



DISCLOSURE ALONG ORGANIZATIONAL LIFE CYCLE: A BIBLIOMETRIC ANALYSIS

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Abstract

Purpose – This study presents a bibliometric review of the literature enfolding firm disclosure in the context of firm evolution. The aim is not only to document growth in the literature but also to report systematically the significance and implications of disclosure.

Design/methodology/approach – The authors have used appropriate keywords to trace relevant peer-reviewed research from the Web of Science database from 1986 to 2022. The study uses bibliographic coupling to screen 149 relevant research documents' titles, abstracts, keywords, frameworks and headings for analysis.

Findings – Bibliometric outcomes highlight leading authors and publication platforms. The study also provides evidence of collaboration between authors and the social structure of the examining field as well as unearths thematic contributions to literature.

Originality/value – This study offers a comprehensive overview of disclosure along organizational life cycle and provides directions for future research. The study contributes to business literature by outlining emerging research trends related to disclosure and facilitates future research.

Research limitations and implications – This study has only used Web of Science database as the core collection as it comes up with the most in-depth citations by source. Forthcoming research may include other databases and accommodate broader range of sources to expand its scope.

Keywords: Disclosure, Life Cycle, Bibliometric Review, Co-Occurrence Analysis

1. Introduction

Organizations need to improve disclosure quality in order to achieve transparency as a corporate governance element. Non-financial disclosure is a sort of transparency reporting through which organizations officially reveal facts not related to finances rather than environmental impact, community involvement activities and work-life balance (Medrado & Jackson, 2016). Whereas financial disclosure documents are meant to meet information needs of current and/or prospective investors and analysts (Loughran & McDonald, 2014). Quality of such financial and nonfinancial reporting is somehow triggered by intended corporate image. Such as, according to Landgraf and Riahi-Belkaoui (2003) reputation is an outcome of qualitative characteristics of firm disclosure. And as per the inputs of Luo and Zhou (2020) manipulation of qualitative financial disclosure is more feasible for managers as compared to quantitative financial disclosure. They concluded that words are more elastic in nature than numbers.

Life cycle is a multidisciplinary topic studied by researchers of several fields including biology (Dixon et al., 2015; Tsukuda & Watashi, 2020), sociology (Horowitz, 2017; Neugarten & Datan, 1973), 2020) and



environmental sciences (Hu et al., 2008; Lotteau et al., 2015). Organizational environment is dynamic by nature which evolves with the passage of time. To capture this evolution, life cycle theory is used to classify corporations into distinct phases. Bakarich et al. (2019) argued that changing internal and external environment along each phase of organizational life cycle (referred to as OLC in the text) contour underlying firm fundamentals as well as organizational strategy, which in turn motivates to opt for which information is delivered to investors and how.

Reviewing literature for the topics of disclosure or life cycle is not something new. Like, Luo and Zhou (2020) have recently reviewed literature to track textual tone in corporate disclosure. Previously, Habib and Hasan (2019) synthesized literature available on corporate life cycle and its implications in accounting, finance and corporate governance. But notwithstanding the valuable insights contributed by such studies, these literature surveys have failed to pay sole attention to disclosure quality along organizational life cycle stages.

In an attempt to capture the richness of literature on disclosure along OLC, we conducted a detailed and systematic literature review using a bibliometric approach. This method provides an organized platform to comprehend research patterns, thematic clusters and theoretical frameworks in any area of research (Burki et al., 2022). Bibliometrics offer us a platform to thoroughly explore the bulks of scientific data in order to derive certain information by arranging it into desired configurations. By doing this, tracked relationship patterns are accompanied by a byproduct of future research directions as well. This review is unique in terms of its research objectives and is provoked by following research questions:

1. What are the leading research trends and the noteworthy authors and countries?
2. Which are the most influential and commonly cited publications?
3. Which are the emerging research themes and leading theoretical frameworks?

This study contributes in several ways. Primarily, the outcomes are structured lists of leading journals, authors, collaborative networks, research organizations and countries. Furthermore, the study systematically review the chronological progression in the definition of our construct of interest. Progress charts are beneficial for researchers intend to contribute in disclosure research. The study not only explores but also highlights multiple dimensions of this interdisciplinary research area. Our findings demonstrate that a better understanding of the construct adds valuable inputs at micro (i-e authors, journals) as well as macro (i-e organizations, countries) level. Second the identified thematic clusters illustrate the intellectual niches and provide the interaction between strategic requirements and psychological responses therein. Furthermore, our study picked relevant theories applied by multiple researchers in order to enlighten upcoming research arena. Therefore, future explorations may incorporate these theoretical combinations in order to streamline forthcoming research investigations.

The rest of this research paper includes followings. In Section 2, we transcribe literature review and definitions of disclosure quality. Section 3 unfolds the research design, data collection procedure and analytical tools and techniques. Section 4 highlights the research trends including most frequently cited publications, leading journals, geographical regions, co-authorships, emerging research and theoretical clusters. Discussion about results while highlighting limitations and future research directions concludes the study in Section 5.

2. The Disclosure Concept

Since inception, organizations are required to report their strategies, processes and results to interested parties. The significance of such reporting to multiple stakeholders has aggravated the importance of firm disclosure overtime. The topic of corporate disclosure, or company disclosure, has been discussed in academic literature for several decades. The first study on this topic can be tracked back to the early 20th century. One of the earliest studies on corporate disclosure was conducted by Littleton in 1929, where he examined the disclosure practices of several US corporations. In 1950s and 1960s, studies by Anthony (1965) and others such as Horngren (1957), (Trumbull, 1953) and (Chetkovich, 1955) focused on the role of accounting information in corporate disclosure. In the 1970s and 1980s, studies by Watts and Zimmerman (1986), among others, looked at the determinants of corporate disclosure and the impact of disclosure on corporate



performance. Since then, many studies have been conducted on the topic of corporate disclosure in order to trace its antecedents and consequents.

For a principal construct, a parsimonious definition facilitates researchers to escape many research inconsistencies about construct design and analysis in order to an effective research (Burki et al., 2022). In view of this, Farvague et al. (2011) defined corporate disclosure as the flow of information from people inside a public organization to those who are outsiders. For management, disclosures are potentially significant means to communicate organizational performance and governance to current and potential investors (Healy & Palepu, 2001). This communication flow is often initiated on demand of stakeholders, including investors, creditors, analysts, regulators, employees, customers, and the general public. Such disclosure involves the voluntary and/or mandatory provision of information by firms about financial and non-financial activities of organizations (Van der Laan, 2009). García-Sánchez and Noguera-Gamez (2018) identified the underlying intention of such revelation as reducing information asymmetry and agency cost.

It was not until the late 1980s and early 2000s that scholars began to examine corporate disclosure along the company lifecycle. For instance, in 1986, Beatty and Ritter (1986) examined the differences in disclosure practices between initial public offerings (IPOs) and seasoned firms. Likewise, Dechow et al. (2012) unearthed variations in financial reporting quality throughout a firm's life cycle. These qualitative characteristics of reporting and/or disclosure including length or complexity and optimist or pessimist tone of disclosure are tools that organizations use not only to complicate and conceal but also to make certain information attractive (Rogers, 2008). Accordingly, Lang and Lundholm (1996) provided evidence that organizations with more disclosure policies had better analyst following. Likewise a study by Frankel et al. (1995) depicted a direct relationship between frequency of security issuance and frequency of providing forecasts relevant to anticipated earnings. This encourages active traders, i-e security sellers to enjoy an incentive of being well informed and provides an opportunity to channel same information to their prospective buyers. Here the main problem is not unwillingness of sellers to disclose information but the chance that sellers may be selective and biased while such reporting (Milgrom, 2008). Thus the concept of disclosure is far more complex than what it deems to be.

3. Research Methodology, Data Sources and Analysis Tools

Literature reviews include summarizing and evaluation of research outputs on some specific topic. It mostly provides a critical and comprehensive qualitative analysis of previously published literature on a specific research topic or question. Such review involves identifying, evaluating, and synthesizing relevant research articles, books, and other sources in order to gain a deep understanding of the current state of knowledge and research gaps related to the topic. (Tranfield et al., 2003) defined literature review as a comprehensive and systematic review of the literature that identifies, evaluates, and synthesizes the relevant research studies, theories, and concepts related to a particular research question or topic of interest. Literature review and bibliometric analysis are two distinct approaches for analyzing existing research literature. Bibliometric analysis, in contrast, is a quantitative technique (Van Eck & Waltman, 2007) which refers to the statistical analysis of bibliographic data that allows for the identification and measurement of patterns and trends of publication and citation, as well as the assessment of research productivity and impact" (Abramo et al., 2011; Bornmann & Leydesdorff, 2014). It is also a popular approach among researchers examining corporate disclosure/life cycle. For instance, quite recently Effah et al. (2023) have studied trends in the literature on corporate governance disclosure while using scopus database. Before this, Bhimavarapu et al. (2023) and Abdullah et al. (2017) assessed the progress of research publications for the disclosure of information in annual reports of organizations. Wafa et al. (2022) conducted systematic as well as bibliometric review of academic literature available on organization life cycle sustainability assessment (OLCSA) for university or higher education institutes all over the world.

In order to analyze academic literature quantitatively, the underlying study applied bibliometric techniques such as citation analysis, bibliographic coupling, co-occurrence/co-word analysis and co-authorship network analysis. Citation analysis measures the amount of times a research publication, source or the author is cited by other studies (Burki et al., 2022). Whereas, bibliographic coupling measures the



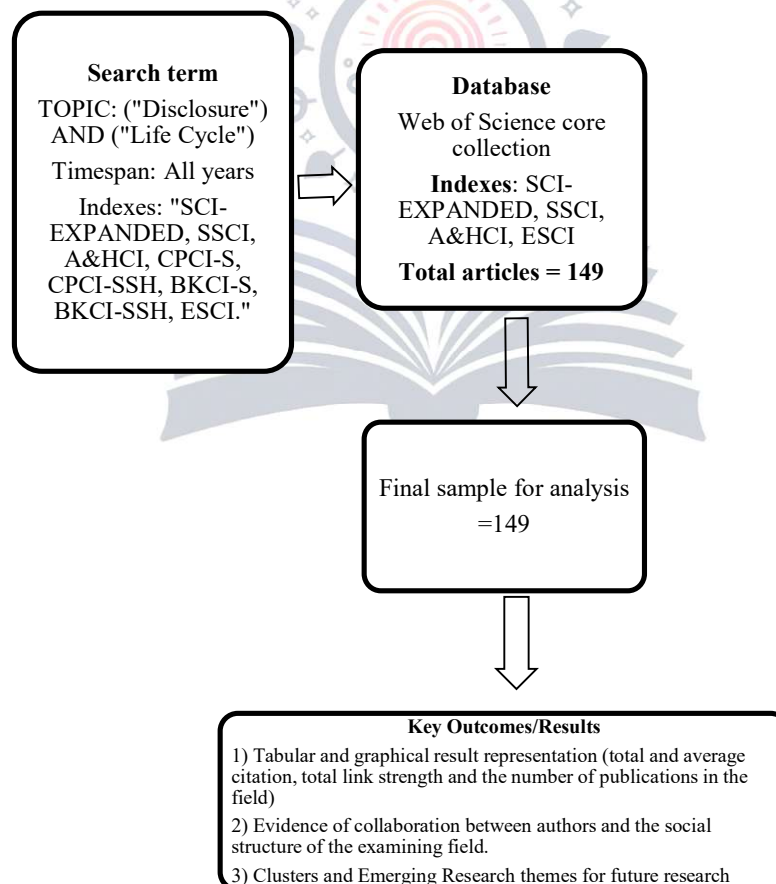
similarity between two or more academic documents based on the references they share (Perianes-Rodriguez et al., 2016). It helps to gain insights into the relationships between different areas of research, the influence of specific authors or papers, and the evolution of research over time. Bibliographic coupling generates tabular and graphical results. Co-occurrence or co-word analysis uses the real content of a manuscript and connects keywords located in research document's title, abstract and keywords list and provides outputs in the form of tables, graphs and clusters (Burki et al., 2022). Co-authorship network helps to identify collaborations between various authors in any examined field while providing the social structure therein. It also delivers both tabular and graphical output.

3.1. The Search Criteria

For the purpose of data collection; first we selected journals in order to gather research articles and citation data relevant to the subject. For the purpose we selected all of the journals listed with web of science so as to avoid subjectivity or bias and to access top ranked business journals only. Hence the basic unit of analysis was research article. As the aim of the study was to explore research studies about disclosure in OLC stages so we used the key terms disclosure as primary topic and life cycle as the secondary topic in next step. Then we selected "All years" in the time span field. This generated 149 results since beginning to March 30, 2022. Later we exported these records into a plain text file with full record and cited references. This proved as an input to the software used in order to generate multiple bibliometric outputs. Figure 1 describes the search criteria and research process followed for Bibliometric analysis.

Figure 1

Flow Chart of Research Process





Note. Modified from Burki et al. (2022).

3.2. Visualization Software

We used visualization of similarity viewer (VOSviewer) software for the purpose of analyzing our data set. Its user friendly features allowed us to map networks of leading authors, journals, organizations and countries. Network connection as appears in VOSviewer visualizes the keywords repeated more often in the same research work and enhances precision with reduced subjectivity Zupic and Cater (2015). In contrast to other software programs, VOSviewer focuses more and better on the graphical representation of bibliometric maps (Van Eck & Waltman, 2010).

4. Results

For business organizations, globalization has increased corporate environmental complexity and made their orientation more international. Abundance of unforeseen investment opportunities in capital markets is resulted in information overload for investors (Schuster & O'Connell, 2006). Investors desire to remain well informed urges organizations to disclose relevant information. This has also influenced competitiveness among firms (Diamond & Verrecchia, 1991). This further extends firm vs industry debate and gives rise to the question, "Does industry life cycle stage matter?" (Karniouchina et al., 2013). The results of our study elaborated ahead have deeply dug into literature encompassing all these dimensions.

4.1. The Leading Journals

By utilizing a citation analysis algorithm, the researchers classified prominent scholarly journals based on their publication of the highest quantity of research papers and the greatest number of citations (TC), as well as their average citations and overall link strength. Similar to Burki et al. (2022), the total link strength in this context also represents the combined influence of co-authorship connections that a researcher shares with others. The Journal of Cleaner Production published eight articles with a link strength of two. Business Strategy and the Environment is the next journal with six published articles and a link strength of one. The next journal is Sustainability with six publications and zero link strength followed by Journal of Contemporary Accounting & economics with two articles and zero link strength. Following table encloses the list of journals along with their respective published documents, total citations (TC), average citations and total link strength (TLS).

Table 1

Leading Journals

Journals	Articles	TC*	Avg. Citations	TLS*
Journal of Cleaner Production	8	177	22.13	2
Business Strategy and the Environment	6	65	10.83	1
Sustainability	6	49	8.17	0
Journal of Contemporary Accounting & economics	2	84	42.00	0
Journal of Industrial Ecology	2	38	19.00	0
Corporate Social Responsibility and Environmental Management	2	0	0	1
Energy Efficiency	2	84	42.00	0
Energy Policy	2	41	20.50	0
Contabilidade Gestao e Governanca	2	1	0.50	0
International Journal of Life Cycle Assessment	2	34	17.00	0
Research Policy	2	37	18.50	0

Note. *TC = Total citation; *TLS = Total Link Strength.

4.2. Leading Organizations

The authors identified the most influential research institutions in this research field by selecting organization as the unit of analysis through the citation analysis algorithm. As a threshold criteria we set two publications per organization. Out of 285 institutes, 30 met the threshold. Table II lists down the top eleven research organizations arranged in ascending order as per their total citations (TC) along with their average citations and total link strength (TLS). Curtin University, Katholieke Universiteit Leuven, Massey University,



University of Canterbury and Prognos Ag economic research centre are the top five leading research institutes in terms of total citations in our field of interest.

Table 2

Top Contributing Organizations

Organizations/Institutions	Publications	TC*	Avg. Citations	TLS*
Curtin University (Australia)	3	87	29	12
Katholieke Universiteit Leuven (Belgium)	3	70	23.33	2
Massey University (New Zealand)	2	66	33	7
University of Canterbury (New Zealand)	2	57	28.5	2
Prognos Ag	2	39	19.5	1
The City University of New York	2	35	17.5	5
University of St. Gallen (Switzerland)	2	33	16.5	1
American University of Sharjah	2	11	5.5	7
King Fahd University of Petroleum and Minerals Requirements (KSA)	2	11	5.5	7
University of Wollongong	2	3	1.5	1
Macquarie University (Australia)	2	2	1	1

Note. *TC = Total citation; *TLS = Total Link Strength.

4.3. Geographical Dispersion

In order to study geographical dispersion, we used country as the unit of analysis while applying citation analysis. As a minimum threshold we set five publications per country. Out of the forty eight countries, fifteen met the predefined benchmark. Based on the number of publications and total link strength (TLS), Table III replicates the contribution made by individual countries in descending order. USA being the top has a contribution of forty six research publications and a total link strength (TLS) of seven. Australia being top second has seventeen publications our field of interest with a TLS of ten. While China remains third with a contribution of thirteen research documents and zero TLS.

Table 3

Geographical Dispersion

Country	Publications	TC*	Avg. Citation	TLS*
USA	46	1273	27.67	7
Australia	17	242	14.24	10
China	13	258	19.85	0
England	10	160	16	1
Switzerland	9	145	16.11	6
Italy	7	22	3.14	0
Canada	6	234	39	1
France	6	126	21	1
Germany	6	178	29.67	4
Belgium	5	81	16.20	2
Brazil	5	2	0.40	0
New Zealand	5	123	24.60	8
Spain	5	3	0.60	0
Sweden	5	74	14.80	0
Taiwan	5	55	11	0

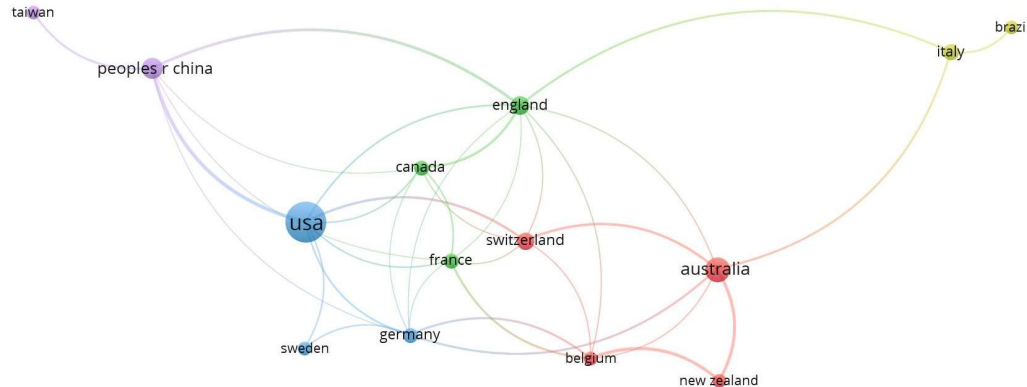
Note. *TC = Total citation; *TLS = Total Link Strength.



4.4. Co-authorship Network

Figure 2

The Co-authorship Network



4.5. Top Cited Publications

The top cited publication according to web of science in our field of study is by Milgrom (2008) with 73 citations. This study focuses on the role of persuasion and disclosure in markets. Milgrom, a renowned economist, discusses how sellers influence buyers through persuasion techniques and the impact of disclosure on market dynamics. The author explores the ethical dimensions of information asymmetry between sellers and buyers, as well as the consequences of this asymmetry for market outcomes. For the purpose he uses the theory of

Table 4

Top Cited Publications

Title	Author(s)	Citations
Life Cycle Cost Disclosure, Consumer Behavior, and Business Implications	Deutsch (2010b)	32
Using Life Cycle Approaches to Enhance the Value of Corporate Environmental Disclosures	Kaenzig et al. (2011)	26
Does a Firm's Life Cycle Explain Its Propensity to Engage in Corporate Tax Avoidance?	Hasan et al. (2017)	21
Corporate life cycle research in accounting, finance and corporate governance: A survey, and directions for future research	Habib and Hasan (2019)	12
Different time, different tone: Company life cycle	Bakarić et al. (2019)	8
The effect of life-cycle cost disclosure on consumer behavior: evidence from a field experiment with cooling appliances	Deutsch (2010a)	7
Environmental, social and governance disclosure and default risk	Atif and Ali (2021)	2

4.6. Co-word Analysis of Author Keywords

In the context of corporate disclosure, we undertook an examination of keywords employed by authors in studies based on our bibliographic dataset, utilizing VOS viewer to identify the most recurrently appearing keywords and their corresponding total link strengths. A threshold of at least three (3) occurrences was set for keyword inclusion, resulting in the identification of 16 keywords out of a total of 662. Leading this array is the term "Corporate Governance," which not only occurs five times but also possesses a total link strength of five. "Corporate social responsibility" and "corporate life cycle" both manifested five occurrences each; however, their link strengths diverge, with the former bearing a link strength of 4 and the latter, 3. This



highlights them as the most extensively studied concepts alongside corporate governance within the context of corporate disclosure.

Figure 3

Network Diagram of Co-occurrence of Author Keywords

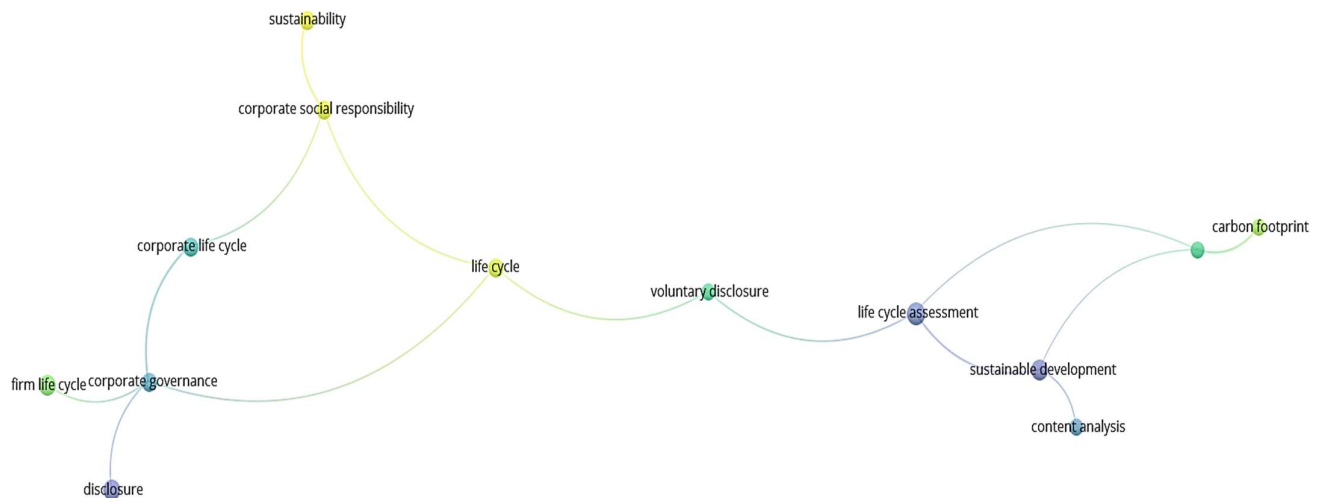


Plate 2 showcases a visual representation of the co-occurrence of author keywords in a network format. In VOS viewer, significant keywords or elements are denoted by labels within circles, with colors indicating their respective clusters. The color of a circle represents the cluster to which item belongs. Lines between these determine links and the thickness of lines depicts connection quality or link strength. "Disclosure" and "voluntary disclosure" are connected to other ideas with lines of varying thickness. How close or distant these ideas are to each other shows how related they are.

4.7. Co-word Analysis, Thematic Clusters

While using co-occurrences with author keywords in VOS viewer, we performed the cluster analysis in an attempt to identify thematic clusters so as to track recent research trends. Two clusters were identified, later organized in Table V. The thesis clusters "Cluster 1 (Mandatory disclosure)" and "Cluster 2 (Non-mandatory disclosure)" represent two distinct forms of disclosure practices organizations use. At one side, mandatory disclosure includes information organizations are legally bound to reveal before public, such as financial statements and information about environmental impacts (Seligman, 1983). On the other side, non-mandatory disclosure comprises information organizations opt to reveal before public, such as information about their corporate social responsibility (CSR) practices or sustainability initiatives. Such disclosure is not stipulated as a regulatory requirement (Cooke, 1989).

Table V highlights some of the most common topics that are discussed in the context of mandatory and non-mandatory disclosure practices. For instance, sustainable development, corporate governance, and corporate social responsibility are the most common variables of interest for researchers studying mandatory disclosure practices. Interestingly, these topics are increasingly being covered in non-mandatory disclosure practices too, as organizations tend to demonstrate higher commitment to sustainability and responsible business practices.

Moreover, from cluster two, the items or variables named Life cycle assessment and firm life cycle occurred maximum number of times. Life cycle assessment (LCA) is a technique to assess environmental impacts of different products or services throughout their complete life cycle, from the extraction of raw material through its end-of-life disposal (Guinée et al., 2011). LCA is a part of mandatory disclosure practice in some countries, but organizations are increasingly opting it voluntarily as a way to improve their



environmental performance. In contrast, firm life cycle and corporate life cycle are terms that demonstrate multiple stages organizations move along during life-long journey of development and growth (Yan & Zhao, 2009). Here firm life cycle is a broader term that can refer to any type of organization, while corporate life cycle is rather specific to the development and growth of a corporation. As the information relevant to an organization varies based on its stage of development, both firm life cycle and corporate life cycle are equally important factors to consider while developing disclosure practices.

Energy efficiency is another topic that is increasingly being covered in both mandatory and nonmandatory disclosure practices. Energy efficiency is vital for environmental sustainability, as it can help to lessen greenhouse gas emissions and preserve natural resources (Khan et al., 2022). Its assistance in reducing operating costs proves it as more important for economic sustainability.

Table 5

Thematic Clusters

Cluster 1 (Mandatory disclosure)	Cluster 2 (Non-mandatory disclosure)
sustainable development (6)	life cycle assessment (9)
corporate governance (5)	firm life cycle (7)
corporate social responsibility (5)	corporate life cycle (5)
sustainability (4)	voluntary disclosure (3)
energy efficiency (4)	

Rather than sticking to a single aspect only, researchers can further work on multidimensional possibilities including mandatory and non-mandatory both aspects of disclosure at the same time.

5. Conclusion and Limitations

5.1. Conclusions

Organizations contour their strategic policies in response to the respective life cycle phases they are going through. A glimpse of such strategic policy is automatically demonstrated in disclosures of any firm. Disclosures whether compulsory or voluntary both help stakeholders to visualize current and anticipated corporate position. Our review highlights that disclosures are an integral consequent to firm evolution. They help the key players to switch firm to next or even prolong its desired life cycle phase.

By using bibliographic coupling, our study enlists the leading authors, organizations and countries studying corporate disclosure along OLC phases. A study about seller's selective information disclosure by Milgrom (2008) captured the maximum citations. The research work conducted by Curtin University (Australia) was cited the most. United States of America, Australia and China produced highest number of publications and remained top three most productive countries.

While conducting co-authorship network analysis five clusters appeared. And by using author keywords in co-word analysis corporate governance, corporate social responsibility and corporate life cycle emerged as the top three keywords. This shows a close link between firm evolution and strategic policy structure. Based on the keywords, we extracted two thematic clusters including mandatory disclosure and non-mandatory disclosure. Every single corporate disclosure study touched any of these themes.

Our analysis highlighted the growing pressure faced by organizations to adapt disclosure related decisions in order to achieve and/or retain desired life cycle position. Abundance of information is sometimes a blessing in disguise for investors making them skeptical as a result. For this reason, instruments like Directive/2014/95/EU not only officially instruct but their implementation is also made sure by the issuing authorities. Such triggers require both compulsory and voluntary disclosure patterns to be carefully designed especially in an arena where firms keep on appearing and disappearing on regular basis. Therefore, disclosure pattern adaptability is the only key to surviving as the fittest ever evolving organizational life cycle. Qualitative characteristics of disclosure quality such as tone, sentiment and complexity are the key determinants for performance analysts. Current literature has given moderate attention to the economic consequences of disclosure quality. Nevertheless, academic research has rarely considered these concepts while taking into account firm evolution. This provides enough room for future research to explore consequents of word choice along varying OLC phases.



5.2. Research Contributions

This review contributes to disclosure related literature in multiple ways. First, the underlying study unearths the critical role of disclosure while firm evolution takes place. It identifies the growing focus on multiple aspects of firm disclosure. It undermines the formulation of reporting strategies in order to manipulate multiple stakeholders. Further, our study offers a clear visualization of firm disclosure under different dimensions. Second, our results highlight research productivity of individuals, institutions, or countries while measuring the impact of their research publications. It not only discovers areas of emerging interest but also compares research productivity, impact, and collaboration between different entities. Finally, our two thematic clusters offer practitioners, top level management and researchers' valuable insights to critically comprehend multiple aspects for improved disclosure quality. Our clusters cover maximum possible dimensions of firm disclosure. Previous studies failed to collect, compare and report disclosures in the context of firm evolution. Our findings filled this gap to some extent. Consequently, academic researchers can add more valuable insights while using other bibliographic databases.

5.3. Limitations

The study acknowledges some limitations in its approach. For instance, it focused solely on the Web of Science database. Including other academic databases could enhance the findings. Additionally, this study doesn't intend to track research methods and contexts of the chosen sample, which narrows down its scope.

Author Contributions

All authors participated in ideation, development, and writing the manuscript. All authors read and approved the final manuscript.

Conflict of Interest Statement

The authors declare that there is no conflict of interest regarding the publication of this article.

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Informed Consent

Informed consent was obtained from all participants prior to data collection. Participants were informed about the purpose of the study, the voluntary nature of their participation, and their right to withdraw at any time without any consequences. The confidentiality and anonymity of respondents were guaranteed throughout the research process.

Data Availability

The datasets generated and analysed during the current study are available from the corresponding author upon reasonable request. The authors are committed to transparency and will provide detailed methodological information and analysis protocols upon request.

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