

Systematic Literature Review: Delone And Mclean Model Using Vosviewer On Google Scholar Database Case Year 2010-2020

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Abstract.

This study aims to examine the development of the Delone and Mclean information system success model. This research was conducted to determine: (1) a map of the development of the number of publications on the Delone and Mclean model; (2) find out which scientific articles have the highest number of citations; (3) knowing the development map of scientific publications based on keywords. The data sources used in this study are scientific articles in the Google Scholar database with the keywords Delone and Mclean, with the categories article title, abstract, keywords in the 2016-2020 range. The search results show that there are 270 scientific articles that match the keywords based on the Harzing's Publish or Perish application. The results showed that the development of the Delone and Mclean model in 2010 - 2020 which was the highest in the Google Scholar database occurred in 2020 which reached 68 publications or 25%. Meanwhile, the publications that have the highest number of citations are Nils Urbach and Benjamin Müller (2016) which were quoted 379 times. The development map of scientific publications based on the keywords delone and mclean analyzed using the VOSViewer application shows that the development map of the delone and mclean model is divided into 4 clusters. The red cluster 1 consists of 14 items, the green cluster 2 consists of 11 items, the blue cluster 3 consists of 10 items, and the yellow cluster 4 consists of 6 items.

Keywords: Bibliometric, Delone and Mclean, Google Scholar, VOSViewer

I. INTRODUCTION

The success of an information system can be seen from several things such as how good the quality of the system, the information provided, how the level of use, and user satisfaction and other things that show how big the effect is with the existence of the information system. One of the many models that can be used to measure the success of an information system is the model given by William H. DeLone and Ephraim R. McLean, which consists of six factors measuring the success of an information system. This theory was later developed in 2003 by adding service quality and combining individual impact and organizational impact into net benefits [1]. The DeLone and McLean model is a research model developed in measuring the success of an information system based on research conducted by DeLone and McLean (1992). In the DeLone and McLean model or better known as the D&M IS Success, the dimensions of success that are measured are all interrelated [2].

The Delone and Mclean models have been tested for validity and quickly received responses from researchers because the model developed is quite simple and is considered valid enough for all types of information systems [3]. The number of studies that analyze and measure the success of implementing an information system using the Delone and Mclean model, attracts researchers to analyze the bibliometric study of the development of the Delone and Mclean model. The data source used is a database on Google Scholar (www.scholar.google.com) for the period 2010-2020. Google Scholar is a search engine for scientific publications such as journal articles, proceeding articles, books, theses / theses, and so on. Google Scholar (Google Scholar) is a service that allows users to search for academic materials in the form of text in various publication formats. Launched in 2004, the Google Scholar index includes online journals from scientific publications [4][5].

Bibliometric analysis is a study of bibliographic analysis of scientific activities, which is based on the assumption that a researcher carries out his research and must communicate the results to colleagues. This will provide progress and development of knowledge if researchers carry out joint activities to examine specific research topics [6]. Bibliometric analysis has a role to evaluate the results of scientific research and map fields of science, track / trace the development of new knowledge in certain fields. Bibliometric indicators are calculated over a period of time and generally use two approaches, namely the number of publications, an indicator that measures productivity; and the number of citations, an indicator that measures the impact of the resulting articles [7][8]. This research was conducted to answer the following problems: (1) Knowing the development of the number of publications on the Delone and Mclean topic in the 2010-2020 range. (2) Knowing the scientific articles that have the highest number of citations on the topic of Delone and Mclean. (3) Knowing the development map of scientific publications by the Delone and Mclean method based on keywords.

II. METHODS

This study uses a descriptive quantitative method with a bibliometric approach. Bibliometrics according to Winarko and Sormin (2010), is a study that applies mathematical and statistical methods to measure a change, both quantitatively and qualitatively in a set of documents and other media [9]. Bibliometric analysis is a quantitative method for analyzing bibliographic data in articles/journals. This analysis is usually used to investigate references to scientific articles cited in a journal, to map the scientific field of a journal, and to classify scientific articles according to a research field. This method can be used in the fields of sociology, humanities, communication, marketing, and other social groups.

The approach used in bibliometric analysis is the citation analysis approach to see 1 article cited by 1 other article, and the co-citation analysis approach to find 2 or more articles cited by 1 article [7]. The research data used in the research are scientific articles or journals in the 2010-2020 range which are sourced from the Google Scholar

database (<https://scholar.google.com>). The search for scientific articles is carried out using the Publish or Perish application with the keywords "Delone and Mclean" with the category article title, abstract, keywords. As for the development map of the Delone and Mclean model of scientific publications in Indonesia analyzed using VOSViewer software, it can be seen in Figure 1. Through VOSViewer we can display large bibliometric maps in an easy way to interpret a relationship [10].

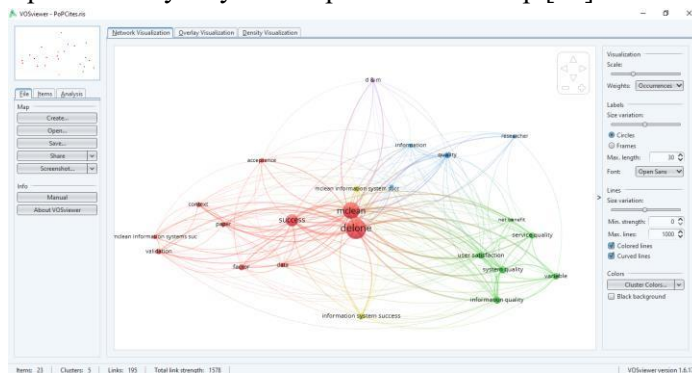


Fig 1. VOSViewer

III. RESULT AND DISCUSSION

Publish or Perish Results

From the results of a search using the Publish or Perish application, from the maximum number of searches used, which is 1000 articles, there are 270 publications of article titles as shown in Figure 2.

Cites	Per year	Rank	Authors	Title	Year	Publication	Publisher
379	42.11	1	H Utisak, B Müller	The updated Delone and McLean model of information systems success	2022	Information systems theory	Springer
368	52.57	91	MH Hsu, CM Chu	Determinants of repurchase intention in online group buying: the perspectives of Delone & McLean	2016	Computers in Human Be...	Elsevier
295	31.25	74	C Tam, T Oliveira	Understanding the impact of no banking on individual performance: The Delone & McLean and TP	2016	Computers in Human Be...	Elsevier
292	25.25	2	C Bontas, LG Jenu...	Evaluation of a comprehensive EHR based on the Delone and McLean model for IS success app...	2013	International journal of in...	Elsevier
154	31.33	8	AM Alshobay, O Sa...	The role of transformational leadership as a mediating variable in Delone and McLean informati...	2018	Technics and Informatics	Elsevier
150	37.50	71	C Tam, T Oliveira	Understanding mobile banking individual performance: The Delone & McLean model and the en...	2017	Internet Research	emerald.com
141	35.25	3	Ai Gjo	Validation of the Delone and McLean information systems success model	2017	Healthcare informatics re...	synapse.knowamed.com
95	47.50	6	Al Alzahrani, I Ma...	Modelling digital library success using the Delone and McLean information system success model	2019	... of Librarianship and ...	journals.sagepub.com
93	15.00	112	S Maridani, H Sya...	Delone-McLean information system success model revisited: The separation of intention to use...	2015	... of Economics and ...	researchgate.net
88	11.00	14	MB Al-Dubai, D Bu...	Measuring web portals success: a re-evaluation and validation of the Delone and McLean info...	2012	International Journal of ...	indonesianonline.com
83	27.67	11	SBV Yakuho, S Chu...	Assessing e-learning systems success in Nigeria: An application of the Delone and McLean info...	2018	Journal of Information Te...	shura.shu.ac.uk
80	26.67	4	A Alshobay, O Sa...	An extension of Delone and McLean IS success model with self-efficacy: Online learning usage in ...	2018	... of Information and ...	emerald.com
78	13.00	5	H Rizki, Y Al-Mer...	Evaluation by users of an industrial information system (IPIPS) based on the Delone and McLean ...	2015	Procedia Economics and ...	Elsevier
75	12.00	19	Ph Saputra, D Bu...	Model Delone and McLean untuk mengukur kesuksesan e-government Kota Pekanbaru	2015	Scientific Journal of ...	journal.unesa.ac.id
56	7.00	9	HA Baraka, HA Ba...	Assessing call center 'success' A validation of the Delone and McLean model for information sys...	2013	Egyptian Informatics Jour...	Elsevier
52	13.00	154	O Isak, Z Alshab...	... usage and net benefit among employees within government institutions in Yemen: an extensio...	2017	International Journal of ...	journal.ccsa
47	7.83	17	H Xunli	Measuring the success of business intelligence systems in South Africa: An empirical investigation...	2015	South African Journal of ...	emerald.com
47	7.83	17	H Xunli	Effectiveness of information technology in reducing corruption in China: a validation of the Del...	2015	The Electronic Library	emerald.com
45	11.74	30	AB Isakrah	Frustation information system success model: the use and McLean information system success	2017	International Review of M...	sciendo.com

Fig 2. Publish or Perish Results

Source: Data processed, 2021

The development of the number of publications on the topic of Delone and Mclean in the period 2010-2020

The development of publications on the topic of the Delone and Mclean method in the 2010-2020 range in the Google Scholar database has increased significantly every year. Table 1 shows that the highest number of publications regarding the Delone and Mclean method was in 2020 with 68 articles or 25% of the total data.

Table 1. Development of the Delone and Mclean Model Publications

Publication Year	Number of Articles	Percentage
2010	3	1%
2011	9	3%
2012	12	4%
2013	11	4%
2014	16	6%
2015	27	10%
2016	19	7%
2017	28	10%
2018	42	16%
2019	35	13%
2020	68	25%
Total	270	100%

Source: Data processed, 2021

The development of the growth of publications regarding the Delone and Mclean model in the graph in Figure 3 which shows that in 2010 - 2020 the highest increase in scientific publications was in 2020. This proves that research on measuring the success of information system implementation is still attracting many researchers to date.

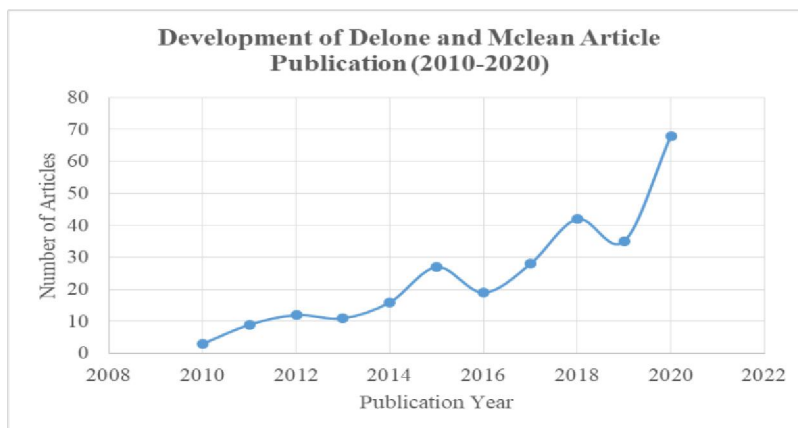


Fig 3. Graph of Delone and Mclean Publications (2010-2020)

Source: Data processed, 2021

The ten scientific articles with the highest number of citations on the topic of Delone and Mclean

Table 2 shows that Nils Urbach and Benjamin Müller are the authors who have the highest number of citations, with 379 citations, with the article title The Updated Delone And Mclean Model Of Information Systems Success which was published in the journal Information Systems Theory in 2012. Next for scientific articles which are

ranked 2 to 10, which were published between 2010-2020 in full can be seen in table 2 below.

Table 2. Ten Articles With Most Cites

Cite s	Author	Title	Publication Year	Publication	Publisher
379	Nils Urbach, Benjamin Müller [11]	The Updated Delone And Mclean Model Of Information Systems Success	2012	Information systems theory	Springer
368	Meng-Hsiang Hsu, Chun-Ming Chang, Kuo-Kuang Chu, Yi-Jung Lee [12]	Determinants Of Repurchase Intention In Online Group-Buying: The Perspectives Of Delone & Mclean IS Success Model And Trust	2014	Computers in Human Behavior	Elsevier
256	Carlos Tam, Tiago Oliveira [13]	Understanding The Impact Of M-Banking On Individual Performance: Delone & Mclean And TTF Perspective	2016	Computers in Human Behavior	Elsevier
202	Claus Bossen, Lotte Groth Jensen, Flemming Witt Udsen [14]	Evaluation Of A Comprehensive EHR Based On The Delone And Mclean Model For IS Success: Approach, Results, And Success Factors	2013	International Journal of Medical Informatics	Elsevier
154	Adnan H.Aldholay, Osam aIsaac, Zaini Abdullaha, T.Ramayah [15]	The Role Of Transformational Leadership As A Mediating Variable In Delone And Mclean Information System Success Model: The Context Of Online Learning Usage In Yemen	2018	Telematics and Informatics	Elsevier
150	Carlos Tam, Tiago Oliveira [16]	Understanding Mobile Banking Individual Performance: The Delone & Mclean Model And The Moderating Effects Of Individual Culture	2017	Internet Research	emerald.com
141	Adebowale Ojo [17]	Validation Of The Delone And Mclean Information Systems Success Model	2017	Healthcare informatics research	synapse.koreamed.org

Cite s	Author	Title	Publication Year	Publication	Publisher
95	Ahmed Ibrahim Alzahrani, Imran Mahmud, T. Ramayah, Osama Alfarraj, Nasser Alalwan [18]	Modelling Digital Library Success Using The Delone And Mclean Information System Success Model	2019	Journal of Librarianship and Information Science	journals.sagepub.com
93	Siti Mardiana, Jann Hidajat Tjakraatmadja, Atik Aprianingsih [19]	Delone-Mclean Information System Success Model Revisited: The Separation Of Intention To Use-Use And The Integration Of Technology Acceptance Models	2015	International Journal of Economics and Financial	researchgate.net
88	Mutaz M. Al-Debei, Dima Jalal, Enas Al-Lozi [20]	Measuring Web Portals Success: A Respecification And Validation Of The Delone And Mclean Information Systems Success Model	2013	International Journal of Business Information Systems	Inderscienceonline.com

Source: Data processed, 2021

Delone and Mclean Model Publication Progress Map 2010-2020

The publication development map using the Delone and Mclean model in Figure 2 shows that there are 5 clusters, namely: (1) red cluster 1 with 15 items: acceptance, adoption, analysis, delone & mclean model, d&m, factor, framework, implementation, integration, intention, performance, perspective, technology, trust, use; d&m, delone & mclean, framework, influence, information, intention, clean method, performance, perspective, quality, satisfaction, service, trust, usage; (2) green cluster 2 with 11 items: experience, influence, information, clean information system success model, net benefit, quality, relationship, satisfaction, service, system, usage; (3) blue cluster 3 with 10 items: adaptation, effectiveness, evaluation, extension, information system, is success model, respecification, success model, user, validation; and (4) yellow cluster 4 with 6 items: individual impact, information quality, problem, service quality, system quality, user satisfaction.

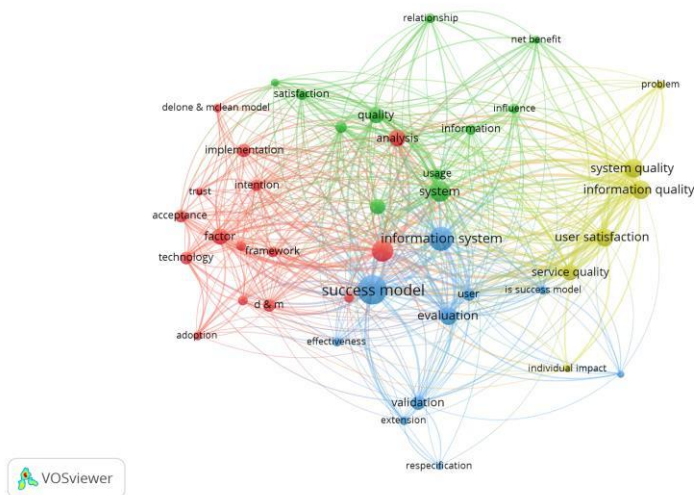


Fig 4. Development Map of Delone and Mclean Model Publications 2010-2020

Source: Data processed, 2021 (VOSViewer)

IV. CONCLUSION

Based on the results and discussion, it can be concluded that the growth trend of the Delone and Mclean model significantly in 2010-2020 in the Google Scholar database continues to increase with the highest number of publications, namely in 2020 as many as 68 articles or 25%. The authors who have the highest number of citations in the 2010-2020 period are Nils Urbach and Benjamin Müller (2012) with 379 citations with the article title The Updated Delone And Mclean Model Of Information Systems Success. Furthermore, the development map based on co-occurrence and keywords from the analysis results in VOSViewer is divided into 4 clusters.

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