

Content list available at [ICONS MAT](https://www.iconsmat.com.au)

## Journal of Construction Materials

Journal homepage: [www.iconsmat.com.au/publication](https://www.iconsmat.com.au/publication)

Article history:

Received 27 January 2021

Received in revised form

4 February 2021

Accepted 6 February 2021

Available online

2 April 2021

## Corporate social responsibility and corporate reputation: A bibliometric analysis

Songdi Li<sup>1</sup>, Louise Spry<sup>2</sup>, Tony Woodall<sup>2</sup>

<sup>1</sup>Department of Management, Nottingham Business School, Nottingham Trent University, Nottingham, United Kingdom, E: [songdi.li@ntu.ac.uk](mailto:songdi.li@ntu.ac.uk)

<sup>2</sup>Marketing Department, Nottingham Business School, Nottingham Trent University, Nottingham, United Kingdom, E: [louise.spryl@ntu.ac.uk](mailto:louise.spryl@ntu.ac.uk), E: [tony.woodall@ntu.ac.uk](mailto:tony.woodall@ntu.ac.uk)

### Abstract

Nowadays, Corporate Social responsibility (CSR) is becoming a buzz word, and more and more academics are putting efforts on CSR studies. It is believed that CSR could influence Corporate Reputation (CR), and they hold a favourable view that CSR leads to a positive CR. To be specific, the CSR related activities in the reputational context have been regarded as ways that associate to excellent financial performance, value creation, etc. Also, it is argued that CSR and CR are two sides of one coin; hence, to some extent, doing CSR is equal to establishing a good reputation. Still, there is no consensus of the CSR-CR relationship in the literature; thus, a systematic literature review is highly in need. This research conducts a systematic literature review with both bibliometric and content analysis. Data are selected from English language sources, and academic journal articles only, then, keyword combinations are applied to identify relevant sources. Data from Scopus and WoS are gathered for bibliometric analysis. In terms of the topic of CSR-CR, this literature review with bibliometric analysis has made four achievements. First, this paper has developed a systematic study which quantitatively depicts the knowledge structure of CSR and CR by identifying terms closely related to CSR-CR (such as 'corporate governance') and clustering subtopics emerged in co-citation analysis. Second, content analysis is performed to acquire insight on the findings of bibliometric analysis in the discussion section. And it highlights some insightful implications for the future research agenda, for example, a psychological link between CSR-CR is identified from the result; also, emerging economies and qualitative research methods are new elements emerged in the CSR-CR big picture. Third, a multidisciplinary perspective presents through the whole bibliometric analysis mapping and co-word and co-citation analysis; hence, this work builds a structure of interdisciplinary perspective which potentially leads to an integrated conceptual framework in the future. Finally, Scopus and WoS are compared and contrasted in this paper; as a result, Scopus which has more depth and comprehensive data is suggested as a tool for future bibliometric analysis studies. Overall, this paper has fulfilled its initial purposes and contributed to the literature.

DOI: [10.36756/JCM.v2.3.2](https://doi.org/10.36756/JCM.v2.3.2) ©2021 Institute of Construction Materials

### Keywords

Corporate social responsibility; Corporate reputation; Bibliometric analysis; Software data analysis.

## Introduction

CR reflects all that stakeholders think and feel about a company, and many scholars [5], [28] believe that CSR influences this positively. Significantly, both positive and negative CR is built on stakeholders' evaluations, assessments, perceptions, and judgments of organisational activities from the past [14] and are used to predict organisational behaviours that might be expected in the future [30]. CSR-related activities in the reputational context are believed to influence financial performance, risk management and brand image [10], [31]. Stakeholder and legitimacy theories underpin the CSR-CR connection [13] and industry sector interests are identified as critical elements affecting CSR practice [44]. However, there is limited research that provides for a holistic view of the CSR-CR relationship, and further investigation is required [46], [26]. Via bibliometric analysis, this paper offers a comprehensive perspective on the extant CSR-CR body of knowledge and, in the process, identifies influencing factors of CSR-CR (e.g. geographic aspect) and topics relevant to it (e.g. business ethics).

## Software tools

There are three main software programmes that facilitate bibliometric analysis and mapping: Bibexcel, VOSviewer, and Gephi [12]. First, Bibexcel is useful because it can read RIS files from Scopus and TXT files from WoS. Further, its network files are compatible with other visualisation tools including VOSviewer and Gephi, but also Pajek, Excel, and others too [32]. Bibexcel is, therefore, ideal for processing referencing metadata and in identifying bibliographic relationships.

Second, VOSviewer can be used to create visualization maps (network and density maps) using original data extracted from Scopus and WoS, and can also convert co-occurrence network files exported from Bibexcel into a network map [45]. Nodes of the network can be clustered according to edge densities, as articles in the same cluster are correlated and likely to share a common research area or subject [23]. Data clustering aims at conjoining sets of items possessing common characteristics [34].

Third, Gephi can calculate PageRank indices that evidence article ubiquity/impact by assessing the number of times it is cited by other highly cited articles [7]. Gephi can also run modularity values identifying the density of links in a cluster [4] and thus allows for the identification, prioritisation and importance of citations encountered in the cluster lists.

## Research methodology

The research method used for this analysis is derived from [40] but is refined to accommodate the specifics of this project. This requires the researcher to specify the pertinent search fields, an initial search strategy and data collection techniques. For this current project, scholarly sources are collected from the WoS, Scopus and EBSCO databases. EBSCO is selected as it includes a business-focused database (Business Source Complete) which is especially relevant to the topic to hand. Scopus and WoS databases are essential for bibliometric analysis as only these allow for the exporting of citation information for further software processing.

**Table 1 - Keyword combination applied for search**

Keyword combination applied for search
'Corporate Social Responsibility (CSR)' AND 'Corporate Reputation (CR)' OR 'prestige'
'Corporate Social Performance (CSP)' AND 'Corporate Reputation (CR)' OR 'prestige'
'Triple bottom line' AND 'Corporate Reputation (CR)' OR 'prestige'

'Social responsibility' AND 'Corporate Reputation (CR)' OR 'prestige'
'Accountability' AND 'Corporate Reputation (CR)' OR 'prestige'
'Pyramid of CSR' AND 'Corporate Reputation (CR)' OR 'prestige'
'Sustainability' AND 'Corporate Reputation (CR)' OR 'prestige'
'Citizenship' AND 'Corporate Reputation (CR)' OR 'prestige'

This research project combines a systematic literature review with both bibliometric and content analysis. Using English language sources only and filtering survey academic journals, keyword combinations (Table I) were then used to identify relevant sources. After removing duplications, 1162 and 287 pertinent sources were located from Scopus and WoS respectively, whilst 125 sources were extracted from EBSCO. Data from Scopus and WoS are gathered for bibliometric analysis, while EBSCO data are collected for content analysis. Scopus data - including abstract, author, date and reference information - were saved as both RIS and CSV formats. WoS data were saved in TXT format CSV formats because only these can be imported into Bibexcel for generating files that can be visualised by VOSviewer, and Gephi.

## Results and discussion

The following subsections identify key thematic categories of interest arising from the analysis. These represent core outputs for bibliometric co-word and co-citation analysis and are summarised in Table II in the Appendix. This section is split into two parts, one is 'Factors influencing the CSR-CR relationship found via bibliometric analysis' such as geographic aspects, methodology and industry sector. The other part is 'CSR-CR related topics emerging from bibliometric analysis' which includes subtopics like stakeholder theory and emerging theories of interest, CSR reputational risk management, CSR reputational building and Business ethics.

### ***A. Geographic aspects, methodology and industry sector***

In the co-word analysis, China, Spain, India, Germany, United States, United Kingdom and Europe occur more frequently than other countries. The co-word maps though, show that research in Western countries pre-dates, and are relatively more mature than research associated with Asian countries. However, studies from China and India are increasing in number and sophistication, with both CSR and CR now clearly emerging as issues of interest and thus signposting the potential for further research.

Articles debating the most suitable methods for research have emerged in the last few years but only a few papers concerning methodology design are co-cited by high citation authors (e.g. [3], [16], [33]). Primarily, these concern the best means for conducting statistical analysis, which is not surprising given that most papers associating CSR and CR adopt quantitative methods. Qualitative research in the field is relatively sparse, and [26] has recently called for research that surfaces underlying criteria including feelings, emotions, values, and expectations. Further, industry sector is singled out as a determinant of how CSR and CR might interrelate. The CSR-CR relationship is contextually related to the perceptions of industry-specific stakeholders, and the nature of a firm's product and its market will affect these evaluations [43]. The market environment in which an organisation, operates, therefore, will be a consideration for organisational decision makers [6].

### ***B. Stakeholder theory and emerging theories of interest***

Stakeholder theory has been used to explain the connection between CSR and CR. Identifying key stakeholders allows an organisation to establish its internal and external legitimacy and manage its reputational risks regarding critical stakeholders. Also, stakeholders' positive or negative perceptions

of CSR/CSP activities determine their evaluation of the CR. Therefore, an organisation should apply its CSR activities strategically in order to satisfy and reflect the key interests of its key stakeholders.

Stakeholder theory helps explicate the overlapping relationship between CSR and CR [1], [27], [20]. Although stakeholder theory and other well-established theories such as political theory, institutional theory and legitimacy theory emerge as key domain theories discovered via bibliometric analysis, others of importance also surfaced. These include expectancy theory [26], supply chain theory [24], and values theory [39], and offer the potential for guiding further/future research in to the CSR-CR relationship. For example, from a psychological perspective, stakeholders' values can be seen to influence both evaluation of, and behaviour towards, the organisation [8]. Also, to a large degree, [39] claims that personal values dictate the extent to which both internal and external stakeholders perceive CSR activities, and also the way these perceptions establish CR.

### ***C. CSR reputational risk management***

From an economic and management perspective, reputational risk comprises the risk that a) any CSR-related shortcomings will cause a deterioration in key stakeholder perceptions of the organisation. b) Stakeholder behaviour might change as a result of damaged reputation. c) CR loss will convert into financial loss, caused by that perceived deterioration of CSR [18]. In this case, Corporate Social Performance (analogous to CSR) is identified as an arbiter of risk management: the higher the CSP, the lower the financial risk [3], [29]. Reference [15] claims that stakeholders' perceptions of CSR initiatives can be either a benefit or a threat to the organisation, and hence both identifying and targeting key stakeholders with a view to understanding their demands and expectations, is the way to manage and mitigate potential reputational capital loss. Stakeholder reputational perceptions are therefore potential predictors of corporate financial performance [17].

### ***D. CSR Reputation Building***

The CSR–CR relationship emerges clearly as a marketing issue. It is suggested that only when CSR is established as an aspect of corporate identity, developed from a corporate culture where ethical values are seen as core organising principles, that a positive, externally perceived CR will emerge [41], [2]. To be specific, since values are regarded as core of personal identity [22], they are influencing organisational identity, which is the collection of personal identities. Also, stakeholders' values affect the corporate identity [37]. That is, corporate identity is not only based on core values of the organisation determined by the top management, but also affect and be affected by its stakeholders' ethical values [11].

### ***E. Business Ethics***

The term 'Business ethics' appears in visualisation maps generated from both databases, and is strongly connected with CSR, CR, stakeholders, and corporate governance. Subsequent content analysis reveals that business ethics is interrelated with corporate governance from a political standpoint, and when taking account of the effects of stakeholders and values, a bi-directional relationship is implied between business ethics and corporate governance. References [36] and [19] illustrate the role played by business ethics in establishing policy and practice for corporate governance. Personal values are identified as very important in explaining relevant relationships. Reference [25], for example, claims a largely interrelated/interdependent relationship between CSR, ethics, and values. Ethics, also defined as a value judgment, are viewed as ascribing value to actions, or to evaluating/determining if associated action is right or wrong [42], [35]. According to [25], business ethics is a moral representation of individuals and their actions in conducting business and are also a reflection of business activities in the international area. Societal values influence the nature/extent of ethical responsibility that an organisation has and help determine how an organisation perceives the role of CSR. Conversely, corporate ethical/unethical actions impact how individuals in society understand and perceive CSR [9].

## **Conclusion remarks and direction for future research**

Four points arise from taking a qualitative overview of the bibliometric analysis. Firstly, the literature suggests that both CSR and CR are multi-dimensional; suggesting stakeholders in different groups may interpret different aspects of CSR and impact of CR in various ways [21]. Second, the various opinions that apply to the relationship between CSR and CR mean that there is no real consensus as to how this relationship works. It is seen as bidirectional, mutually influencing and overlapping. Third, considering the significance of individual sense in the interpretation of business ethics and CSR-related reputation building, and also their close association with stakeholder theory, concepts related to human values appear to represent a fruitful direction for future research. Fourth, research thus far has focused primarily on quantitative methods, meaning we know much about how the CSR-CR relationship works, but far less about why. As a general conclusion, therefore, this paper proposes that future research into the CSR-CR relationship should veer from the cognitive and focus more on how we can establish a richer understanding of stakeholder perceptions, decisions and behaviours. By applying stakeholder theory and values theory in tandem, and by employing a qualitative methodology, a more nuanced understanding may emerge. Finally, it is clear that we need to understand more about how ethical values apply in emerging economies, and further research should therefore focus in such areas.

## **Acknowledgement**

To the author's best knowledge, this paper conducted the first literature review of CSR-CR researches that applied both bibliometric analysis and content analysis; therefore, this paper achieves its methodological originality. And this dual approach brings advantages of carrying out a comprehensive and semantic exploration in the area of CSR-CR in a scientific and realistic method. Admittedly, its work might exist subjective bias in terms of search terms selection and paper selection; hence triangulation could reduce the subjective bias to some degree.

## Appendix

Table 2 - Core outputs for bibliometric co-word and co-citation analysis

Category	Gap	Research direction
Theoretical framework	CSR and CR both emphasised their multidimensional feature without further exploration	Exploring how different dimensions of CSR have different impact on CR, vice versa
Geographic aspects	Western countries have more advanced studies on CSR-CR than eastern countries. CSR-CR starts gaining more interest in developing countries like China and India	Giving more attention to Scholars in emerging economics
Methodology and research method	Dominated by quantitative methodology, lacking qualitative research. Research method focus on survey and using content analysis	Interview and case study should be used in conduct qualitative interview to obtain insight view of stakeholders
Industry sector	The importance of industry effect on CSR-CR but few works discussed from this point	Extending research focus into a wider range of product and service contexts
Stakeholder theory and emerging theories of interest	Lacking holistic view of stakeholder's significance. And limited to stakeholder theory, institutional, and legitimacy theory	Stakeholder's perception, expectation, and personal values are affected by CSR and influencing the CR. Giving attention to newly emerging theories such as expectation theory, values theory, and supply chain theory
CSR Reputational risk management	Stakeholders' perceptions and behaviors provide both opportunities and threats to an organisation's reputation capital	Understanding stakeholders' values can be a method to predict their CSR perceptions and evaluations on CR
CSR Reputation building	Looking at CSR-CR from reputation building block: corporate identity, corporate culture, corporate image and corporate reputation	CSR values are playing important roles within the individual and organisational identity which in turn influence CSR reputation building
Business ethics	A strong link between business ethics and corporate governance	Exploring personal values as the root of organisation taking ethical responsibility, perceived CSR reputation and how these affect corporate governance

## References

- [1] Baldarelli, M. and Gigli, S., 2014. Exploring the drivers of corporate reputation integrated with a corporate responsibility perspective: some reflections in theory and in praxis. *Journal of Management & Governance*, 18 (2), 589-613.
- [2] Balica, M. and Lonescu, S., 2018. Perception of the Organizations Reputation. *FAIMA Business & Management Journal*, 6(4), pp.42-54.
- [3] Baron, R.M. and Kenny, D.A., 1986. The moderator–mediator variable distinction in social psychological research: Conceptual, strategic, and statistical considerations. *Journal of Personality and Social Psychology*, 51 (6), 1173.
- [4] Blondel, V.D., Guillaume, J.L., Lambiotte, R. and Lefebvre, E., 2008. Fast unfolding of communities in large networks. *Journal of statistical mechanics: theory and experiment*, 2008(10), p.P10008.
- [5] Brammer, S.J. and Pavelin, S., 2004. Building a good reputation. *European Management Journal*, 22(6), pp.704-713.
- [6] Brammer, S.J. and Pavelin, S., 2006. Corporate reputation and social performance: The importance of fit. *Journal of management studies*, 43(3), pp.435-455.
- [7] Brin, S. and Page, L., 1998. The anatomy of a large-scale hypertextual web search engine. *Computer Networks and ISDN Systems*, 30 (1-7), 107-117.
- [8] Brown, T.J. and Dacin, P.A., 1997. The company and the product: Corporate associations and consumer product responses. *The Journal of Marketing*, 61, 68-84.
- [9] Carroll, A.B., 1979. A three-dimensional conceptual model of corporate performance. *Academy of Management Review*, 4 (4), 497-505.
- [10] De Quevedo-Puente, E., De La Fuente-Sabaté, Juan Manuel and Delgado-García, J.B., 2007. Corporate social performance and corporate reputation: Two interwoven perspectives. *Corporate Reputation Review*, 10 (1), 60-72.
- [11] Dowling, G.R. and Otubnsjo, T., 2011. Corporate and organizational identity: Two sides of the same coin. *AMS review*, 1(3-4), pp.171-182.
- [12] Feng, Y., Zhu, Q. and Lai, K.H., 2017. Corporate social responsibility for supply chain management: A literature review and bibliometric analysis. *Journal of Cleaner Production*, 158, pp.296-307.
- [13] Fernando, S. and Lawrence, S., 2014. A theoretical framework for CSR practices: integrating legitimacy theory, stakeholder theory and institutional theory. *Journal of Theoretical Accounting Research*, 10(1), pp.149-178.
- [14] Fombrun, C.J. and Van Riel, C.B., 1997. The reputational landscape. *Corporate Reputation Review*, 1 (2), 5-13.
- [15] Fombrun, C.J., Gardberg, N.A. and BARNETT, M.L., 2000. Opportunity platforms and safety nets: Corporate citizenship and reputational risk. *Business and Society Review*, 105 (1), 85-106.
- [16] Fornell, C. and Larcker, D.F., 1981. Evaluating structural equation models with unobservable variables and measurement error. *Journal of Marketing Research*, 18, 39-50.
- [17] Garcia-Castro, R., Ariño, M.A. and Canela, M.A., 2010. Does social performance really lead to financial performance? Accounting for endogeneity. *Journal of Business Ethics*, 92 (1), 107-126.
- [18] Gatzert, N., 2015. The impact of corporate reputation and reputation damaging events on financial performance: Empirical evidence from the literature. *European Management Journal*, 33 (6), 485-499.
- [19] Goodpaster, K.E., 1991. Business ethics and stakeholder analysis. *Business Ethics Quarterly*, 1, 53-73.
- [20] Hillenbrand, C. and Money, K., 2007. Corporate responsibility and corporate reputation: Two separate concepts or two sides of the same coin? *Corporate Reputation Review*, 10 (4), 261-277.
- [21] Hillman, A.J. and Keim, G.D., 2001. Shareholder value, stakeholder management, and social issues: what's the bottom line? *Strategic management journal*, 22(2), pp.125-139.

- [22] Hitlin, S., 2003. Values as the core of personal identity: Drawing links between two theories of self. *Social psychology quarterly*, 66(2), p.118.
- [23] Hjørland, B., 2013. Citation analysis: A social and dynamic approach to knowledge organization. *Information Processing & Management*, 49 (6), 1313-1325.
- [24] Hoejmose, S.U., Roehrich, J.K. and Grosvold, J., 2014. Is doing more doing better? The relationship between responsible supply chain management and corporate reputation. *Industrial Marketing Management*, 43(1), pp.77-90.
- [25] Joyner, B.E., Payne, D. and Raiborn, C.A., 2002. Building values, business ethics and corporate social responsibility into the developing organization. *Journal of Developmental Entrepreneurship*, 7 (1), 113.
- [26] Lin-Hi, N. and Blumberg, I., 2018. The link between (not) practicing CSR and corporate reputation: Psychological foundations and managerial implications. *Journal of Business Ethics*, 150 (1), 185-198.
- [27] Lindgreen, A. and Swaen, V., 2005. Corporate citizenship: Let not relationship marketing escape the management toolbox. *Corporate Reputation Review*, 7 (4), 346-363.
- [28] Mahon, J.F. and Wartick, S.L., 2003. Dealing with stakeholders: How reputation, credibility and framing influence the game. *Corporate Reputation Review*, 6 (1), 19-35.
- [29] McWilliams, A. and Siegel, D., 2000. Corporate social responsibility and financial performance: correlation or misspecification? *Strategic Management Journal*, 21 (5), 603-609.
- [30] Melewar, T.C. and Tucker, L., 2005. Corporate reputation and crisis management: The threat and manageability of anti-corporatism.
- [31] Orlitzky, M. and Benjamin, J.D., 2001. Corporate social performance and firm risk: A meta-analytic review. *Business & Society*, 40 (4), 369-396.
- [32] Persson, O., Danell, R. and Schneider, J.W., 2009. How to use Bibexcel for various types of bibliometric analysis. *Celebrating Scholarly Communication Studies: A Festschrift for Olle Persson at His 60th Birthday*, 5, 9-24.
- [33] Podsakoff, P.M., Mackenzie, S.B., Lee, J.Y. and Podsakoff, N.P., 2003. Common method biases in behavioral research: A critical review of the literature and recommended remedies. *Journal of Applied Psychology*, 88 (5), 879.
- [34] Radicchi, F., Castellano, C., Cecconi, F., Loreto, V. and Parisi, D., 2004. Defining and identifying communities in networks. *Proceedings of the National Academy of Sciences*, 101(9), pp.2658-2663.
- [35] Raiborn, C.A. and Payne, D., 1990. Corporate codes of conduct: A collective conscience and continuum. *Journal of Business Ethics*, 9 (11), 879-889.
- [36] Rossouw, G.J., 2005. Business ethics and corporate governance in Africa. *Business & Society*, 44 (1), 94-106.
- [37] Scott, S.G. and Lane, V.R., 2000. A stakeholder approach to organizational identity. *Academy of Management review*, 25(1), pp.43-62.
- [38] Sen, S. and Bhattacharya, C.B., 2001. Does doing good always lead to doing better? Consumer reactions to corporate social responsibility. *Journal of Marketing Research*, 38 (2), 225-243.
- [39] Siltaoja, M.E., 2006. Value priorities as combining core factors between CSR and reputation—a qualitative study. *Journal of Business Ethics*, 68(1), pp.91-111.
- [40] Sinkovics, N., 2016. Enhancing the foundations for theorising through bibliometric mapping. *International Marketing Review*, 33(3), pp.327-350.
- [41] Stuart, H., 1999. Towards a definitive model of the corporate identity management process. *Corporate communications: an international journal*, 4(4), pp.200-207.
- [42] Velasquez, M., Andre, C., Shanks, T. and Meyer, M.J., 1996. Thinking ethically: A framework for moral decision making. *Issues in Ethics*, 7(1).
- [43] Vidaver-Cohen, D. and BRØNN, P.S., 2015. Reputation, responsibility, and stakeholder support in Scandinavian firms: A comparative analysis. *Journal of Business Ethics*, 127 (1), 49-64.

- [44] Vidaver-Cohen, D., 2007. Reputation beyond the rankings: A conceptual framework for business school research. *Corporate Reputation Review*, 10(4), pp.278-304.
- [45] Waltman, L. and Van Eck, N.J., 2013. A smart local moving algorithm for large-scale modularity-based community detection. *The European Physical Journal B*, 86 (11), 471.
- [46] Wartick, S.L., 2002. Measuring corporate reputation: Definition and data. *Business & Society*, 41(4), pp.371-392.
- [47] A. Todhunter, M. Crowley, M. Gholamisheverini, and F. Sartipi, "Advanced technological implementation of construction and demolition waste recycling," *Journal of Construction Materials*, vol. 1, no. 1, 2019, doi: <https://doi.org/10.36756/JCM.v1.1.3> .
- [48] T. Boulos, F. Sartipi, and K. Khoshaba, "Bibliometric analysis on the status quo of robotics in construction," *Journal of Construction Materials*, vol. 1, pp. 2-3, 2020.
- [49] A. Todhunter, M. Crowley, and F. Sartipi, "Construction productivity indices in socialism compared with capitalism," *Journal of Construction Materials*, 2019, doi: <https://doi.org/10.36756/JCM.v1.1.2> .
- [50] F. Sartipi, "Diffusion of Innovation Theory in the Realm of Environmental Construction," *Journal of Construction Materials*, vol. 1, pp. 4-2, 2020, doi: <https://doi.org/10.36756/JCM.v1.3.2> .
- [51] F. Sartipi, "Influence of 5G and IoT in construction and demolition waste recycling–conceptual smart city design," *Journal of Construction Materials*, vol. 1, pp. 4-1, 2020, doi: <https://doi.org/10.36756/JCM.v1.4.1> .
- [52] F. Sartipi, "Organizational structure of construction entities based on the cooperative game theory," *Journal of Construction Materials*, vol. 1, no. 2, 2020, doi: <https://doi.org/10.36756/JCM.v1.3.3> .
- [53] J. Luliano, A. Singh, and F. Sartipi, "Political-economical evaluation of CO2 capture in Australian building sector," *Journal of Construction Materials*, vol. 1, pp. 3-2, 2020, doi: <https://doi.org/10.36756/JCM.v1.3.2> .