Determinants Analysis of Collaborative Governance in Biological Threats: A PRISMA Method Approach

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Abstract: - The COVID-19 pandemic has intensified the need for nations like Indonesia to strengthen defense and disaster management frameworks against biological risks. Collaborative governance integration emerges as a key strategy to ensure a unified response to protect national security and public health. This research aims to identify determinants of collaborative governance in addressing biological threats. A Systematic Literature Review was conducted following PRISMA guidelines in May 2021. Eligible studies were sourced from databases like PubMed, Web of Science, and Scopus, focusing on collaborative governance determinants in managing biological threats. Content analysis methods were used for data extraction and analysis. Analysis of 22 articles identified 12 key determinants of collaborative governance in managing biological threats. These include institutional structure, leadership, stakeholder engagement, transparency and communication, social capital, resource mobilization, technology and innovation, policy tools and measures, community participation, inter-agency coordination, evidence-based medicine, and local community involvement. The review highlights the multifaceted nature of collaborative governance in addressing biological threats. Understanding and leveraging these determinants are crucial for policymakers and stakeholders to enhance the resilience of governance frameworks and protect public health during health emergencies. These insights inform evidence-based policies and interventions to mitigate the impact of biological threats, contributing to global health security.

Key-Words: - Determinant, Collaborative Governance, Biological Threats, PRISMA, COVID-19, Disaster Management, Public Health.

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1 Introduction

Indonesia, as the world's largest archipelagic country, is endowed with a rich diversity of cultures, languages, and natural resources. This geographical and cultural richness, however, also positions Indonesia at a crossroads of potential vulnerabilities that could threaten its national security. These threats include military, non-military, and hybrid types, as outlined by the Indonesian Ministry of Defense in 2016. Given the evolving global scenario, especially the military progress in the Asia Pacific and the rise of non-traditional threats like terrorism, the deployment of weapons of mass destruction, and espionage, it's crucial to maintain a vigilant defense stance.

The threat of biological agents to national security has become increasingly prominent, especially after the global COVID-19 pandemic that began in 2019. Presidential Instruction Number 7 of 2020, which regulates Limitations for Handling COVID-19, is a significant example of the application of collaborative government standards in Indonesia, which aims to limit. This initiative involves cross-sectoral coordination that integrates various divisions and levels of government. This shows the importance of a coordinated approach in managing threats such as pandemics, which requires a uniform and synergistic response from all elements of government, [1]. Policies like this are essential to effectively and efficiently handle complex and dynamic emergencies, [2]. By including military and civilian teach, the assignment drives points to guarantee a coordinated and proficient reaction, in this manner expanding the general viability of the country's activities in managing such crises, [3].

Despite numerous activities, a comprehensive demonstration for overseeing natural dangers remains an imposing challenge. Current writing and arrangement systems restrict leveraging the capabilities and assets essential for successful reactions to organic hazards. These inadequacies highlight the need for collaborative administration models to address the complexity of overseeing organic dangers. A show like this would coordinate the parts of the military, well-being teachers' fiasco administration offices, and other significant partners into a coordinated procedure.

In this article, we propose to consider the development of integrated models for biological threat management within a collaborative governance framework. The objective is to improve Indonesia's ability to respond to biological threats and how collaborative governance principles can be applied to ensure a coordinated and comprehensive approach to national security and public health. It is essential to consider the following. This study aims to contribute to the broader national defense and disaster preparedness debate by investigating the biological threat landscape and the fundamental principles of cooperative governance.

2 Problem Formulation

2.1 Systematic Literature Review

The methodological steps for the research as detailed in [4] are as follows:

1. Eligibility Criteria Specifications
2. Identify Information Sources
3. Study Selection
4. Data Collection Process
5. Selection of Data Elements

2.2 Eligibility Criteria

The following are the eligibility criteria used in this research:

1. IC1: All original, peer-reviewed literature exclusively in English.
2. IC2: Research focused on determining the variables that impact collaborative governance.
3. IC3: Studies utilizing either quantitative or mixed methods, effectively combining qualitative and quantitative approaches.

These selection criteria maximize the relevance and quality of included studies and the robustness and applicability of findings to understanding and improving collaborative governance in addressing biological threats. The purpose is to structure the review in a way that enhances it. IC2 is committed to examining how collaborative governance can be leveraged to prevent, respond to, and manage biological threats, including pandemics and bioterrorism incidents. IC3 emphasizes incorporating diverse research using methodological approaches to capture the complexities of collaborative governance in public health emergencies.

3 Research Methods

3.1 Information Source

Information was searched using online databases known for their extensive archives of academic research. In particular, databases such as PubMed, Web of Science, and Scopus were used due to their relevance to health policy and governance research. To ensure comprehensive analysis, articles whose full text was not accessible were excluded from the study.

3.2 Study Selection

The study selection process unfolded in three key stages as described below:

- Conducting searches using specific keywords aligned with the research objectives, focusing on factors influencing the effectiveness of collaborative governance in biological threats. Key search terms included combinations of "(Collaborative governance OR multi-sectoral collaboration OR interagency cooperation) AND (biological threats OR pandemic OR bioterrorism) AND (effectiveness OR determinants OR challenges OR success factors)."
- Review articles for relevance based on their titles, abstracts, and keywords in light of the eligibility criteria.

Further examination of articles through full-text reading to ensure they meet the defined eligibility criteria, with a particular focus on those addressing the determinants of effective collaborative governance in the context of biological threats.

3.3 Data Collection Process

Data were collected manually via content analysis methods, encompassing dimensions such as article type, journal name, publication year, the focus of study, research methodology, participant demographics or data sources, geographical context, variables linked to the effectiveness of collaborative

governance in biological threats, and outcomes concerning the impact of these variables.

3.4 Data Items

The extracted data elements were synthesized into categories including publication year, authors, study country and sample, research objectives, research variables, determinants of collaborative governance effectiveness in biological threats, and findings related to the impact of these determinants. A visual representation of the systematic literature review process is illustrated in Figure 1, providing a clear overview of the methodological framework adapted for this specific research domain.

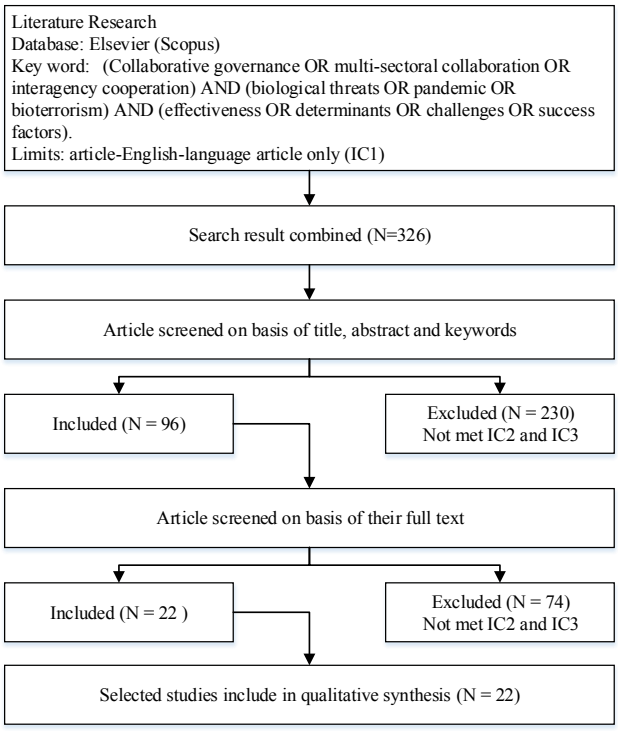

Fig. 1: PRISMA Flow Diagram

4 Result

4.1 Research Results and Qualitative Synthesis

The search on the SCOPUS database, using keywords such as "(Collaborative governance OR multi-sectoral collaboration OR interagency cooperation) AND (biological threats OR pandemic OR bioterrorism) AND (effectiveness OR determinants OR challenges OR success factors)", yielded a total of 326 articles published between 96 and 230 in English. These articles were initially screened based on IC2 and IC3 criteria, taking into account their titles, abstracts, and keywords, resulting in 96 selected articles. In the subsequent phase, the remaining 96 articles were subjected to a thorough review based on IC2 and IC3 criteria by reading them in their entirety. Ultimately, following this rigorous selection process, 22 articles remained for further analysis.

Numerous articles on the subject of company value have been consistently published each year, with a notable increase in publications, particularly in 2023. These articles have employed a variety of research methodologies, encompassing both qualitative and quantitative approaches. This observation underscores the enduring relevance and continued scholarly interest in the topic of company value in recent years, as illustrated in Figure 2 below.

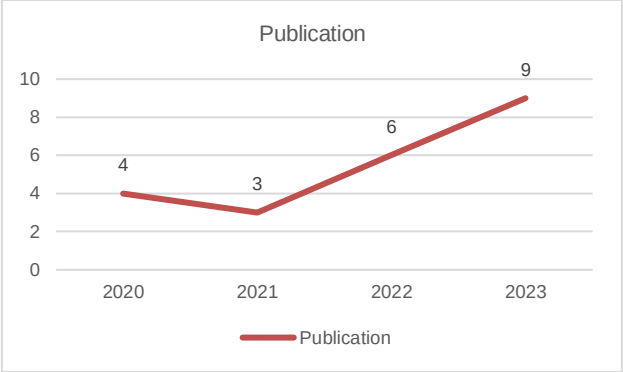

Fig. 2: Distribution of selected studies over 4 years

In addition, a qualitative synthesis was carried out on 22 selected articles, as depicted in Table 1 (Appendix) which provides an overview of the selected journal articles such as information regarding research objectives, authors, year of publication of the article, title and country.

4.2 Variable Determinants

Based on Table 2 (Appendix), the explanation of each determinant is as follows.

1. **Institutional Structure**: The effectiveness of response to health emergencies critically depends on the structure of task forces and command centers. Research by [6], [7], [19] shows that an organized and efficient institutional framework enables rapid and coordinated action across different departments and levels of government. Such structures allow the pooling of resources, expertise, and information, which is critical to accelerating the implementation of health measures and strategies during the pandemic. Establishing a dedicated task force will enable targeted efforts in various areas such as logistics, healthcare, and public communications, ensuring a comprehensive approach to crisis management.

2. **Leadership**: Effective leadership has proven crucial in managing the response to the pandemic, as confirmed by research in references [6], [22], [23]. Creative leadership, characterized by a positive attitude, empathetic abilities, and encouragement of collaboration, plays a central role in ensuring the effective implementation of health strategies and widespread compliance with public health guidelines. Leaders who can manage the complexity of situations, build trust, and mobilize existing resources are vital in directing society to face and overcome the challenges posed by biological threats.
3. **Resource Mobilization**: Resource mobilization is critical to dealing with health emergencies, such as pandemics. Research underscores the importance of efficient allocation and intelligent use of resources to support various aspects of the pandemic response, including medical care, testing, and implementation of vaccination programs. Effectiveness in mobilizing resources—medical supplies, financial support, or human resources—is critical to ensuring that actions can quickly meet urgent and changing needs throughout the crisis.
4. **Technology and Innovation**: Research has shown that technology and innovation are vital in improving the effective management of pandemics, as explained in references [16], [24]. Advanced technology tools, such as digital tracking applications, telemedicine solutions, and online information platforms, greatly support public health efforts by providing efficient ways to track the spread of disease, provide remote health services, and disseminate critical information to the public quickly and widely. Additionally, progress in vaccine development and optimization of distribution logistics underscores the importance of technology in accelerating the response to the pandemic. This innovation strengthens the health system's capacity to handle current cases and increases preparedness to face future health crises. Technology and innovation, therefore, serve as essential pillars in the global strategy to control and overcome the pandemic more effectively and efficiently.
5. **Inter-agency Coordination**: Effective coordination among various agencies and sectors is essential for a unified and comprehensive response to pandemics. [10], [13], research highlight the benefits of cross-sectoral collaboration in pooling expertise, resources, and capabilities to address the multifaceted challenges posed by health emergencies. Coordination mechanisms facilitate the sharing of information, alignment of strategies, and joint action plans, ensuring that efforts are harmonized and synergistic.
6. **Evidence-Based Medicine**: Access to high-quality, evidence-based medical information is fundamental for guiding clinical and public health decisions during pandemics. Previos research findings underscore the importance of reliable, scientifically validated information for developing treatment protocols, preventive measures, and vaccination strategies. Evidence-based medicine ensures that interventions are effective, safe, and tailored to the needs of the population, thereby enhancing the overall response to health crises.
7. **Local Community Involvement**: The involvement of local communities in crisis management supports the implementation of response measures and addresses the specific needs of the population. Research points to the significant role of local efforts in maintaining order, ensuring the supply of necessities, and providing social support during the pandemic. Community-driven initiatives reflect the resilience and adaptability of local governance structures in the face of unprecedented challenges, emphasizing the value of grassroots participation in enhancing the effectiveness of pandemic response.

4.3 Discussion

The comprehensive analysis drawn from 22 articles focusing on the determinants of collaborative governance in managing biological threats highlights several key factors. Here are the detailed discussions on each of the determinants, demonstrating how they individually and collectively influence governance effectiveness during health crises such as pandemics:

Institutional Structure: A strong institutional framework is fundamental for effective governance during health emergencies. The presence of specialized task forces, command centers, and coordination mechanisms enables rapid decision-making and efficient resource allocation. Studies underscore the importance of a robust institutional structure for orchestrating a coordinated response that involves multiple stakeholders and sectors, enhances agility, and adapts to evolving challenges, ensuring a cohesive approach to pandemic management.

Leadership: Effective leadership is essential to directing responses to biological threats. As

described, leaders with firm, transparent, and empathetic characters play a crucial role in building trust in society, mobilizing needed resources, and increasing cooperation among various stakeholders. They are adept at dealing with complex situations, implementing strategies supported by scientific data and evidence, prioritizing the common good, and guiding communities through times of crisis in ways that increase community resilience and cohesion.

Stakeholder Engagement: Inclusive and effective governance requires the involvement of diverse stakeholders. Previous research then emphasized the benefits of leveraging diverse actors' expertise, resources, and perspectives, including government agencies, health care providers, the private sector, civil society organizations, and communities. This integrated approach ensures responsiveness, adaptability, and sustainability of governance mechanisms, improving public health outcomes and well-being.

Inter-agency Coordination: Effective coordination among government agencies, non-governmental organizations, and other stakeholders is essential to coordinate response efforts, optimize resource allocation, and address systemic challenges—the interagency coordination mechanism. Levy facilitates information sharing, collaboration, and shared decision-making to increase the consistency and effectiveness of pandemic response strategies. Additionally, cross-sector partnerships strengthen the resilience of government systems to biological threats by fostering innovation, leveraging complementary strengths, and promoting collective responsibility.

Evidence-Based Medicine: Evidence-based medicine forms the foundation of clinical decision-making and public health strategies during pandemics. Access to reliable, up-to-date scientific evidence, enables healthcare professionals, policymakers, and the public to make informed choices regarding treatment, prevention, and risk mitigation. Robust evidence-based practices improve patient outcomes, optimize resource allocation, and build public trust in health authorities, contributing to the effectiveness and legitimacy of pandemic response efforts.

Local Community Involvement: Local communities are the first line of defense in pandemic response, providing essential support, resilience, and adaptability in the face of health crises. Empowering local communities will promote local initiatives, strengthen social cohesion, and encourage innovative solutions tailored to local contexts. Community-based approaches play an important role in enhancing the effectiveness and legitimacy of pandemic response efforts. These approaches respond to local needs by complementing centralized governance structures and promoting bottom-up resilience. Engaging communities in decision-making will help better understand the unique challenges and resources across different sectors. This local engagement ensures that responses are tailored to the specific context, increasing their relevance and effectiveness. Additionally, by empowering local stakeholders, community initiatives foster a sense of ownership and engagement, essential for maintaining respect and resilience. The combination of top-down coordination and bottom-up engagement creates a response framework that is stronger, more adaptable, and better equipped to manage crises and maintain public confidence.

5 Conclusion

An in-depth review of 22 scientific articles focusing on the dynamics of collaborative governance in combating biological threats has yielded valuable insights. It is clear that managing a health crisis, such as a pandemic, requires an integrated and comprehensive strategy that involves many actors. Solid and organized institutions are essential for rapid and effective public health interventions. Such a framework ensures rapid resource and information distribution, facilitating overall crisis management. Furthermore, the importance of strong and transparent leadership in the face of biological threats cannot be overstated. Good leaders who can win public trust and mobilize resources effectively are essential in developing a coherent and comprehensive strategy. Leadership that sets a good example will promote unity, encourage cross-sector collaboration, and engage communities in the fight against the pandemic.

Additionally, engaging diverse stakeholders will improve the effectiveness of responses to biological threats. The involvement of government agencies, healthcare providers, businesses, and civil society enriches strategies and ensures a comprehensive decision-making approach. Such inclusive engagement helps design more appropriate, flexible, and sustainable governance, ultimately leading to better public health outcomes.

Lastly, the role of technological advances and data-driven policies is essential in refining responses to pandemics. Technologies like digital contact tracing and telemedicine, coupled with scientifically backed policies, are instrumental in controlling disease transmission, offering healthcare remotely, and providing reliable information to the populace.

By embracing technological innovations and empirical data, the strategies become more adaptable, effective, and sustainable, thereby laying a solid groundwork for protecting public health.

Declaration of Generative AI and AI-assisted technologies in the writing process

During the preparation of this work, the authors used Grammarly and ChatGPT to help improve sentence coherence and comprehensiveness, as well as to check grammar to ensure proper language use and readability. After using these tools/services, the authors reviewed and edited the content as needed and take full responsibility for the content of the publication.

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Contribution of Individual Authors to the Creation of a Scientific Article (Ghostwriting Policy)

Conceptualization and project oversight were primarily handled by E.W. and M., with M.I. contributing to the methodology. S. was responsible for software development, while validation and data curation were jointly managed by M.I. and E.W. Formal analysis and investigation were led by E.W., who also secured the necessary resources for the project. The initial draft of the manuscript was prepared by E.W., with M. providing valuable input during the review and editing process. E.W. also took charge of data visualization, while project administration and funding acquisition were overseen by S. It is important to note that all authors have thoroughly reviewed and approved the final version of the manuscript for publication.

Sources of Funding for Research Presented in a Scientific Article or Scientific Article Itself

No funding was received for conducting this study.

Conflict of Interest

The authors have no conflicts of interest to declare.

APPENDIX

Table 1. Article Summary

No	Year	Title	Country & Sample	Purpose
1.	2023	Towards resilient neighborhood governance: social tensions in Shanghai's gated communities before and during the pandemic	China, Shanghai; Three Typical Gated Communities	The purpose of the study is to explore the resilience of neighborhood governance in Shanghai's gated communities during crises, emphasizing collaborative governance in response to threats such as pandemics and climate change, [5].
2.	2023	Intensive Care Clinicians' Information Acquisition During the First Wave of the Covid-19 Pandemic	Scotland, NHS Lothian	To investigate the personal and professional challenges faced by critical care consultants in acquiring and evaluating information to guide clinical decision-making during the first wave of the SARS-CoV-2 pandemic, [6].
3.	2023	Towards a constructed order of co-governance: Understanding the state–society dynamics of neighborhood collaborative responses to COVID-19 in urban China	China, Urban Areas	This study investigates the state–society dynamics at the neighborhood scale, as state and societal actors collaborated during China's COVID-19 responses. It reveals a pattern of collaborative rather than confrontational dynamics, reflecting the emergence of a constructed order of neighborhood co-governance in urban China, [7].
4.	2023	Collaborative Governance of Public Health: A Cultural and Ethical Perspective on Predicting Citizens' Trust in Public Health Services During Medical Emergencies	Indonesia, West Nusa Tenggara Province	This study investigates how collaborative governance practices influence citizens' trust in public healthcare services in Indonesia, [8]
5.	2023	Campaign Governance and Partnerships: Unraveling COVID-19 Vaccine Promotion Efforts in China's Neighborhoods	China, Urban Areas	This study explores how partnerships in the COVID-19 vaccine promotion campaign (CVPC) were organized in China's neighborhoods, indicating a move toward collaborative governance to enhance vaccine acceptance through stakeholder engagement, [9].
6.	2023	Mancunian Chinese Diaspora Organisations' Response to Covid-19 – Studying the Societal Actors' Perspective on Collaborative Governance in Crisis	Manchester, UK	The study explores how Chinese diaspora organizations in Manchester contributed skills and expertise to tackle the Covid-19 pandemic through collaborative governance, [10].
7.	2023	Innovate Emergency Governance Mechanism of Urban Communities in Response to Major Public Health Events: A Qualitative Study from Multiple Principals in Guangzhou, China	China, Guangzhou	To explore the emergency governance mechanism involving multiple principals in urban communities, focusing on improving preparedness, response, communication, and recovery in the face of public health events, [11].
8.	2023	Collaborative Housing Communities Through the COVID-19 Pandemic: Rethinking Governance and	England and Wales, 18 communities	The study examines how COVID-19 lockdown restrictions impacted mutual support practices in collaborative housing communities, highlighting the adaptability and challenges faced in maintaining community cohesion and support,

No	Year	Title	Country & Sample	Purpose
		Mutuality		[12].
9.	2023	Towards a constructed order of co-governance: Understanding the state–society dynamics of neighborhood collaborative responses to COVID-19	China	This study reveals a pattern of collaborative rather than confrontational dynamics between resident committees and other stakeholders during pandemic responses, which reflects the emergence of a constructed order of neighborhood, [7].
10.	2022	Antimicrobial Resistance as a Global Health Threat: The Need to Learn Lessons from the COVID-19 Pandemic	Global	The paper discusses lessons learned from the COVID-19 pandemic for global policymaking for health security governance, with a particular focus on antimicrobial resistance (AMR). It identifies One Health as the primary foundation of public health risk management and discusses the need for effective communication, trust, and strengthened collaborative health and disaster management systems to address AMR, [13].
11.	2022	Attributes of national governance for an effective response to public health emergencies: Lessons from the response to the COVID-19 pandemic	Global	To identify the key attributes of governance in response to the COVID-19 pandemic and gain lessons for an effective response to public health emergencies. This study emphasizes the need for agile, adaptive, transformative, collective, multi-level, smart, and ethical governance to effectively respond to public health threats, [14].
12.	2022	Strengthening research ethics governance and regulatory oversight in Central America and the Dominican Republic in response to the COVID-19 pandemic: a qualitative study	Central America and the Dominican Republic	To assess the challenges of research ethics governance and preparedness response to the COVID-19 pandemic in Central America and the Dominican Republic, [15].
13.	2022	A Study on Community Public Safety Collaborative Governance Regime in the Background of COVID-19: Empirical Analysis Based on China and South Korea	China and South Korea	To enhance community safety and achieve sustainability of collaborative governance in the context of COVID-19, [16].
14.	2022	An argument for pandemic risk management using a multidisciplinary One Health approach to governance: an Australian case study	Australia	To advocate for a multidisciplinary One Health approach to governance for managing pandemic risks, using Australia as a case study, [17].
15.	2022	Collaborative Governance in Emergencies: Community Food Supply in COVID-19 in Wuhan, China	China, Wuhan	To examine the collaborative governance addressing community food supply challenges in Wuhan during the COVID-19 lockdown, focusing on the integration of government and non-government efforts, [18].
16.	2021	Collaborative Governance Model in COVID-19 Pandemic Mitigation: A Temporary Unconditional Cash	Indonesia, Batu City	The study aimed to determine the ideal cooperative governance model for the cash transfer program during the COVID-19 pandemic, focusing on overcoming the distribution challenges and ensuring the program benefits the

No	Year	Title	Country & Sample	Purpose
		Transfer Program		targeted individuals, [19]
17.	2021	Collaborative Neighborhood Governance and Its Effectiveness in Community Mitigation of COVID-19 Pandemic	China, Six Cities	The study explores the dynamics of collaborative neighborhood governance during the COVID-19 responses in urban China, focusing on the roles of neighborhood social capital and hierarchical steering by the government in enhancing governance effectiveness, [20].
18.	2021	Collaborative Governance Challenges of the COVID-19 Pandemics: Czech Republic and Slovakia	Czech Republic and Slovakia	To evaluate the Czech and Slovak governments' responses to the COVID-19 pandemic, assessing why they achieved different results during the pandemic's first and second waves, [21]
19.	2020	Combating COVID-19 through Collaborative Governance: Lessons from East Asia	East Asia	To explore collaborative governance strategies in East Asia for combating COVID-19, focusing on public-private partnerships, information transparency, and community engagement, [22].
20.	2020	The Power of Collaborative Governance: The Case of South Korea Responding to COVID-19 Pandemic	South Korea	Analyzes South Korea's successful control of COVID-19 through collaborative governance, including the synergy of government actions, private sector involvement, and public participation, [23].
21.	2020	Fighting Against COVID-19 through Government Initiatives and Collaborative Governance: Taiwan Experience	Taiwan	Details Taiwan's government-led initiatives and collaborative governance approach in combating COVID-19, emphasizing transparency, social capital, and public-private cooperation, [24].
22.	2020	Collaborative Leadership, Collective Action, and Community Governance against Public Health Crises under Uncertainty:	Beijing	This article takes a Chinese rural community located near Wuhan City as an example to explore the mechanism of how collaborative leadership enhanced collective action in community governance against the COVID-19 pandemic, [25]

Table 2. Determinants of Company Value

No	Determinant Variable	Indicator	Result	Conclusion	Previous Research
1	Institutional Structure	Structure of task forces and command centers	Varied/Significant	Effective structure underpins rapid and coordinated response.	[6], [7], [19]
2	Leadership	Facilitative and decisive leadership	Positive/Significant	Strong leadership is essential for collaborative governance and compliance.	[6], [22], [23]
3	Stakeholder Engagement	Involvement of multiple stakeholders	Positive/Significant	Engaging diverse stakeholders ensures comprehensive response strategies.	[5], [19], [22]
4	Transparency and Communication	Open communication and information sharing	Positive/Significant	Transparency builds trust and facilitates public participation.	[6], [16], [24]
5	Social Capital	Public trust in institutions	Positive/Significant	High social capital enhances the effectiveness of governance mechanisms.	[5], [16], [24]
6	Resource Mobilization	Allocation and use of resources	Positive/Significant	Efficient resource mobilization is key to managing biological threats.	[5], [23], [24]
7	Technology and Innovation	Use of technology for tracking and distribution	Positive/Significant	Technology plays a critical role in response efficiency and resource distribution.	[6], [16], [24]
8	Policy Tools and Measures	Implementation of containment measures	Positive/Significant	Strict and timely policy measures effectively control the spread of diseases.	[5], [23], [24]
9	Community Participation	Volunteering and community action	Positive/Significant	Community participation is crucial for grassroots-level response and support.	[5], [7], [17]
10	Inter-agency Coordination	Cross-sectoral collaboration	Positive/Significant	Coordination across agencies and sectors is vital for an integrated response.	[5], [10], [13]
11	Evidence-Based Medicine	Quality of information and research used for clinical decision-making	Varied/Significant	Access to high-quality, evidence-based information is critical for effective clinical response during pandemics.	[6]
12	Local Community Involvement	Local adaptations and contributions during crises	Positive/Significant	Local community efforts play a substantial role in crisis management, supplementing state and market functions.	[5]