

# Multi-Actor Collaboration in Counter -Terrorism: Bibliometric Study

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**Abstract:** This study aims to analyze international publication trends related to multi-actor collaboration in counter-terrorism through a bibliometric approach using the Scopus database. The research focuses on scientific publications published between 2009 and 2025 to identify the development of research themes, influential authors, institutional collaboration patterns, and emerging issues in the field of counter-terrorism collaboration. The study employed bibliometric analysis using Biblioshiny and VOSviewer to visualize co-authorship networks, country collaborations, keyword co-occurrence, and thematic evolution. Data collection was conducted through the Scopus database using keywords related to "multi-actor collaboration" and "counter-terrorism," resulting in 367 relevant documents after applying inclusion and exclusion criteria. The findings reveal that research on multi-actor collaboration in counter-terrorism has experienced significant growth and is dominated by contributions from developed countries, particularly the United States, the United Kingdom, and Australia. The study also identifies prominent collaboration networks among scholars and institutions focusing on community engagement, intelligence sharing, preparedness, and security governance. Furthermore, thematic analysis indicates a shift from state-centered approaches toward collaborative governance involving governments, civil society, and international actors. Emerging topics such as network security, information dissemination, artificial intelligence, and computer science demonstrate the increasing integration of technological dimensions in counter-terrorism strategies. This study contributes to the development of collaborative governance and network governance theories by providing a comprehensive overview of global research trends on multi-actor collaboration in counter-terrorism. The findings are expected to serve as a reference for future studies and policy development related to collaborative and technology-based counter-terrorism approaches.

## Keywords:

Bibliometric  
Collaboration  
Counter Terrorism  
Multi Actor  
Terrorism

## 1. Introduction

Scholars who have studied terrorism for many years have emphasized the importance of considering a multi-actor collaborative approach when understanding, responding to, and preventing violence that is simultaneously motivated by political and ideological factors (Spalek & El-Awa, 2019). The increased involvement of multiple actors in counter-terrorism signifies a shift from governance to gover-

nance. This means that counter-terrorism efforts cannot be carried out solely by the government, but also involve civil society. These two actors then become involved in decision-making and in implementing initiatives that plan to combat terrorism. Plans towards governance aimed at preventing terrorism reflect the same shift in the field of preventing other social problems. For example, crime prevention, unemployment, anti-social behavior, and so on (Spalek, 2013).

In counterterrorism studies, attention to multi-actor collaboration is increasingly in the spotlight. Researchers have long emphasized the importance of collaborative approaches between states and non-state actors in efforts to prevent and deal with terrorism. However, despite the number of studies on collaboration in counter-terrorism, bibliometric studies examining international publication trends on multi-actor collaboration are still limited. Many previous studies have focused more on article content analysis without providing an in-depth understanding of the relationships between researchers, countries, and institutions involved in this collaboration.

The study fills the research gap by using bibliometric analysis to evaluate international publication trends related to multi-actor collaboration in counter-terrorism, which were collected through the Scopus database. Compared to existing bibliometric studies, which mostly focus only on content analysis without connecting authors or countries in depth, this study offers a more holistic approach by assessing the relationships between researchers, countries, and institutions, as well as the keyword-related trends that are developing in this topic.

The governance of counter-terrorism can be seen as two interrelated dynamics. The 'top-down' approach, led by the state, involves arrests and detentions, stops and searches, surveillance, and other crucial components. Ideally, this should be supported by improvements in technological resilience and infrastructure. The full involvement of the state through a 'top down' approach is still considered lacking, especially with the occurrence of the 9/11 terrorist attacks in America (Cherney and Hartley, 2006). The 9/11 terrorist attacks are viewed as a significant turning point in governance to combat terrorism. On the other hand, this gives rise to the "bottom up" approach.

The "bottom up" approach emphasizes community involvement and participation. This is rooted in the government's concern that the threat posed by terrorism comes from their own citizens (Cherney and Hartley, 2006). In the "bottom up" approach, the community is seen as an important actor in the development, implementation, and oversight of policies and practices aimed at combating terrorism. Combining both approaches is considered a more effective strategy for addressing the issue of terrorism because it involves multiple actors.

Although several studies on counter-terrorism have been conducted, the author's assumption is that no research has yet attempted to examine how studies on multi-actor collaboration using bibliometric methods. In several previous studies, various experimental emphases were prioritized more. However, there is a limited comprehensive understanding of multi-actor collaboration and counter-terrorism, particularly its trends and scientific structure. To fill the gaps in existing studies, this research aims to outline international publication trends on multi-actor collaboration in countering terrorism, using the Scopus database through bibliometric analysis. This study seeks to answer the following questions in the field of multi-actor collaboration in countering terrorism.

The theoretical contribution of this research lies in a broader understanding of how multi-actor collaboration, which includes government, civil society, and the private sector, can play a role in improving the effectiveness of counter-terrorism policies. The study argues that a better understanding of this collaborative structure will strengthen global strategies in combating terrorism with a more integrated and sustainable approach.

## 2. Literature Review

### Terrorism

Terrorism refers to the deliberate use of violence and intimidation to achieve political or ideological goals. Terror acts can be carried out by individuals or groups. This is also carried out with motivation from various factors, and done rationally or irrationally. The main causes of terrorism are complex and multifaceted, encompassing various underlying factors that may contribute to acts of violence (Ullah, 2018). The UN General Assembly resolution identifies four root causes of terrorism: colonialism, racism, mass and systematic violations of human rights and fundamental freedoms, and foreign governance or occupation.

These root causes represent systemic and structural issues that create conditions in which terrorism can emerge (Hamid, & Sein 2022). Economic conditions and the marginalization of low-income groups in society are significant contributing factors to the emergence of terrorism (Vad, 2018). In some cases, even inflation can trigger or exacerbate terrorist activities (Akhmat, et al, 2014). Poverty is also recognized as a cause of terrorism, given the strong correlation between the two phenomena (Lambert, 2018). Researchers have given significant attention to the relationship between terrorism and economic conditions, with many arguing that international terrorism is often the result of underdevelopment and poverty (Newman, 2006). This view is supported by evidence showing that democratic institutions with higher GDP experience fewer conflicts, while countries with lower economic freedom are more vulnerable to terrorism.

Basically, a single factor causing terrorism cannot strongly explain its causes. In fact, theoretically, there is no single comprehensive theory that can fully explain terrorism, given the complexity and sensitivity of the phenomenon (Mirza and Rana, 2024). Certain ideologies and personal motivations can also be the main causes of terrorism (Skoczylis & Andrews, 2020). Terrorist organizations do not operate without a specific ideology. Some people who share similarities in identity, beliefs, perspectives, grievances, or social conditions join terrorist groups (Gomez, et al, 2021). That means, people who join terrorist groups have certain criteria that are almost the same.

Radicalization is the main process before committing acts of terrorism. Radicalization describes how an idea can motivate and influence a person's choices and perceptions (Sawalha, 2017). To view radicalization, there are two different perspectives. First, radicalization is a cognitive process that leads to the acceptance of radical ideas. Second, radicalization is a behavioral transformation that leads to a situation where someone has accepted or is willing to commit violence.

Religious motivation in some cases of terrorism has become common and has grown rapidly compared to contemporary terrorist organizations. Religious organizations, which are present both at the grassroots level and at higher levels within a community, have the potential to mobilize and influence people from various social strata (Ngwoke, 2020). On the other hand, this phenomenon also explains why recruitment in extremist organizations often relies on relationships such as kinship, close friends, and religious organizations. Terrorist groups often use religious rhetoric to promote brotherhood and boost morale rather than as a genuine justification for their acts of violence.

### Multi Actor Collaboration

In the case of terrorism in Indonesia, the collaboration between the National Intelligence Agency (BIN), Special Detachment 88 (Densus 88), the National Counter-Terrorism Agency (BNPT), the Indonesian National Armed Forces (TNI), civil society, and religious organizations as a community serves as an example of the application of collaboration in the field of national security. Previous research highlights

the importance of cross-sectoral collaboration in Indonesia to address the increasingly adaptive threat of terrorism (Nooryadi et al., 2025). More specifically, the involvement of local communities in deradicalization programs becomes an important element in strengthening societal resilience against radical ideologies. At the international level, intelligence cooperation also becomes one of the important forms of collaboration that enables cross-border data exchange in addressing the threat of global terrorism. Bureš (2016) emphasizes that international collaboration in the field of security requires jointly agreed operational standards and a legal framework that allows for the exchange of information without compromising human rights.

The most challenging segment to address in promoting a multi-actor approach is inter-agency cooperation. While such cooperation is difficult in any thematic area, in the case of counter-terrorism, it becomes more challenging due to the legacy of securitization (Doda & Mclellan, 2020). This means that multi-actor cooperation faces challenges because historically, this issue has been confined within a national security approach (top-down approach).

### 3. Research Methods

This study employs a bibliometric analysis to evaluate international publications on multi-actor collaboration in counter-terrorism, using data from the Scopus database. The search query focused on keywords like “multi-actor collaboration” and “counter-terrorism,” limited to publications between 2009 and 2025. Articles were included if they were peer-reviewed, in English, and relevant to the topic, while those outside the scope, such as non-Scopus indexed works or non-English texts, were excluded. After data collection, duplicates were removed using EndNote, and articles were screened for relevance based on titles and abstracts. Full-text reviews ensured adherence to inclusion criteria. Data cleaning was performed with OpenRefine to harmonize keywords and ensure accuracy in the dataset.

Bibliometrics is a statistical method commonly used in academic literature reviews to measure scientific evaluation. This method is valuable for analyzing broad and open topics with big data, involving large datasets and more than 100 documents (Kalantari et al., 2017). This study examines the network, the evolutionary trends of the most influential units (i.e., researchers, keywords, publications, journals, institutions, and countries) regarding multi-actor collaboration in counter-terrorism. This can help researchers analyze the latest developments on specific topics they wish to study.

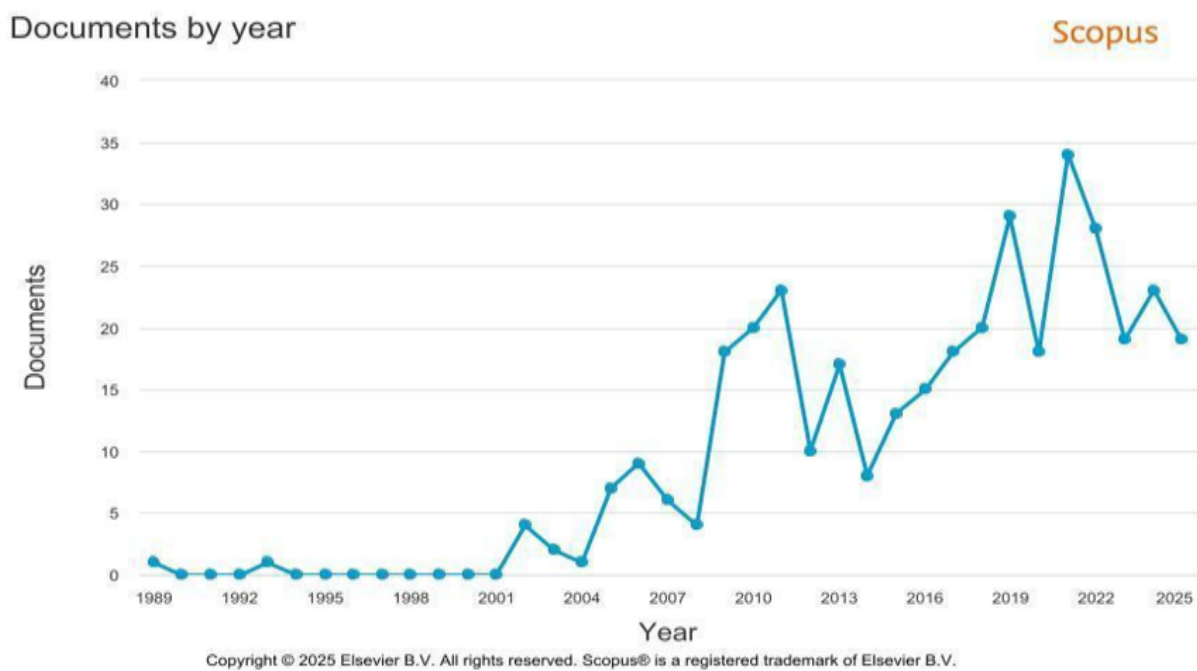
Several steps in bibliometric research are as follows. The first step, data collection. Data collection was conducted using the Scopus database for the breadth of information to be gathered. In addition to being the largest database in the world, Scopus provides more detailed information about publications compared to other databases. This information includes the full article title, the exact journal name, and a more comprehensive list of researchers’ names (i.e., the main researchers’ names). Finally, Scopus will help form a more accurate and broader network of cooperation among researchers. This makes it easier for the authors to reveal more details about the trends in multi-actor collaboration in counter-terrorism than if the network were built using information obtained from other databases.

The second step is to clean the data using the OpenRefine application. Before analyzing the collected data, the researcher first cleans the data using the web-based application OpenRefine. In this process, the dataset obtained from Scopus will be cleaned, standardized, and harmonized in terms of keywords. This process is important to ensure that there is no duplication of meaning due to differences in writing, ultimately improving the quality and accuracy of the study. The cleaned data is then analyzed using a bibliometric approach to see the network visualization in depth.

Step Three, performing data visualization. The cleaned data is then visualized using the Biblishyni and Vosviewer applications. The bibliometric analysis was conducted using R Studio version 2023.09.0+463, with the Bibliometrix and Biblio Shiny packages, and VOSviewer version 1.6.9. The authors used VOSviewer to explore the following aspects of the data: (1) Co-authorship analysis to explore the relationships between researchers and countries; (2) Co-occurrence analysis to identify hot topics in the field of multi-actor collaboration in counter-terrorism and longitudinal analysis to show how the field has changed over time and to predict future research trends. The visualization step uses diagrams such as networks, evolution maps, and strategic diagrams to help readers better understand the results. Finally, the interpretation step presents the results from the images and tables. A further literature review on each topic is conducted to illustrate the development of academic literacy in the selected period.

### Data Sources and Data Search Strategy

This study is a literature review on multi-actor collaboration in counter-terrorism. This study will analyze the latest organizational performance research using bibliometric network analysis. Analysis with “multi actor collaboration” and “countering terrorism” as keywords in the literature search engine in Scopus from 2009 to the end of 2025. The period of time selection is based on the internet bubble in 2009, related data can be seen in Figure 1.



**Figure 1** Initial Data Collection  
(Source: Scopus 2025)

The titles and abstracts of the 367 pieces of literature most correlated with the keywords will be the main data in this research. The data collection process was conducted on July 2, 2025, using the search parameter syntax TITLE-ABS-KEY: “Multiactor collaboration” OR “collaboration” AND “Counter Terrorism” OR “Terrorism”.

## Data Selection and Exclusion

Several exclusion criteria were applied to select the data. This selection was made to ensure that the research captures the most recent and globally relevant studies. Several exclusion criteria were applied, namely, data collection was limited to studies published between 2009 and 2025 due to the emergence of research on radicalism and multi-actor collaboration starting to increase during that period. Data were collected on July 2, 2025. Additionally, the research is published in the Scopus database but is not limited to the languages used. Furthermore, the publications analyzed are open-access research articles. Finally, the reviewed articles have complete bibliographic data. This criterion can be observed in Table 1.

**Tabel 1.** Exclusion Criteria Analysis and Data Visualization

Criteria	Exclusion
Period	Before 2009 or after 2025
Document type	Not limited to journal articles, book chapters, conference papers, reviews
Source	Not indexed in Scopus
Study Area	Medicine, Engineering, Physics and Astronomy, Earth and Planetary Sciences, Mathematics, Nursing, Biochemistry, Genetics and Molecular Biology, Pharmacology, Toxicology and Pharmaceutics, Immunology and Microbiology, Chemistry, Agricultural and Biological Sciences, Veterinary, Chemical Engineering - 367

Data analysis is an important aspect of this study, which involves observing, assessing, understanding, analyzing, and interpreting the output from the information collection stage. This indicates that the data was obtained through the Scopus database and refined using exclusion and inclusion methods, with the output converted into CSV and RIS formats. This information is analyzed by grouping documents published from 2009 to 2025, leading to several classifications regarding various factors, such as authors, affiliations, fields of study, types of publications, and other relevant information.

Inputting the text data file into the software, it generates the most frequently appearing keywords relevant to multi-actor collaboration in counterterrorism. After the initial search, duplicates were removed using EndNote. The remaining articles were screened for relevance based on the title and abstract. Full-text articles were reviewed to ensure they met the inclusion criteria. Data cleaning was performed using OpenRefine to harmonize keywords and ensure accuracy in the dataset.

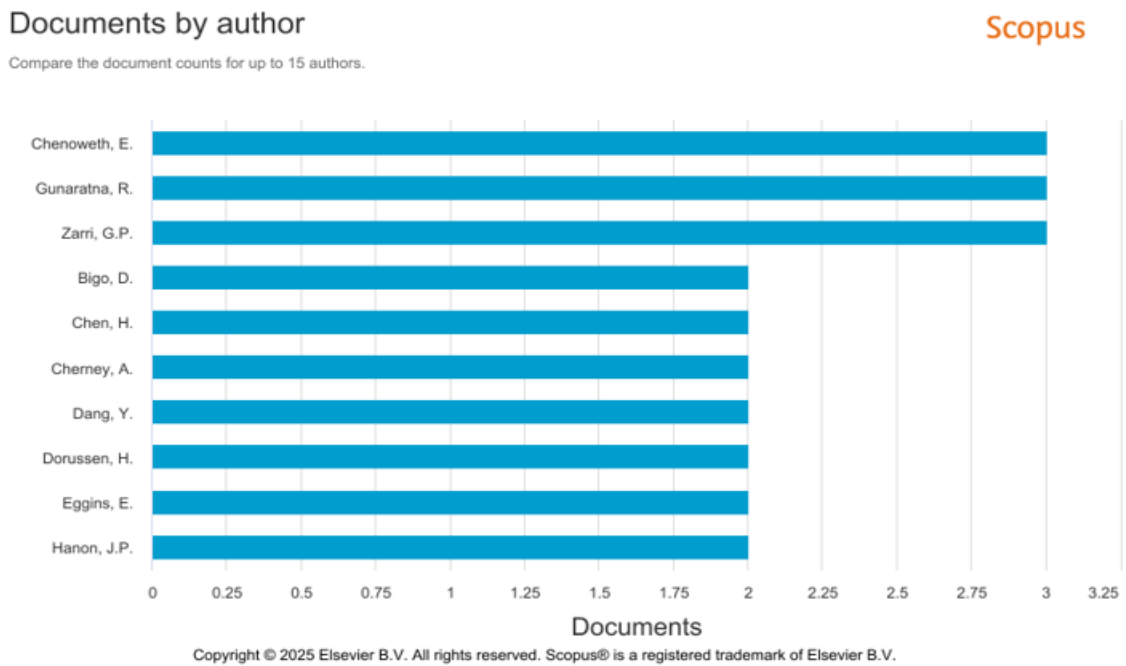
Manual selection has also been carried out to refine the keywords most relevant to the topic from the authors' perspective. This method will help in demonstrating: 1) an overlay of network visualization of the evolution of multi-actor collaboration in counterterrorism; 2) network visualization to help cluster each topic within the network; 3) observing the density of topics related to keywords. The result of this analysis is keywords related to multi-actor collaboration in counterterrorism.

## 4. Results and Discussion

The methodological framework used in this study integrates Scopus database analysis, Scopus visualization, VOSviewer visualization, and Biblioshiny analytics, and has generated several insights regarding the development of multi-actor collaboration in counter-terrorism. Specifically, the visualization capabilities of VOSviewer and Scopus have revealed author collaboration networks, while advanced Biblioshiny analytics have uncovered temporal patterns in the research focus area. This methodological approach is highly significant as systematic bibliometric analysis of the literature on multi-actor collaboration in counter-terrorism remains limited.

## Influential Scholars and Scholars Connectivity

Based on the number of documents, there are three top authors, each contributing three documents: Chenoweth, E., Gunaratna, R., and Zarri, G.P. These three names have the most significant contributions to the development of this topic in the literature on multi-actor collaboration in counter-terrorism. Additionally, there are several other authors, each with two publications, including Bigo, D., Chen, H., Cherney, A., Dang, Y., Dorussen, H., Eggins, E., and Hanon, J.P.



**Figure 2** Documents By Atuhor  
(Source: Scopus 2025)

The results of the analysis show that the collaboration of authors from various institutions and countries reflects the concept of network governance, where the actors involved form a network that is interconnected to solve problems together. Collaboration between countries and institutions creates a network that allows for the exchange of information and resources, in line with the principle of collaborative governance, which emphasizes the role of various parties in decision-making.

Then, the bibliometric findings provide unique insights into how academic discourse has responded to multi-actor collaboration in counter-terrorism. While policy analysis may focus on official narratives and implementation strategies, our bibliometric approach reveals a broader intellectual ecosystem surrounding multi-actor collaboration. Based on the number of documents, there are three top authors, each contributing three documents, namely Chenoweth, E., Gunaratna, R., and Zarri, G.P. These three names have made the most significant contributions to the development of this topic in the literature on multi-actor collaboration in counter-terrorism.

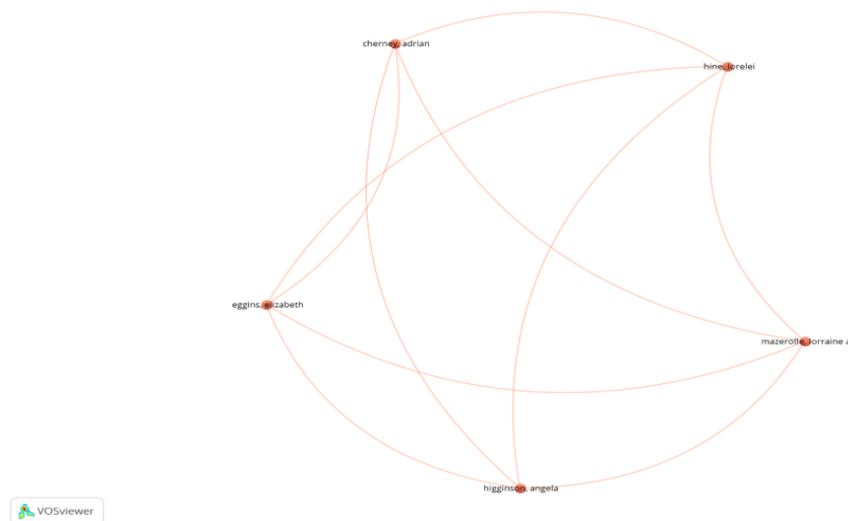
In her research, Chenoweth (2010) examined the conditions under which local jurisdictions effectively utilize U.S. domestic security resources. It analyzes how resources, institutional context, and governance affect local performance in one dimension of homeland security policy—communication interoperability. The results show that governance maturity, structured institutions, and the presence of formal rules are key variables that influence the relationship between resources and performance at the

local level. Cities with advanced, multilevel, and formal governance arrangements are more effective in using Urban Area Security Initiative funds to improve their interoperability performance. Here are the top three authors, each contributing three documents to the research on the theme of multi-actor collaboration in counter-terrorism.

**Table 3.** Most relevant authors

Authors	Years	Title
Erica Chenoweth	2025	Thinking (about peace science) in time.
	2011	A Contested Threat: The Politics of Security Collaboration for Combating Terrorism
	2010	All terrorism is local: Resources, nested institutions, and governance for Urban Homeland security in the American federal system
Rohan Gunaratna	2025	The Global Terrorist Threat Forecast in 2025
	2022	Handbook of Terrorism in the Middle East
	2017	Global threat forecast; Un pronóstico sobre el terrorismo global
Gian Piero Zarri	2011	Dealing with 'narrative' terrorism information according to a conceptual/semantic approach
	2010	A conceptual methodology for dealing with terrorism "narratives
	2010	Dealing with 'narrative' terrorism information according to a conceptual/semantic approach

Next, the author co-occurrence visualization (in Figure 3) illustrates the collaboration network among authors who are active in the related topic. Angela Higginson, Adrian Cherney, and Lorraine Mazerolle are central to this network, as indicated by their strategic positions and direct connections with several other authors such as Elizabeth Eggins and Lorelei Hine. This network shows a compact and interconnected structure, indicating strong collaboration within certain academic or institutional spheres. Consistent collaboration among them reflects a shared research focus and the important role of academic networks in producing knowledge in that field.



**Figure 3** Author network (Source: VOSviewer)

This research reveals several important findings regarding the development of multi-actor collaboration in counter-terrorism during the period 2009–2025. A bibliometric analysis of 367 publications indexed in Scopus shows that multi-actor collaboration in counter-terrorism has evolved from merely a

government policy idea to an academic construct. It is evident from the connections between authors, for example (see Figure 3). Two articles corresponding to the author network are listed in Table 2. Based on the researchers' connectivity analysis, names such as Lorraine Mazerolle, Adrian Cherney, Elizabeth Eggins, Lorelei Hine, and Angela Higginson were found (see Figure 3).

Their article published in 2020 is titled "Police programmes that seek to increase community connectedness for reducing violent extremism behaviour, attitudes and beliefs," which was published in Campbell Systematic Reviews. This study targets the civil society with topics on community education, enhancement of institutional networks, and multicultural volunteer activities (Mazerolle., et al, 2020). Then, their 2021 research titled "Multiagency programs with police as a partner for reducing radicalisation to violence," which was also published in Campbell Systematic Reviews. The researchers mentioned that the qualitative synthesis shows that collaboration can be enhanced when partners take the time to build trust and shared goals, staff are not burdened with excessive administration, there are strong privacy provisions for sharing intelligence, and there is ongoing support and training (Mazerolle et al., 2021). Some of the above studies indicate that multi-actor collaboration research in counter-terrorism extensively discusses strategies in planning and implementation.

**Table 2.** Scholar Connectivity

<b>Authors</b>	<b>Years</b>	<b>Title</b>	<b>Journal Title</b>
Lorraine Mazerolle, Adrian Cherney, Elizabeth Eggins, Lorelei Hine, Angela Higginson	2021	Multiagency programs with police as a partner for reducing radicalisation to violence	<i>Campbell Systematic Reviews</i>
Lorraine Mazerolle, Elizabeth Eggins, Adrian Cherney, Lorelei Hine, Angela Higginson, Emma Belton	2020	Police programmes that seek to increase community connectedness for reducing violent extremism behaviour, attitudes and beliefs	<i>Campbell Systematic Reviews</i>

## Countries and Influential Institutions

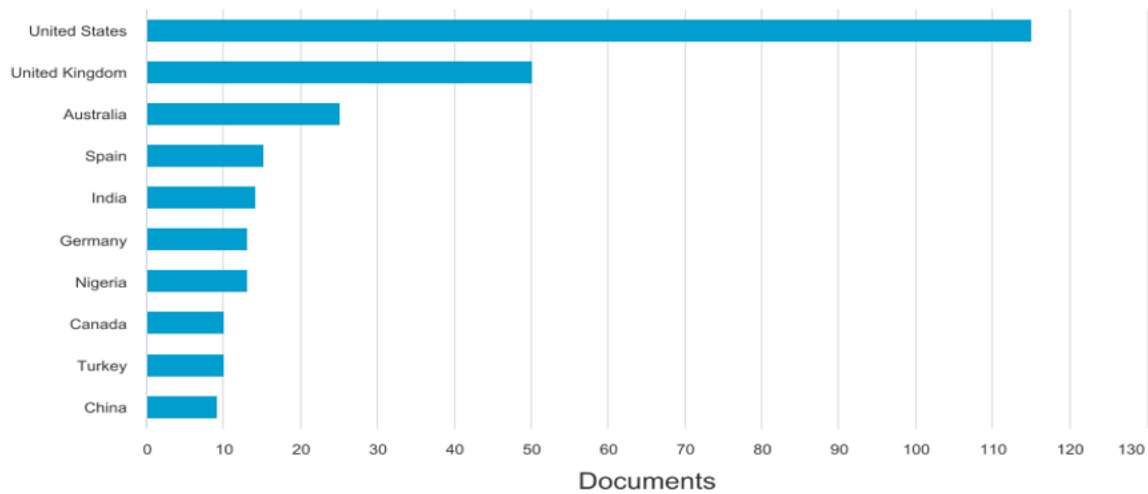
Further analysis of influential countries shows that the majority of publication contributions come from developed countries. For example, the United States occupies the top position. The total number of documents originating from the United States exceeds 120 documents. The second position is held by the United Kingdom with 50 documents, followed by Australia with 20 documents. The most influential countries also appear to dominate the distribution within the collaboration network among authors. Then, other countries that also make significant contributions, albeit in smaller numbers, include Spain, India, Germany, and Nigeria. Meanwhile, several countries such as Canada, Turkey, and China are also recorded as contributing publications, but in relatively small numbers. This information can be seen in Figure 4.

Meanwhile, the visualization of international collaboration shows a fairly extensive collaboration pattern. This collaboration involves countries with the highest publication productivity. Based on the country collaboration map, the United States occupies a central position in the global collaboration network, with dense connection lines spread across various continents. This is consistent with previous analyses which show that the United States is the most influential country in publications regarding multi-actor collaboration in counter-terrorism efforts. In addition, the country collaboration map shows that the United States has the strongest collaborative relationships with the United Kingdom and Australia. Australia also serves as an important hub for collaboration.

### Documents by country or territory

Scopus

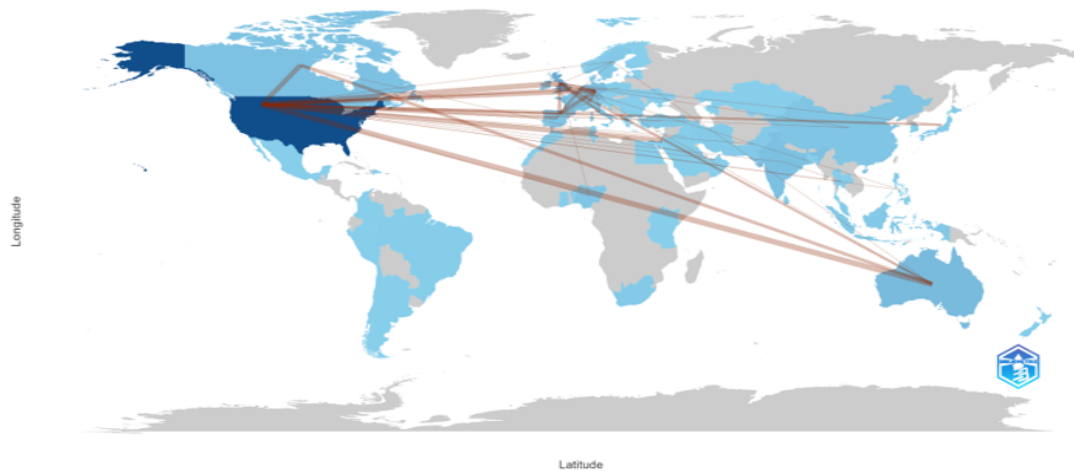
Compare the document counts for up to 15 countries/territories.



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**Figure 4** Documents by Country  
(Source: Scopus)

### Country Collaboration Map



**Figure 5** Country Collaboration Map  
(Source: Biblioshyni)

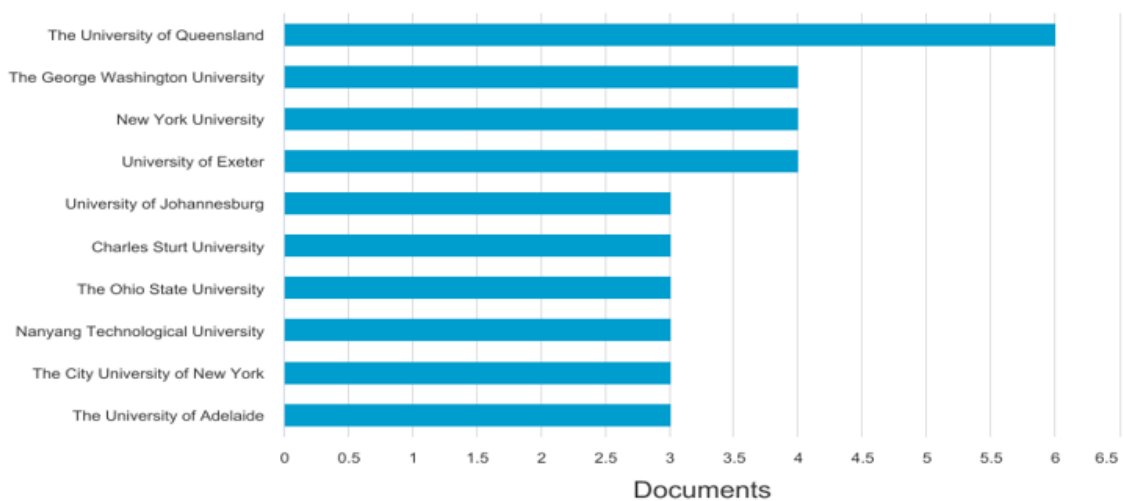
In addition, this study also reveals that developed countries have been pioneers in research on multi-actor collaboration in counter-terrorism efforts. The countries are the United States, the United Kingdom, and Australia. This is very possible, as it is based on the central role of the three countries as pioneers of a collaborative approach in addressing global terrorism. The three of them initiated cross-sector engagement through a whole-of-government and whole-of-society approach that encourages the integration of the roles of the state, community, and non-state actors (Arsenault, et al, 2024). Moreover, all three have global influence, making their policy approaches a reference point for formulating collaboration-based counter-terrorism strategies internationally (Miller, et al, 2011). Well-documented collaborative practices enable more in-depth empirical analysis.

Next, based on the results of the affiliation analysis, it was recorded that The University of Queensland is the institution with the highest number of publications on this topic, with a total of 6 documents. Then, The George Washington University, New York University, and the University of Exeter each have 4 documents. These institutions come from countries with high publication dominance such as the United States, England, and Australia, which is also reflected in the previous analysis results by country. Meanwhile, other institutions recorded with 3 documents each include, among others, the University of Johannesburg, Charles Sturt University, The Ohio State University, Nanyang Technological University, The City University of New York, and The University of Adelaide.

### Documents by affiliation

Scopus

Compare the document counts for up to 15 affiliations.



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**Figure 6** Documents by affiliation  
(Source: Scopus)

### Distribution and Trends of Keywords

Based on co-occurrence analysis to examine keyword distribution, several key nodes are evident in research related to multi-actor collaboration in counter-terrorism. In Figure 7, it can be seen that the words "Terrorism," "Counter terrorism," "Security," "Collaborations," "Disaster & Emergency Response," "Radicalization," and "Violent Extremism" are the most frequently appearing keywords in research on this topic. In the red and orange clusters, there are keywords "Afghanistan," "Nigeria," "Africa" which indicate specific locations and regions related to where research on this topic has been conducted. Then, in the yellow cluster with the node "collaborations," it is seen to be related to the keywords "Information Sharing," "Preparedness," "training," "Homeland Security," which indicate institutional and policy approaches. The word "collaboration" becomes a keyword that marks cross-sector cooperation (government, law enforcement, international organizations) to systematically address the threat of terrorism.

Meanwhile, the trend topic graph in Figure 8 shows the evolution of key keywords in the research over time. It appears that several topics have garnered attention in research over certain years. For example, the topic of "community resilience" has emerged in several consecutive years, indicating that this topic is highly relevant in the scientific discourse. Then, the topic "police" became a newly emerging and popular topic in 2023. The words in the yellow cluster in image 7, such as "collaborations," "information

sharing," "preparedness," "training," and "homeland security," also appear in trending topics based on document analysis in Biblioshyni. Therefore, multi-actor collaboration in counter-terrorism is not only evident from the keyword "collaboration" but also from the words "preparedness," "information sharing," "community engagement," "homeland security," and "counterterrorism." These topics indicate that since 2016 until now, there has been a shift from a state-centric approach towards a collaborative model involving cross-sector and cross-level actors (local, national, and global).

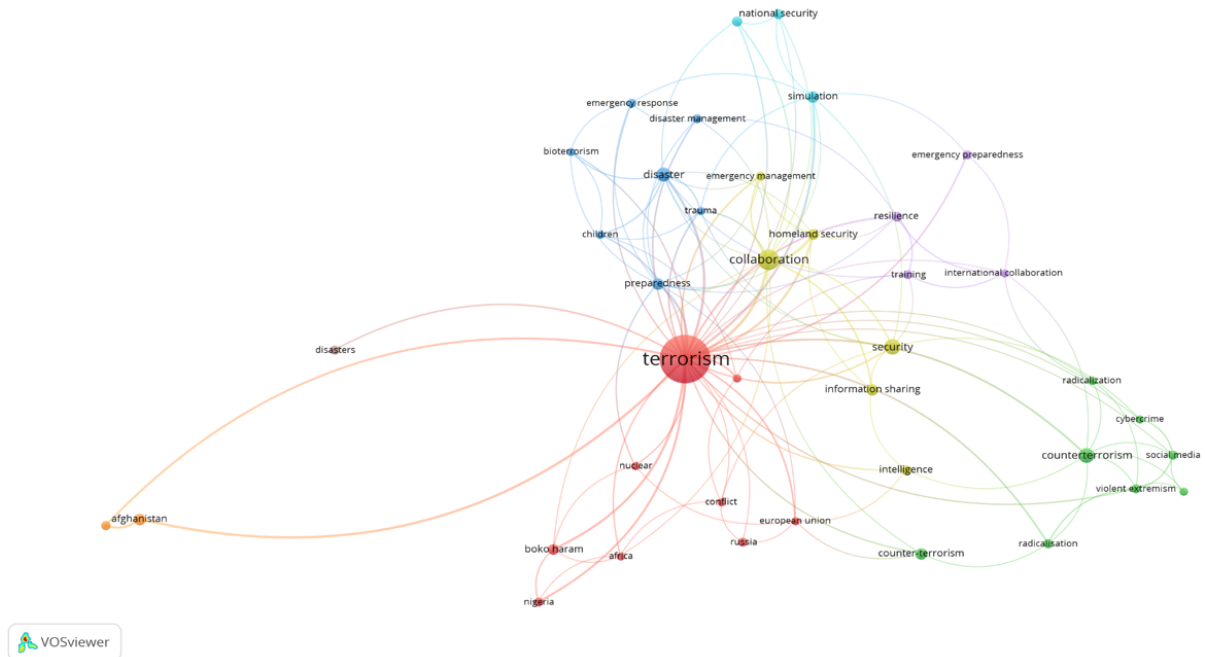


Figure 7 Co-occurrence  
(Source:VOSviewer)

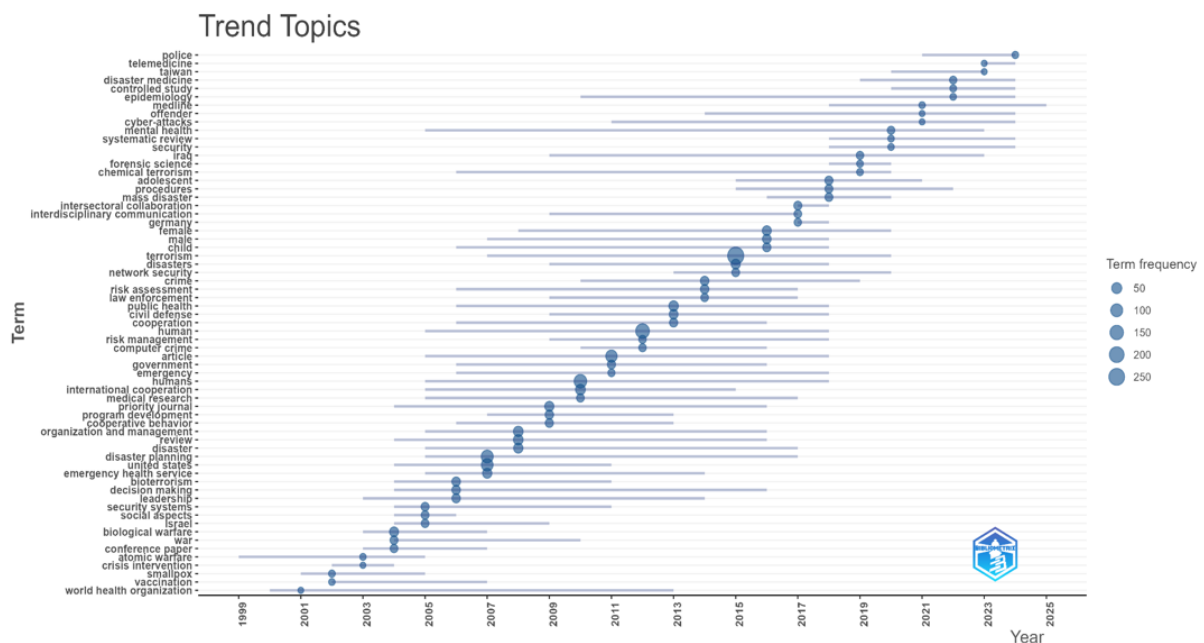
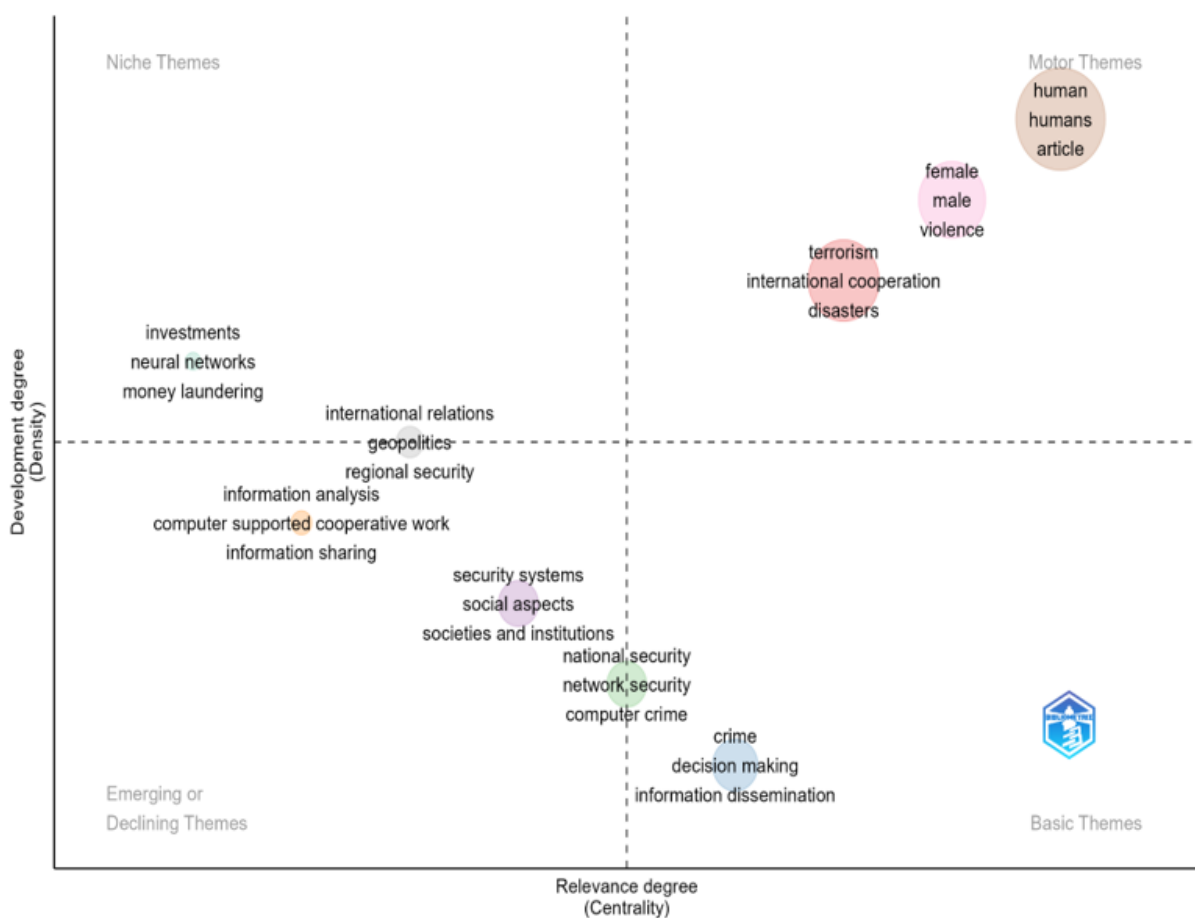


Figure 8 Trend Topics  
(Source: Biblioshyni)

The thematic map in figure 9 shows the distribution and position of various research themes based on two main dimensions: centrality and density. The themes located in the upper right quadrant (motor themes) indicate topics that are not only developing internally. There are words such as "humans," "female," "male," "violence" in this quadrant. These topics have developed significantly in relation to multi-actor collaboration in counter-terrorism efforts. Then, the themes located in the lower right quadrant (basic themes) indicate themes that are very central but still in the development stage. There are the words "security," "national security," "network security," "computer crime," "decision making," and "information dissemination." Next, the themes located in the lower left quadrant (marginal themes) indicate themes with low density and centrality. This means that these themes might be new, minor, or starting to be abandoned. There are words like "security systems," "social aspects," "societies and institutions," "information analysis," "regional security," "computer supported," and "cooperative work."



**Figure 9** Thematic Map  
(Source: Biblioshyni)

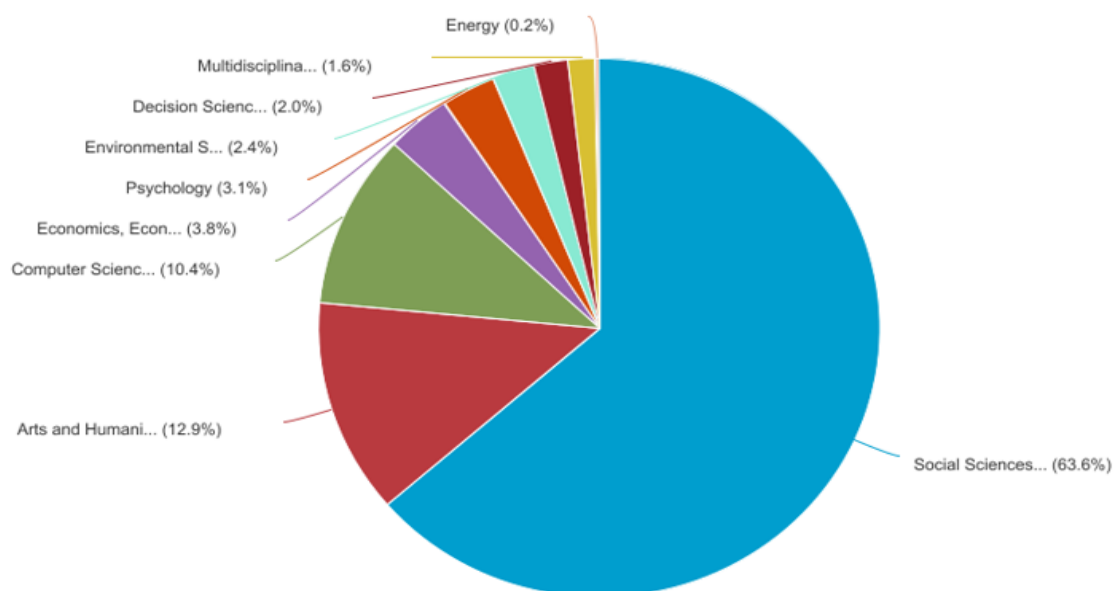
Thematic mapping identifies four main areas of multi-actor collaboration development in counter-terrorism: motor themes, niche themes, emerging/declining themes, and basic themes. The distribution of these themes indicates that multi-actor collaboration in counter-terrorism is moving beyond the conceptual level and beginning to shift towards practical implementation. For example, in the very central but still developing themes, there are the words "security," "national security," "network security," "computer crime," "decision making," and "information dissemination." These topics can still be developed

as further research topics, especially to enhance their relevance in studying multi-actor collaboration in counter-terrorism efforts.

On the topic of “network security,” the research conducted by Jin, et al. (2024) is about the use of artificial intelligence technology to address challenges such as difficulties in intelligence gathering, information sharing, and risk management. IC3P adopts a layered architecture consisting of infrastructure layer, data layer, analysis layer, application layer, interaction layer, and security layer. This means that the emerging themes are closely related to technological advancements, providing valuable insights for the future revolution in counter-terrorism. This is also supported by the researchers’ findings regarding the results of document analysis in Scopus, where the majority of publications come from the field of Social Sciences (63.6%), indicating the primary focus of this research on social issues. Interestingly, Computer Science emerges as the third-largest contributor (10.4%), indicating the important role of information and digital technology in supporting multi-actor collaborative research in counter-terrorism (See Figure 10).

### Documents by subject area

Scopus



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**Figure 10** Subject Area  
(Source: Scopus)

The discussion on multi-actor collaboration in counter-terrorism shows that approaches involving a wide range of actors from the public and non-public sectors reflect collaborative governance theory, which emphasizes the importance of collaboration between actors to improve policy outcomes. In addition, network governance theory is clearly seen in the network structure formed between the countries and international institutions involved, where interaction and interdependence play a key role in the success of counterterrorism strategies.

## 5. Conclusion

Based on the results, international publications on multi-actor collaboration in counter-terrorism have been extensively conducted through collaboration. This is evident from the visualization of the

author's network. Research on multi-actor collaboration focuses on developed countries, namely the United States, the United Kingdom, and Australia, which collaborate in counter-terrorism efforts through various means, including intelligence sharing and military exercises. Then, the discussion on multi-actor collaboration in counter-terrorism focuses heavily on the implementation strategies. Furthermore, examining the relationship between multi-actor collaboration in counter-terrorism appears promising from several perspectives, such as technological advancements and security networks.

This study contributes to collaborative governance theory by demonstrating how multi-actor collaboration, spanning governments, civil society, and private sectors, enhances counter-terrorism efforts. It also adds to network governance theory by illustrating how interconnected networks of actors shape the dynamics of counter-terrorism policies and actions, contributing to the understanding of how decentralized networks operate in high-stakes governance domains like security.

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