledge Management with the highest number of citations, this is logic because this kind of scientific journal focuses most on intellectual capital and intangible resources.

Below we include the graphic representation of the top ten scientific journals by citations. This indicates the credibility and reliability of these Journals.

Figure 3: Top 10 of scientific journals by citations



Source: Collaborated by the authors

Conclusion

The increased intensity of competition in the local and global markets emerged firms to think about tools to improve strategic performance, and to ensure continuity, survival, and entrepreneurship, these firms tended towards real capital and the most important competitive resource, which is intellectual capital, as a crucial resource to achieve economic growth. It was necessary to manage this vital resource by attracting and acquisition of human capital, developing and maintaining it because it is the only strategic resource that represents the main building block of the firm's intellectual capital. In addition to investing in it, to achieve the strategic goals of the firm. As previously discussed, the intellectual capital within the firm can significantly improve strategic performance through the distinctive combination of its components (Human capital, organizational capital, and customer capital), so it is vital to manage these components –especially human capital- towards achieving the firm' strategic goals. intellectual capital as a combination of three components (human capital,

organizational capital, and customer capital) on the strategic performance of the firm. we make clear that intellectual capital is a dynamic and interactive mix, whereby each component of intellectual capital can influence strategic performance directly and/or indirectly, also overall intellectual capital can affect strategic performance.

Measuring intellectual capital is one of the challenges facing managing this intangible strategic asset. It is difficult to manage immeasurably. Also is not easy to measure strategic performance, therefore, a measurement model must be developed to align the internal resources and privacy of each firm to achieve their strategic goals.

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