A Content Analysis on Publications Written on (E-Government and M-Government) from 2000 to 2021

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Abstract: *The ICT (Internet Communication Technology), with the assistance of Web 2.0 tools, made a revolutionary impact on organizational performances, including the governmental ones. The Electronic Government or (E-Government) is a modern approach that contributes positively to the governmental organization's performances; it leads to a structural reforms and creates an innovative atmosphere in the flow of information. The Mobile Government or (M-Government) created by the technology innovators to add better efficiency to the governmental organizations works for saving time and efforts. Between 2000 and 2021, this study looked at publications that supported E-Government and M-Government that were published on the Scopus website or contributed to the Scopus database.*

Keywords: *E-Government, M-Government, e-government, m-government. E-gov, m-gov, government data processing.*

1. Introduction

In recent years, the demands on Smartphones increased incredibly (Silver, 2019). It became a necessary gadget for most of people. Young and old, even children demanding to own one of those smartphones for incredible capabilities in connecting to others and using advanced applications, like if you were completing your work with your palm of your hand. On the other hand, Advanced governments in the race for innovations and creating better tools for their types of work in serving their people (OECD 2017), by offering advanced solutions to their employees to provide better efficiency in technology base tools. From this angle, the e-government and the mobile government applications are created in supports of good governance. Around the world, advancements in E-government-oriented technologies and services are happening at a breakneck pace. E-government initiatives attempt to profit from the most cutting-edge types of information technology, notably web-based Internet applications, in order to improve government's core tasks. These functions are currently spreading the usage of mobile and wireless technology, paving the way for a new path: Government on the move (m-government) (Kushchu & Kuscu, 2016).

The ICT (Internet Communication Technology) devices, with assistance Web 2.0 tools, allow multiple functions simultaneously (Bicen et al., 2012) and made a revolutionary impact on organizational performances, including governmental organizations. The e-government is a modern approach that contributes positively to the governmental organization's development; it leads to structural reforms and creates a creative atmosphere in the flow of information. Consequently, it will generate better performances from the government sides to serve their citizens better, leading to transparency and trust.

E-government solutions strive to improve government essential activities by utilizing the most cutting-edge kinds of information technology, particularly web-based Internet applications. These functions have now expanded mobile and wireless technologies, resulting in a new trend: mobile government (m-government) (Kushchu & Kuscu, 2016).

Further to the e-government developments, the mobile government supported by Smartphones creates an extra efficient tool for serving people from the comforts of their palms. The" at any time ... anywhere...." approach saves both governments and citizens time and effort. It changes the faces of organizations. Technology innovation is not going to stop at this point. With upcoming internet advancements of the G6, new technology in the

governmental institutions will arise under the Smart Government. This new approach is underway to make governments' organizations even more efficient and accessible to their citizens. This study aims to analyze the literature using e-government and its sub-setting tool "m-government technologies" in terms of various variables, give better guidance for future studies and research, and pinpoint the gap areas of studies regarding this specific subject.

1.1. The goal of the study

This study aims to understand the amount of interest shown from different sectors to the Mobile Government (M-Gov.) researches with in the Electronic Government (E-Gov.) approach, from academics, scholars, and other professionals levels. In addition what has being published on Scopus website.

1.2. Hypothesis

The following sub-objectives have been determined to help achieve the overall goal:

1. What is the distribution map of studies using the e-government and m-government aspects according to the publication type?

2. What is the distribution map of studies that use the e-government and m-government aspects by year of publication?

3. How is the distribution map of publications using the e-government and m-government aspects according to the number of authors?

4. What are the disciplines where articles about e-government and m-government publications used?

5. How is the distribution of studies using the e-government and m-government publications according to the country of interest?

2. Method

The quantitative method is used to assess the content analysis for the electronic-government (e-government) and the mobile-government (m-government) publications. Content analysis is a research method that seeks to make repeatable and accurate conclusions about concepts from text and documents (Krippendorff, 2012). In another definition, content analysis is an unbiased and quantitative examination of the main substance of communication (Berelson, 1952). It can also be used to look for trends and patterns in documents (Stemler, 2000).

2.1. Scanning Criteria

The researcher determined certain scanning and selecting criteria to determine the project procedure in this investigation (Jawabreh & Bicen, 2020). After defining the requirements, the terms searched basis on the criteria keywords "e-gov." and "m-gov" as well as "Electronic Government" and "Mobile Government" in the database of (Scopus) database to find all publications posted between the years 2000-2021. The results, 184 publications were found by the researcher within the contexts of the field in multiple categories. These articles were found to meet the criteria established at the end of the screening process. "Publishing types, publication years, authors, the discipline areas, the publication's country of origin, and their volumes" were all examined.

2.2. Sample

All samples included from 2000 to 2021, the research sample includes papers about e-government and m-government discovered in the titling literature on the (Scopus) database. As a consequence of the research, many categories were investigated, and investigations were supported based on the data presented.

2.3. Data Collection and Analysis

The information gathered for the study was evaluated using descriptive statistical approaches, such as percentages and frequencies (Jawabreh & Bicen, 2020). To meet the answer to each study question, the rates of the data were calculated based on the frequencies and given in tables.

3. Findings and Comments

3.1. Distribution of Projects by Publication Type

The distribution map of studies on the use of "e-government and m-government" includes term equivalencies like "Electronic Government, Mobile Government, E-Gov., and M-Gov", analyzed by types of studies. The highest number of publication type appeared to be a Conference Papers with 48.92%, followed by Articles 32.06%, Book Chapters 14.13%, Conference Reviews 3.27%, and each of (Book, Editorial and Review Papers) with less than 1% which was 0.54%.

(Table 1) The Distribution of Projects on e-government AND m-government to
their Publication Type)
Source: Authors own conception

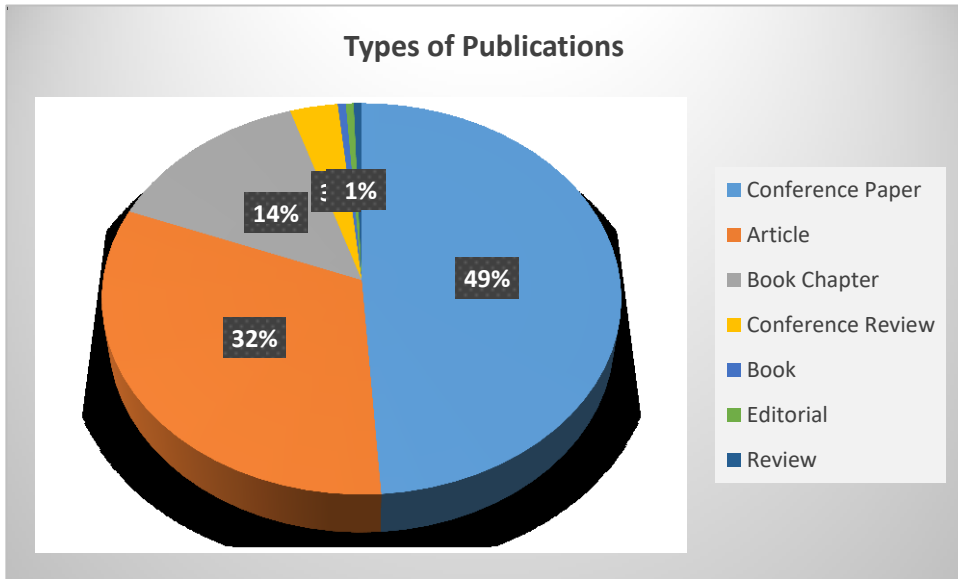| Publication/ Document Types	Number of Articles	%
Conference Paper	90	49.5%
Article	59	32%
Book Chapter	26	14%
Conference Review	6	3 %
Book	1	0.5%
Editorial	1	0.5%
Review	1	0.5%
Total	**184**	% 100

3.2. Distribution of Projects by Publishing Years

When the distribution map of studies on the use of "e-government and m-government" includes term equivalencies like "Electronic Government, Mobile Government, E-Gov., and M-Gov", the highest number of studies were analyzed by years observed between 2000-2021 with 8.7% in 2020. These studies came after those conducted in 2010 with 8.2% and in 2013 and 2014 with 7.6%. However, 3.3% of studies published in the

recent year 2021 so far, and this rate might change by the end of this year as other scholars might add to this table of accomplishment.

(Table 2) The Distribution of Projects on e-government AND m-government to their Publishing Years
Source: Authors own conception

Publishing Years of Studies	Number of Articles	%	Publishing Years of Studies	Number of Articles	%
2000	0	% 0	2011	13	% 7
2001	0	% 0	2012	11	% 6
2002	0	% 0	2013	14	% 7.6
2003	1	% 0.54	2014	14	% 7.6
2004	1	% 0.54	2015	12	% 6.5
2005	1	% 0.54	2016	12	% 6.5
2006	4	% 2.17	2017	12	% 6.5
2007	7	% 3.8	2018	11	% 6
2008	10	% 5.4	2019	14	% 7.6
2009	10	% 5.4	2020	16	% 8.7
2010	15	% 8.2	2021 (in progress)	6	% 3.3
			Total	**184**	**%100**
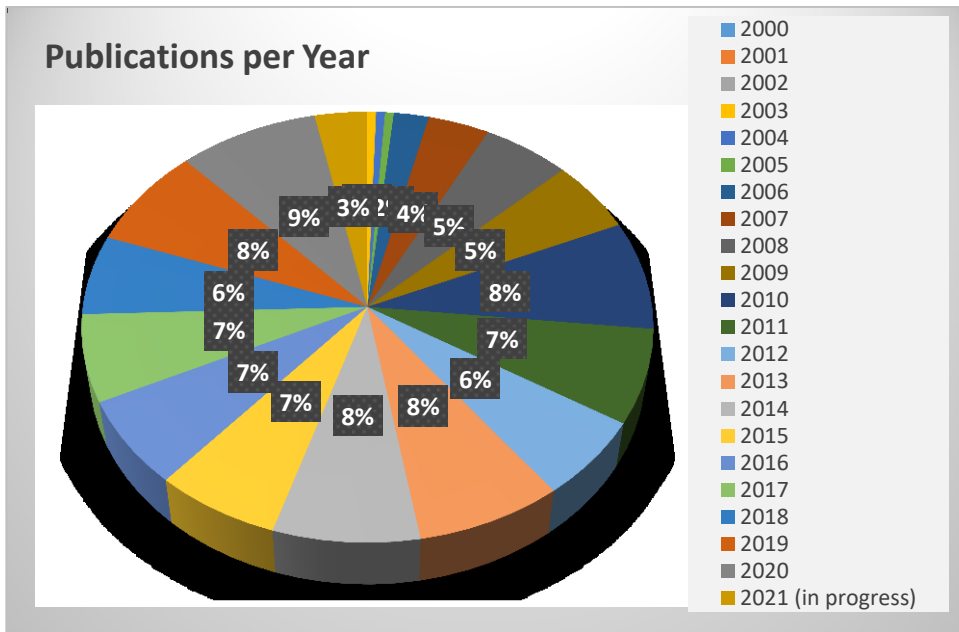
3.3. How is the distribution of publications using "e-government and m-government" according to the number of authors?

When it comes to the number of authors, there are numbers of them. in "e-government and m-government" studies, six levels of contributions and 239 authors contributed to 184 publications. That means multiple people contributed to the same publications. In other words, some articles were published under more than one author. On the other hand, some authors contributed to more than one publication. The single highest contributing author contributed to five publications. Three authors contributed to four journals, and 12 authors contributed to 3 publications, followed by 37 authors with two publications and 106 singled publication authors. However, in this research, six undefined fields of authors were founded.

(Table 3) The Distribution of Articles Using "e-government and m-government"
According to the Number of Authors)
Source: Authors own conception

Highest Contributors	Number of Authors	Numbers of Publication	Contribution Percentage
1	1 Author	5 Publications	3.125
2	3 Authors	4 Publications	2.5

3	12 Authors	3 Publications	1.875
4	37 Authors	2 Publications	1.25
5	106 Authors	1 Publications	0.625
6	6 Undefined Authors	Undefined	0.625
Total Publications	**184**		**100%**

Authors Contribution Percentage

- 1 Author 5 Publications
- 3 Authors 4 Publications
- 12 Authors 3 Publications
- 37 Authors 2 Publications
- 106 Authors 1 Publications
- 6 Undefined Authors
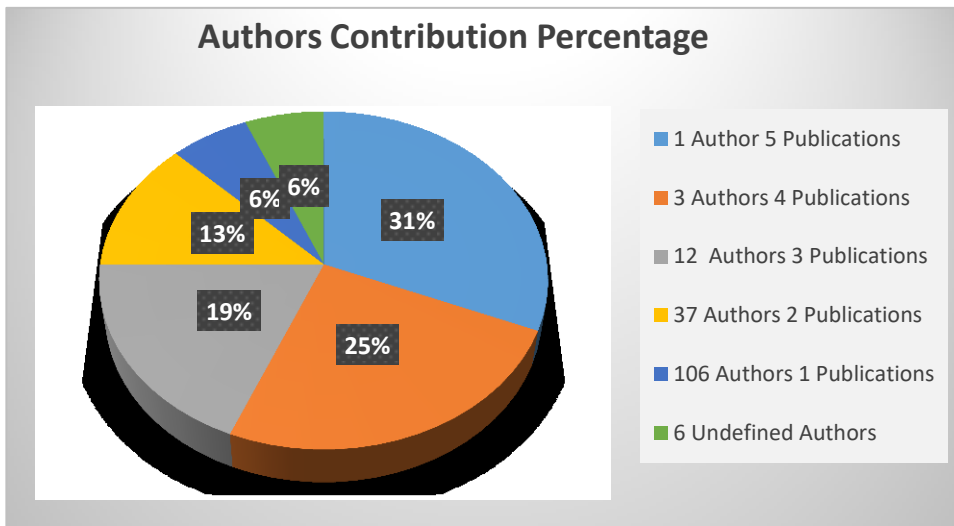
3.4. What are the disciplines where articles about "e-government and m-government"?

Regarding the discipline areas of "e-government and m-government," the disciplines covered in related publications are listed in alphabetical order (Table 4). There are 325 disciplines in total in the study, which are divided into 15 groups. The field of Computer Science has the greatest studies in these disciplines with 42.76 percent, which is the highest one, and followed by Social Sciences of 18.76%. Business, Management and Accounting at 10.46%, Engineering 8.61%, Decision Sciences 8.31%, Mathematics 5.84%, Economics, Econometrics, and Finance 1.24%, both Multidisciplinary and Physics and Astronomy 0.93%, Environmental Science 0.61%, and each of (Agricultural and Biological Sciences, Arts and Humanities, Energy, Materials Science, plus Medicine) participated by less than 1%, which was equivalent to 0.31% of the total discipline.

(Table 4) The distribution map of the discipline areas about "e-government and m-government" in the articles on Scopus

Source: Authors own conception

	Research Topics	Number of Articles	%
1	Computer Science	139	42.76
2	Social Sciences	61	18.76
3	Business, Management, and Accounting	34	10.46
4	Engineering	28	8.61
5	Decision Sciences	27	8.31
6	Mathematics	19	5.84
7	Economics, Econometrics and Finance	4	1.24
8	Multidisciplinary	3	0.93
9	Physics and Astronomy	3	0.93
10	Environmental Science	2	0.61
11	Agricultural and Biological Sciences	1	0.31
12	Arts and Humanities	1	0.31
13	Energy	1	0.31
14	Materials Science	1	0.31
15	Medicine	1	0.31
	Total	**325**	**%100**

Publications by Research Topics
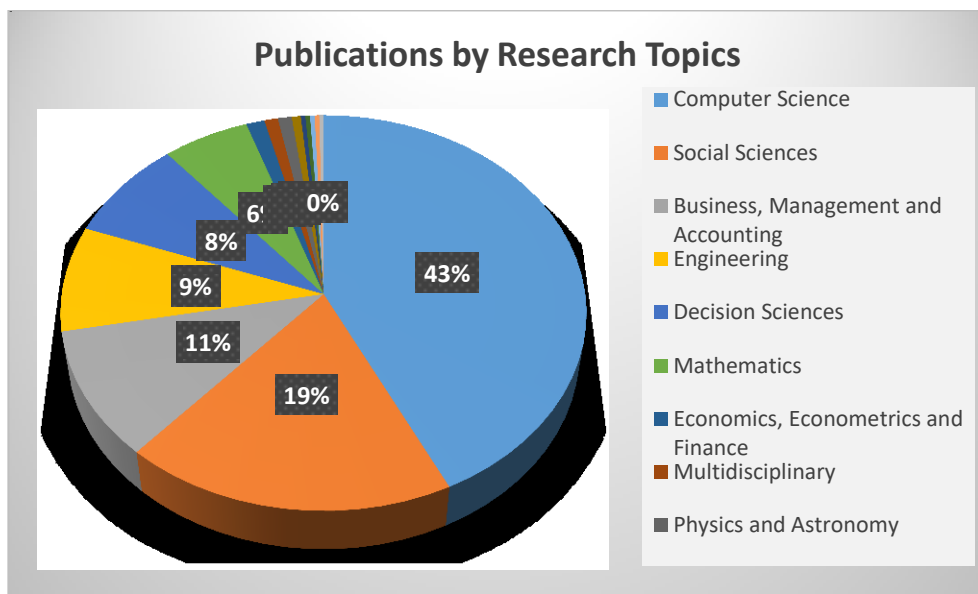
3.5. How is the distribution of studies using the e-government and m-government according to the country of interests?

The country of origin for publications about "e-government and m-government" resulted in 226 countries. This means there are several publications with more than one country of origin. The highest contributing country of origin that linked to the affiliated institutions of the source of the publication in the United Kingdom with contributing 20 publications, which means the UK contributed to 8.85% of these studies, followed by the United state of 18 publication, an 8%, South Africa of 5.5%, India 5%, each of (Australia, China, Germany, and Malasia) contributed by 4%, Jordan 3.53%, Greece and Iran 3.1%, each of (Finland, Indonesia, Saudi Arabia, South Korea, Turkey) with 2.21%, each of (Bahrain, Italy, and United Arab Emirates) 1.76%, Eygipt, (Hungary, Indonesia, Netherland, Nigeria, and Sweden) of 1.5%, and the rest of countries contributed by 1 or 2 publications which contributing by less than 1% to the outcome of the search. However, seven publications came without country of origin or undefined.

(Table 5) The distribution of the disciplines where articles about "e-government and m-government" are used

Source: Authors own conception

#	Publication Country of Origin	Number of Articles	%	#	Publication Country of Origin	Number of Articles	%
1	United Kingdom	20	8.85	30	Israel	2	0.9
2	United States	18	8	31	Japan	2	0.9
3	South Africa	12	5.5	32	Malawi	2	0.9
4	India	11	5	33	Portugal	2	0.9
5	Australia	9	4	34	Qatar	2	0.9
6	China	9	4	35	Singapore	2	0.9
7	Germany	9	4	36	Switzerland	2	0.9
8	Malaysia	9	4	37	Taiwan	2	0.9
9	Jordan	8	3.53	38	Tanzania	2	0.9
10	Greece	7	3.1	39	Austria	1	0.5
11	Iran	7	3.1	40	Azerbaijan	1	0.5
12	Finland	5	2.21	41	Belgium	1	0.5
13	Indonesia	5	2.21	42	Bolivia	1	0.5
14	Saudi Arabia	5	2.21	43	Colombia	1	0.5
15	South Korea	5	2.21	44	Denmark	1	0.5

16	Turkey	5	2.21	45	Estonia	1	0.5
17	Bahrain	4	1.76	46	France	1	0.5
18	Italy	4	1.76	47	Iraq	1	0.5
19	United Arab Emirates	4	1.76	48	Kenya	1	0.5
20	Egypt	3	1.5	49	Mauritius	1	0.5
21	Hungary	3	1.5	50	Mexico	1	0.5
22	Macedonia	3	1.5	51	Oman	1	0.5
23	Netherlands	3	1.5	52	Papua New Guinea	1	0.5
24	Nigeria	3	1.5	53	Peru	1	0.5
25	Sweden	3	1.5	54	Samoa	1	0.5
26	Bangladesh	2	0.9	55	Spain	1	0.5
27	Brazil	2	0.9	56	Thailand	1	0.5
28	Canada	2	0.9	57	Trinidad and Tobago	1	0.5
29	Czech Republic	2	0.9	58	Undefined	7	0.5
	Total	**226**	**%100**				

Publications by Country

Legend:
- United Kingdom
- United States
- South Africa
- India
- Australia
- China
- Germany
- Malaysia
- Jordan
- Greece
- Iran
- Undefined
- Finland
- Indonesia
- Saudi Arabia
- South Korea
- Turkey
- Bahrain
- Italy
- United Arab Emirates
- Egypt
- Hungary
- Macedonia
- Netherlands
- Nigeria
- Sweden
- Bangladesh
- Brazil
- Canada
- Czech Republic
- Israel
- Japan
- Malawi

4. Results and Discussion

Integrating mobile government solutions into electronic government applications and processes is rapidly increasing because it creates more efficiency for people. Smartphones are one of the best tools to connect and perform daily transactions "at any time and anywhere approach" (Parcell, 2015). This approach came very useful when Covid-19 invaded the entire world in the beginning of 2020, and the world's population still suffering from this pandemic until today.

This study focused on understanding the amount of attention based on the M-government within the context of the E-government. This goal was determined by analyzing the number of publications that were published from one particular website database, the (Scopus), within the last 11 years from 2000 to 2020.

When the distribution map of studies on the frequent use of "e-government and m-government" including term equivalents, analyzed by types of assignments (Table 1), the highest number of publication type appeared to be the Conference Papers with 48.92%, followed by Articles 32.06%, Book Chapters 14.13%, Conference Reviews 3.27%, and each of (Book, Editorial and Review Papers) with less than 1% which was 0.54%, this indicates the amount of attention given by professionals in exposing the subjects and discussing them at the professional levels. On the other hand, Books were the least of concerns from academics and professional institutions.

The importance of the period is based upon the era of web 2.0 tools developments, including internet developments and smartphones. When the distribution map of studies on the frequent use of "e-government and m-government" including term equivalencies like "Electronic Government, Mobile Government, E-Gov., and M-Gov", analyzed by years (Table 2), there was a total of 184 publications, the highest number of studies observed between 2000-2021 was 8.7% in 2020. These studies were followed by those done in 2010 (with 8.2%), 2013, and 2014 (with 7.6%). However, 3.3% of studies published in the recent year 2021 so far, and this rate might change by the end of this year as other scholars might add to this table of accomplishment. In addition, the research found no publications posted before 2003, which means the attention to this subject did not initiate or not posted on Scopus before 2003. The data analysis showed graduate increase toward 2010 and graduate decrease toward 2020. Then it reached a peak in 2020, which explained by the pandemic situation.

When it comes to the number of authors in the areas of "e-government and m-government" studies who contributed to 184 publications, six levels of contributions and 239 authors found (Table 3). That means multiple people contributed to the same publications. In other words, some publications were published under more than one author. On the other hand, some authors contributed to more than one publication. The single highest contributing author contributed by (5) publications, followed by (3) authors contributed to (4) publications, and (12) authors contributed to (3) publications, followed by (37) authors with (2) publications and (106) singled authored publication. However, in this research, six articles were found with undefined authors. If we calculate each author's effort to the total work of 184 publications, we find each author contributed by 0.625%.

Regarding the discipline interests in publications of "e-government and m-government," the disciplines included in related publications (Table 4) and studies have 15 categories of disciplines areas of total 325 covered in the 184 publications, this means some publications covered more than one area of discipline. Computer Science is the most common place to look for research in these fields, the highest with 42.76%, followed by Social Sciences of 18.76%, Business, Management and Accounting of 10.46%, Engineering 8.61%, Decision Sciences 8.31%, Mathematics 5.84%, Economics, Econometrics and Finance 1.24%, both Multidisciplinary and Physics and Astronomy 0.93%, Environmental Science 0.61%, and each of (Agricultural and Biological Sciences, Arts and Humanities, Energy, Materials Science, plus Medicine) participated by less than 1%, which was equivalent to 0.31% of the total discipline.

The country of origin is linked to affiliated institutions that adopting studies. When it came to the country of origin for these 184 publications about "e-government and m-government," it resulted in 226 countries. This means there are many publications with more than one country of origin, which means multiple institutions joined efforts in the contribution of these researches as shown in (Table 5). This study shows the highest contributing country as an origin of the affiliated institution to the publication in the United Kingdom, contributing to 20 publications in that period. In other words, UK contributed to 8.85% of these studies with 20 publications, followed by the United state with 18 publication of 8%, then South Africa of 5.5%, India 5%, each of (Australia, China, Germany, and Malasia) contributed by 4%, Jordan 3.53%, Greece and Iran 3.1%, and each of (Finland, Indonesia, Saudi Arabia, South Korea, Turkey) with 2.21%, each of (Bahrain, Italy, and United Arab Emirates) 1.76%, (Egypt, Hungary, Indonesia, Netherland, Nigeria, and Sweden) 1.5%, and the rest of countries

contributed by 1 or 2 publications which will be less than 1% to the outcome of the search. However, the study shows seven publications came without country of origin or undefined country.

5. Limitations

This study is restricted to a single website. More testing, extending to numerous target websites, is needed to reproduce and verify the approach's functionality. In order to compare and enrich the findings, future studies should combine the quantitative and qualitative approaches in the framework of content analysis (Vitouladiti, 2013).

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