

## Meta-Analysis of SDG 3 and Audit

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**Abstract:** *The outbreak of COVID-19 put into danger the ability of national health systems to respond to health risks. Audit of sustainable development goals in health could be an efficient tool to increase transparency, accountability and anti-corruption for sustainable economic and health recovery. Scientific literature related to the SDG 3 audit is fragmental and this paper aims to explore the lack of theoretical and methodological background in academic literature in terms of SDG 3 audit.*

**Keywords:** *SDG, SDG 3, health, audit*

*JEL codes: M42, I15*

### 1 Introduction

Sustainable Development Goal (SDG) 3 "Ensuring healthy lives and promoting well-being at all ages" and its targets provide key vectors of the global health development. Every country among United Nations (UN) Members States has its own national system of targets and indicators corresponding to the global ones (Situm et al. 2021). Disclosing results enables different stakeholders to scrutinize the level of targets achievement. The achievement of SDGs substantiates the process of tracking their progress. Among others, audit is an effective tool to consider whether or not the results achieved are agreeing with indicated standards and commitments (Paschke et al., 2018). Audit as an instrument to ensure public interests has a growing trend over the past years (Sukhonos et al., 2021). Supreme audit institutions (SAIs) carry out an audit of the SDG's implementation. SAIs have followed numerous strategies to estimate SDGs implementation, not only in the national level, but also at regional and global contexts (Montero & Blanc, 2019). There is no one single audit approach to perform audit of SDGs, thus several methodological approaches related to 2030 Agenda should be incorporated (Blanc & Montero, 2020).

The International Organization of Supreme Audit Institutions (INTOSAI) within the frames of INTOSAI Development Initiative (IDI) designed the IDI's SDGs Audit Model (ISAM). ISAM defines the audit of SDGs implementation as a performance audit that focuses on achievement of nationally agreed targets linked to SDG targets (IDI, 2020). ISAM sets key notions related to audit of SDGs implementation at each stage of the audit process. This covers guidance on how to design, perform, report, monitor on the audit of SDGs implementation. Furthermore, ISAM provides practical tips and advices for concrete SDGs, in particular SDG 3 (IDI, 2020). Still, there is a need to deepen the research of the existing approaches taking into account health care particularities. The aim of the study is to eliminate the research gap in terms of theoretical and methodological background of SDGs audit, in particular SDG 3 audit.

### 2 Methodology and Data

Methodology used in this paper includes a number of bibliometric instruments to explore and analyse scientific literature: SciVal by Elsevier, VosViewer, Publish or Perish software, Google Scholar, in-built Scopus and Web of Science instruments. Data in this research covers scientific papers over the 2016-2021 period (as at 01.08.2021) dedicated to SDG 3 audit.

### 3 Results and Discussion

Obtained from the Google Scholar, Scopus and Web of Science database results state the outstanding interest in the issues of SDG Audit. Table 1 indicate huge number of publications devoted to SDG Audit in Google Scholar during the last five years (more than 9000 publications). Still, despite the sound publication activity devoted to SDG audit, there is a lack of papers dedicated to SDG 3 audit (less than 15% in Google Scholar and only 2 papers in Scopus and Web of Science database). Mentioned above indicates the exciting research gap in this research area and substantiates the further research development of issues related to SDG 3 audit.

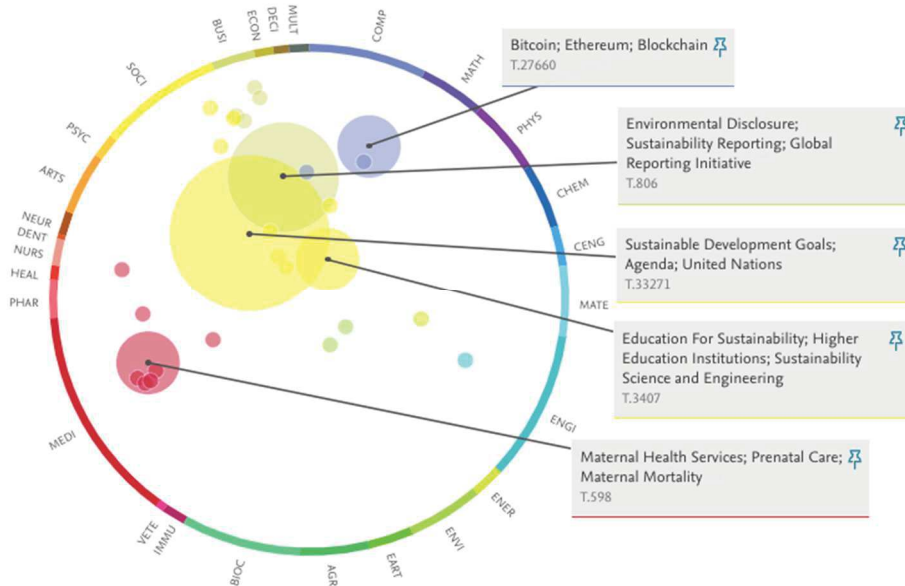
**Table 1** Number of publications on SDG/SDG 3 and Audit over the period 2016-2021 (as at 01.08.2021)

Bibliometric instruments	SDG and Audit	SDG 3 and Audit
<b>Google Scholar</b>	9000>	1313
<b>Publish or Perish software</b>	1000>	40
<b>SciVal by Elsevier</b>	37	7
<b>In-built Scopus instruments</b>	16	2
<b>In-built Web of Science instruments</b>	24	2

Source: author’s elaboration

Cluster presentation of SDG 3 and audit covers 29 topics and 25 topic clusters. Topics display for the research areas is shown using bubble size by Scholarly Output diagram (Graph 1). Results indicate that the highest scholarly output is presented by the topics: “Sustainable Development Goals; Agenda; United Nations” and “Environmental Disclosure; Sustainability Reporting; Global Reporting Initiative” which is covered mostly by the Social Sciences subject area. Based on publication share, subject area Medicine has the third place, which could be relevant in terms of audit of global targets in health.

**Graph 1** “SDG Audit” contribution in topics within subject areas



Source: author’s elaboration via SciVal by Elsevier

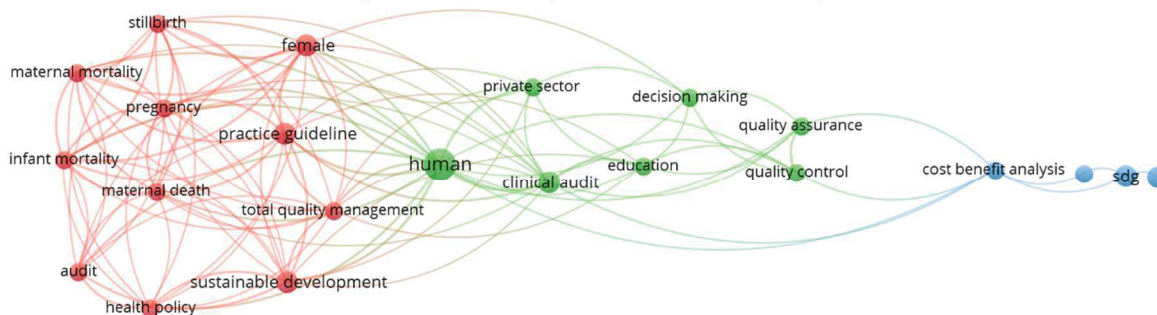
Notes:

\*Bubble size: scholarly output of concrete research area

\*\*Abbreviations of main subject areas: COMP - Computer Science; MEDI - Medicine; SOCI - Social Sciences; BUSI – Business

Based on data from Scopus database by means of SciVal a bibliometric map of publications covering SDG and Audit by keywords was created (Graph 2). As it can be seen there are 3 clusters in this bibliometric map. The analysis of the clusters indicates that health issues related to SDG and audit are interrelated withing the biggest cluster and presented by such keywords as audit, health policy, maternal mortality, pregnancy, total quality management, sustainable development and others. There is not any mentioning of audit design, perform, report, monitor, types of audit, audit tools etc. in relation to SDG 3 implementation which proves the exciting research gap in mentioned research area.

**Graph 2** Bibliometric map of publications covering SDG and Audit by keywords (based on Scopus and SciVal data)



Source: author’s elaboration via VosViewer

Table 2 summarises the dynamic of papers dedicated to SDG 3 and Audit in scientific literature over the period 2016-2021 collected by means of different bibliometric instruments based on data from the Google Scholar, Scopus and Web of Science databases. Table 2 indicates constant growth of publications in Google Scholar database during the last five years. Still, a lack of papers in Scopus and Web of Science databases dedicated to SDG 3 audit indicates that this research area isn’t covered sufficiently (only 2 studies in Scopus and Web of Science databases).

**Table 2** Dynamic analysis of SDG 3 and audit in scientific literature over the period 2016-2021 (as at 01.08.2021)

<b>Bibliometric instruments</b>	<b>2016</b>	<b>2017</b>	<b>2018</b>	<b>2019</b>	<b>2020</b>	<b>2021</b>	<b>Total</b>
<b>Google Scholar:</b>							
<b>-papers</b>	87	150	212	345	430	279	1313
<b>-citations*(no data)</b>							
<b>Publish or Perish:</b>							
<b>-papers</b>	1	1	4	12	13	9	40
<b>-citations</b>	3	1	9	17	24	5	59
<b>SciVal by Elsevier:</b>							
<b>-papers</b>	-	1	1	1	3	1	7
<b>-citations</b>	-	2	4	4	3	-	13
<b>In-built Scopus instruments:</b>							
<b>-papers</b>	-	-	-	-	2	-	2
<b>-citations</b>	-	-	-	-	2	-	2
<b>In-built Web of Science instruments</b>							
<b>-papers</b>	-	-	-	-	2	-	2
<b>-citations</b>	-	-	-	-	1	1	2

Source: author’s elaboration

The analysis of papers based on data from the Google Scholar point out that many researchers investigate issues related to SDG 3 and audit in terms of corruption in health care (Hunter et al., 2020; Mackey et al., 2017, 2018; Kohler & Bowra, 2020; Paschke et al., 2018). Some of these scholars (Paschke et al., 2018; Kohler & Bowra, 2020) link transparency and accountability with SDG 3 audit implementation.

Based on Kohler & Bowra (2020) nowadays the risk of corruption is even more perceptible due to unprecedented responses to the global COVID-19 pandemic and it is crucial to promote best experiences of accountability and transparency, for example, implement the approaches of such global organizations as the World Health Organization and the United Nations Development Program.

Other research direction of SDG 3 audit covers surgical system audit in terms of improving the quality of surgical care as a component of universal health coverage as a part of SDG 3 (World Health Organization, 2017). Drury et al. (2018) analyse clinical audit as a basis for performance improvement and clinic accreditation to meet SDG 3. Blanc & Montero (2019; 2020) estimate the role of external audits and SAIs in increasing transparency and accountability for the SDGs. Bebbington & Unerman (2018) investigate the role of academic accounting in the SDG's implementation. Annelin (2019) analyses the impact of audit teams on audit performance through the SDG's perspective.

The growing role of audit in health care generally, and SDG 3 implementation in particular, is especially relevant for low- and middle-income countries, for example, African countries (Tayebwa et al., 2020; Brhlikova et al., 2020). Tayebwa et al. (2020) applied mixed methods within the frames of the six-step auditing cycle for maternal and perinatal deaths surveillance to estimate the level of its implementation at hospitals and health centers in Rwanda. Among reasons which have caused insufficient maternal death audits are mentioned the following: lack of staff motivation and community engagement, heavy workload, absence of guidelines on how to review the stillbirths, weak classification of cause of death, incomplete medical records and other. Brhlikova et al. (2020) examine the universal access to essential medicines in Uganda (SDG 3.8) and concluded that it is necessary to carry out an audit of essential and non-essential medicines registration in Africa.

## Conclusions

Global COVID-19 pandemic causes a huge threat to achieving global goals, in particular in health care (SDG3). Audit of SDG 3 could be an efficient tool to increase transparency, accountability and anti-corruption in health care. Despite the increasement of scientific interest in notions related to audit of SDGs implementation, it was found out that there is a need for the further research development of issues related to SDG 3 audit.

As can be seen, scientific literature related to the SDG 3 audit is fragmental and covers only separate aspects. A meta-analysis of SDG 3 and audit in academic literature by means of SciVal by Elsevier, VosViewer, Publish or Perish software, Google Scholar, in-built Scopus and Web of Science instruments over the period 2016-2021 reveals that this research area is underexplored.

The conducted analysis of papers points out that many researchers investigate issues related to SDG 3 and audit in terms of corruption, transparency and accountability in health care; clinical audit and surgical system audit in terms of improving the quality of health care; audit in health care in low- and middle-income countries etc.

It is worth mentioning the contribution of SDGs Audit Model (ISAM) designed by the INTOSAI and such scholars as Blanc & Montero (2019; 2020) who estimate the role of external audits and SAIs in increasing transparency and accountability for the SDGs; Annelin (2019) who analyses the impact of audit teams on audit performance through the SDG's perspective.

A very limited number of papers explores the issue of audit methodology related to SDG 3. To fill in this gap scholars should shift their research focus on audit design, perform,

report, monitor, types of audit, audit tools etc. in relation to health care to ensure the SDG 3 achievement.

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