



# An Empirical Analysis of Influencing Factors of Government Decision-Making on Public Crisis

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## Abstract

As the times and the world are changing in an unprecedented way, public security issues have become increasingly linked, transnational, and diverse, causing huge impacts on the global economy and society, as well as posing great challenges to the government in dealing with public crisis decision-making. This study aims to determine the factors affecting the government's crisis decision-making and analyze the interrelationship among the factors affecting the government's crisis decision-making and the performance of its crisis decision-making. The questionnaire was developed and used to collect data from 400 samples of various groups, including government department personnel, scientific research institute practitioners, university lecturers, the public, and university students, both online and face-to-face. The structural equation model (SEM) is used to evaluate the structural relationships of the relevant variables, including the crisis decision-making body, crisis decision-making procedure, crisis decision-making performance, the decision environment, and value identification. It is found that the diversified decision-making subject and decision-making environment have a positive and significant impact on the public crisis decision-making process, value identification, and decision-making performance, respectively. This study has contributed to the following issues. Firstly, it developed new measurement tools and indicators for better evaluating the quality and effect of public crisis decision-making and exploring the influence of different factors on the crisis decision-making of the government. Secondly, it employed cross-industry and cross-cultural comparative research to find commonalities and differences and provide targeted recommendations.

## Keywords:

Government Crisis Decision-making;  
Decision-making Performance;  
Public Crisis.

## Article History:

<b>Received:</b>	15	December	2023
<b>Revised:</b>	16	March	2024
<b>Accepted:</b>	21	March	2024
<b>Published:</b>	01	April	2024

## 1- Introduction

In this era full of changes and uncertainties, the ability of public crisis prevention and control has gradually become an important indicator to measure the comprehensive governance level of a city and a region [1]. Therefore, the government has the responsibility and obligation to integrate social organizations and participate in the collaborative management of public crisis at different stages of crisis development [2]. In this process, public crisis decision-making is an important link. In the face of a complex social environment with frequent crisis events, whether the government can make correct decisions quickly and effectively has become the key to evaluating the level of government crisis management, which requires an accurate grasp of the main factors affecting crisis decision-making.

In view of the factors affecting public crisis decision-making, five factors, including information acquisition and analysis, decision-makers' literacy, government management system, government decision-making mechanism [3], and

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**DOI:** <http://dx.doi.org/10.28991/ESJ-2024-08-02-03>

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public expectation [4], are considered by scholars to be the main factors affecting the effectiveness of government crisis decision-making. There is also research on the role of decision makers in crisis management based on grounded theory. This study explores the role of decision makers in crisis management, reveals the skills, strategies and stages of the crisis decision-making process, and discovers crisis management, and proposes a theory to explain the crisis decision-making process and its skills and strategies [5]. But at the same time, it is necessary to consider the inter-group bias effect of crisis decision-making because the cognitive bias of crisis decision-makers will also affect the effect of crisis decision-making [6]. In the face of crisis decision-making, it is also necessary to fully consider the centralization and decentralization of decision-making procedures. Centralization and decentralization can be used at the same time, which can effectively cope with the overlap of public jurisdiction and thus effectively coordinate the solution of public crisis events. However, in this process, a clear division of powers and responsibilities among actors is needed and consistent implementation is required [7].

In a risky society, decision-making based on direct sensing of risks, crisis events, and related comprehensive factors is called "inductive decision-making" [8], which effectively copes with traditional patterned and programmed decision-making. With the development of network science, attention has been paid to crisis network communication in response to public crises [9]. Especially with the acceleration of social media communication, it is increasingly obvious that social network factors affect public crisis decision-making.

Based on different perspectives, the above researchers have analyzed the influencing factors of crisis decision-making from different dimensions of rationality and irrationality. These factors include the correlation analysis of basic decision variables and specific decision variables in crisis scenarios, the correlation analysis of relevant factors from the perspective of government governance, and more scholars have analyzed the correlation degree from the perspective of psychological cognition. These studies mainly focus on the individual behavior and decision-making processes of decision-makers but ignore the special nature of the public crisis itself and the change in the decision-making environment. In addition, these theories also ignore the influence of factors such as decision-makers' emotions, values, and ethics on decision-making.

As a perspective and method to analyze public affairs and policies, there are relatively few studies to analyze the influencing factors of public crisis decision-making based on the perspective of public management. In order to fill the gaps in the literature and on the basis of sorting out the previous research results, this study summarizes the factors affecting the performance of crisis decision-making into four aspects, namely, collaborative governance subject of crisis decision-making, crisis decision-making procedure, value cognition, and crisis decision-making environment from the perspective of public management. Through empirical data analysis and theoretical hypothesis verification, the relationship between factors affecting the performance of crisis decision-making is explored in order to improve the rationality and sustainability of public crisis decision-making. The innovation of this research is mainly reflected in the following aspects:

- First, interdisciplinary research innovation. Based on the perspective of public crisis, this study explores many factors affecting public crisis decision-making, which requires interdisciplinary research methods, including knowledge of political science, management, sociology, psychology, and other disciplines, in order to understand the process and influencing factors of crisis decision-making in a more comprehensive way.
- Second, empirical research method innovation. In order to improve the scientificity and rigor of the research results, this study summarizes mature empirical data through quantitative research methods. These data come from 11 provinces in China, and the groups involved are mainly personnel from public administration departments and university researchers to ensure the authenticity of the data. In the later stages of the study, the structural equation model will be verified through reliability and validity analysis, confirmatory factor analysis, and path analysis to ensure the reliability, feasibility, and scientificity of the research results.
- Third, theoretical research validates innovation. This study combines "cognitive theory" and "systematic evaluation theory" to analyze the factors that affect the performance of crisis decision-making, which is the first attempt in the theoretical field, and it is also a verification of the combination effect of public management theory and crisis decision-making theory.

## 2- Literature Review and Hypothesis Inference

### 2-1- Crisis Decision-making Body and Crisis Decision-making Procedure

In recent years, with the development of society, more collaborative governance modes have appeared in the literature of public management and public policy [10–12], and research on collaborative governance theory has become a hot topic. The collaborative governance theory defines society as an open, complex system and emphasizes that the prerequisite of governance is the diversification of governance subjects, which not only refers to government organizations but also social organizations and actors, including civil organizations, enterprises, families, and individual citizens, who can participate in the governance of social public affairs [13]. Because these organizations and actors have

different value judgments and interest needs, they maintain two kinds of relationships: competition and cooperation. At the same time, the service-oriented government theory holds that a service-oriented government is one that serves the people and assumes the responsibility of serving the people under the guidance of civic concepts and social norms and under the framework of the entire social democratic order through legal procedures and based on the will of citizens, and its essential attribute is based on social development and the common interests of citizens. That is, it completely starts from the needs of the people and aims to serve the people, which is consistent with the essence of public crisis decision-making. Therefore, this study believes that diversified decision-making bodies and decision-making procedures have a certain correlation effect and proposes the following hypotheses:

**H1:** *Diversified decision-making bodies have a positive and significant impact on the decision-making process.*

## **2-2- Crisis Decision-making Procedures and Crisis Decision-making Performance**

The decision-making procedure of a public crisis is a systematic and coherent process, which is an organic whole formed by the decision-making subject according to certain decision-making rules [14]. Therefore, under the guidance of the values and rules of procedural justice, it is necessary to optimize the structure of government decision-making bodies, expand and improve the scope of government decision-making bodies, standardize decision-making procedures, realize diversified democratic and scientific decision-making, and safeguard public interests to the greatest extent. At the same time, in the practice of crisis decision-making, experts' participation in crisis decision-making embodies three functional mechanisms: policy interpretation, decision optimization, and public opinion guidance, which represents the important value of experts in crisis decision-making [15]. The diversification of the decision-making body plays an active role through the decision-making process, which plays an intermediary role. Among them, collaborative participation, institutionalization of collaborative participation, knowledge and skill structure of decision-making subject will affect the diversified subject; normalization of decision-making agenda, identification and prediction of crisis events, collection and collation of decision-related data and information, formulation of alternative plans, risk assessment of crisis decision-making, determination of feasibility, and pros and cons of decision-making will affect the normalization and scientificity of crisis decision-making procedures. Based on this, this study proposes the following hypothesis:

**H2:** *The more standardized and scientific crisis decision-making procedures are, the more conducive to crisis decision-making performance.*

## **2-3- Value Identification and Crisis Decision-making Performance**

Social identity theory holds that the identity of a social member is shaped by the group to which the member belongs. The result of social identity is that individual members purposefully improve their image and status relative to other groups. Tajfel's [16] experiment shows that the group to which social members belong is so important to any individual that social members will join the group with the shortest duration without any incentive and then spontaneously make the group they belong to look better than other groups. Therefore, social members or organizations form value orientation in terms of cognition and emotion, values and goals, and behaviors through intrinsic recognition or consensus of certain values in social activities [17]. These recognitions or consensuses are influenced by the ideals, beliefs, and aspirations of the social individuals and later form a common value. In the process of crisis decision-making, this kind of consensus comes from the internal support of the organization, the degree of decision-making importance, and the positive organizational values, ideals, and beliefs, which will be related to the decision-making subject's judgment on the public crisis, leading to different disposal results. Based on this, this study proposes the following hypothesis:

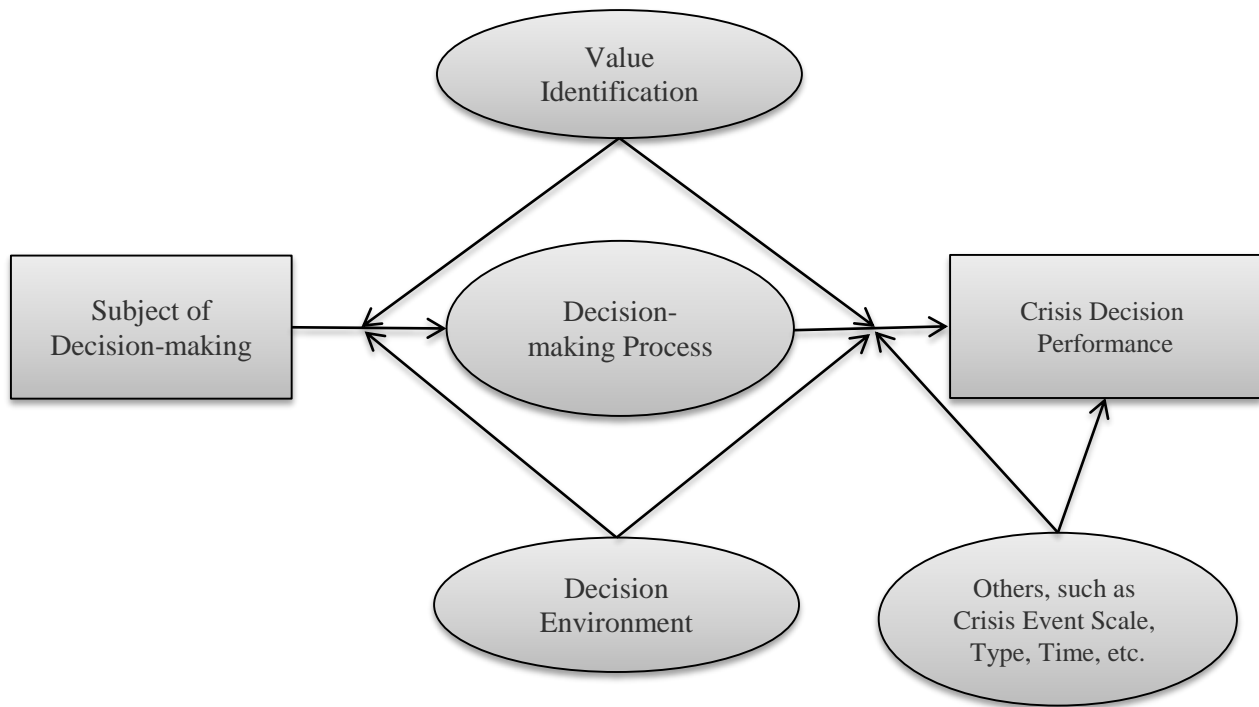
**H3.** *The higher the degree of value identification, the higher the quality of crisis decision-making performance.*

## **2-4- Decision Environment and Crisis Decision Performance**

According to the environmental decision-making theory, in the decision-making process of a public crisis, it is necessary to emphasize the combination of environmental philosophy and survival philosophy, the core of which is to consider the carrying capacity of the internal and external environment and resources when making decisions, make an overall and comprehensive balance between economic and social development and environmental protection, make scientific decisions, and achieve the best economic, social, and environmental benefits [18]. In addition, System Evaluation Theory regards the evaluation object as a system, and evaluation indicators, evaluation weights, and evaluation methods should all be operated in accordance with the system optimal method [19]. In the process of crisis decision-making, the main body of crisis decision-making has to consider the factors of the decision-making environment, which include the external environment of crisis decision-making, such as policy support, social identity, economic stability, and others. The internal environment of the organization, such as sufficient personnel, materials, and funds; and the decision-making subject's psychological environment, such as external and internal environment influences, produce stress and tension. Based on this, this study proposes the following hypothesis:

**H4.** *Crisis decision-making performance is directly affected by the crisis decision-making environment.*

In summary, combined with relevant theoretical research and analysis, this study will try to build a theoretical hypothesis model of influencing factors of public crisis decision-making performance based on the above four hypotheses (see Figure 1), and then verify the above hypotheses through relevant empirical analysis.



**Figure 1. Research model**

### 3- Research Methods

#### 3-1- Research Samples and Data Processing

This study adopts the simple random sampling method to carry out the investigation, and the sample survey objects cover different groups such as government department personnel, scientific research institute practitioners, college teachers, the public, college students, etc. These objects are representative and have research value. Wechat, QQ, WJX, and other means are used to send questionnaires to relevant research objects. In order to improve the effectiveness of questionnaires, this study continuously optimizes the questionnaire design and conducts pre-tests to form a relatively complete formal questionnaire. It should be noted that during the survey, Questionnaire Star [20] invites respondents to fill out and submit the questionnaire by scanning the QR code or opening the website link.

In terms of sample size selection, the corresponding ratio between the number of questions and respondents is 1:5 [21], or the corresponding ratio between the number of questions and respondents is 1:10 [22]. A total of 23 questions are designed in this study, and a scale standard of 1:10 is proposed. At the same time, the Yamane [23] formula is also referred to in this study, and the 95% confidence and maximum variance (maximum variance) are assumed; that is, the error value was  $e=0.05$ , and the sample size  $n=400$  required for sampling in this study is calculated according to the Yamane sample scale [24]. Therefore, a total of 400 questionnaires were sent out in this study, and 400 questionnaires were recovered. After sorting and summarizing the extreme data or incomplete questionnaires, no invalid questionnaires are found that don't conform to the logical sequence or the actual requirements of the questionnaire, indicating that the questionnaire meets the basic requirements of the research design.

Frequency analysis can be used to analyze the distribution of certain types of data of the sample objects in this study. It can be seen from Table 1 above that 50.25% of the samples selected "female" and 49.75% of the male samples. Among the samples, 36.75% chose "26–35 years old" and 32.75% chose 36–45 years old. From the perspective of the education level of the samples, the proportion of undergraduate students is relatively large, accounting for 41.00%, and the proportion of master students is 39.50%. From the perspective of the occupations of the samples, the proportion of "government officials" is 32.50%, followed by those in scientific research institutes, accounting for 29%. In these occupations, the proportion of "general staff" is 50.50%, and the distribution of other managers (including senior, middle, and junior managers) is 44%. To sum up, this sample meets the requirements of this study in terms of gender, age, education level, occupation, and rank.

**Table 1. Sample Frequency Analysis Results**

Title	Options	Frequency	Percentage (%)	Cumulative Percentage (%)
What is your gender?	Male	199	49.75	49.75
	Female	201	50.25	100.00
What's your age?	21-25 years old	52	13.00	13.00
	26-35 years old	147	36.75	49.75
	36-45 years old	131	32.75	82.50
	46-55 years old	60	15.00	97.50
	>56 years old	10	2.50	100.00
What is your highest education?	High school	15	3.75	3.75
	Junior college	29	7.25	11.00
	Undergraduate	164	41.00	52.00
	Master	158	39.50	91.50
	Doctor's degree or above	34	8.50	100.00
What is your occupation?	Public servant	130	32.50	32.50
	College teacher	46	11.50	44.00
	College students	35	8.75	52.75
	Institute practitioner	116	29.00	81.75
	Social masses	50	12.50	94.25
	Other	23	5.75	100.00
What is your employment status?	Senior management	22	5.50	5.50
	Middle management	65	16.25	21.75
	Junior management	89	22.25	44.00
	Clerk	202	50.50	94.50
	Other	22	5.50	100.00
<b>Total</b>		<b>400</b>	<b>100.0</b>	<b>100.0</b>

Questionnaire data is affected by factors such as artificial covariation between prediction source and criterion variables, characteristics of items, contextual effects of questionnaire content, or measurement environment, which often lead to measurement environment. Therefore, on the basis of the program control method, the EFA method is used for testing in this study. If the variance explanation percentage of the first common factor is less than 40% [21] or more than 50% [22], common method bias could be determined. The results show that the interpretation percentage of variance of the first common factor is 35.205%, indicating that if the interpretation percentage of variance of the first common factor is less than 40%, it can be considered that there is no serious common method bias.

Questionnaire data are affected by factors such as artificial covariation between prediction source and criterion variables, characteristics of items, contextual effects of questionnaire content, or measurement environment [25], which often affect the measurement environment. Therefore, the program control method, statistical test, and control method were adopted in this study to test and control the common method deviation [26]. On the basis of the program control method, the EFA method is used to test, and if the variance explanation percentage of the first common factor is less than 40% [27] or more than 50% [28], common method bias can be determined. The results show that the interpretation percentage of variance of the first common factor is 35.205%, indicating that if the interpretation percentage of variance of the first common factor is less than 40%, it can be considered that there is no serious common method bias.

Another way is to use CFA for verification. All the measured items are put into a factor and then analyzed. If the fitting index of the model is shown out of the measurement, it indicates that there is no common method bias problem in the data [29]. The results show that the Chi-square freedom value is 2.554, but the values of GFI (0.642), NFI (0.616), and NNFI (0.673) are all lower than 0.7, and CFI (0.717) is greater than 0.7 but lower than 0.9, so the above values are significantly different from the standard values (greater than 0.9). The RMSEA value is greater than 0.15, and the RMR value is less than the standard value, indicating that the standard value is also deviated. Other indicators, such as AGFI lower than 0.7, IFI, and others. Are also lower than slightly greater than 0.7, indicating that there is also a deviation greater than 0.9. In summary, it indicates that the model fitting quality is poor; that is, the scale data in this study cannot be focused on a factor, and there is no common method bias problem.



### 3-2- Operational Definition of Variables

In this study, the Likert-5 scale was used for the subjective measurement of each variable. The scale was composed of a set of statements, and each statement had five answers, strongly agree, agree, not necessarily, disagree, and strongly disagree, which were recorded as 5, 4, 3, 2, and 1, respectively. The total score of each respondent's attitude was the sum of the scores obtained from his answers to each question. The total score can indicate the strength of his attitude or his different states on this scale. To ensure the accuracy of the survey results, the questionnaire was designed to avoid project ambiguity, demand characteristics, and social expectations [28]. Therefore, this study is based on the service-oriented government theory [30], the theory of collaborative governance [31], the social identity-based theory [32], the environmental decision theory [33], and the system evaluation theory [34]. Four key variables of crisis decision-making, namely, pluralistic subject, value identification, decision process, and decision environment, are determined to study and analyze the public crisis performance factors and take them as the main measurement items.

#### 3-2-1- Independent Variable

In the process of crisis decision-making, the diversification of decision-making subjects breaks the original single form of government decision-making, expands public participation, and develops various ways for the public and social intermediary organizations to participate in government decision-making, which is an important feature of the decision-making mode of public participatory government [35]. The multi-subject decision-making mode refers to the consultation between the government and citizens on public decision-making issues through a legal, reasonable, and fair channel [36], which enables the government to actively solicit opinions from society and input public opinions in public decision-making and synthesizes the information about the interests of the subject expressing the demands. The process of formulating and selecting decision plans that respect public opinion, follow rules, and implement them [37]. Based on the above analysis, this study breaks down the diversified subjects of public crisis decision-making into three observation points, namely, the collaborative participation of multiple subjects, the institutionalization of the collaborative participation of decision-makers, and the knowledge and skill structure of decision-makers [38], which are set into three questions. The relevant measurement items are shown in Table 2.

**Table 2. Measurement scale of diversified decision-making agents**

Independent Variable	Secondary Index	Question Item
Diversified Subject of Decision-making	Multiple collaborative participation of decision-making bodies (IV1)	In your opinion, the multiple cooperative participation of decision-making bodies is conducive to the scientific decision-making process and thus to the performance of decision-making.
	Decision-making body collaboratively participates in the mechanism (IV2)	In your opinion, the collaborative participation of decision-making bodies is conducive to the standardization of decision-making procedures, thus ensuring the positive effect of decision-making performance.
	Decision-making body knowledge and skill structure (IV3)	You believe that the knowledge and skill structure of the decision-making body is conducive to the efficient and rigorous decision-making process, thus ensuring the positive effect of decision-making performance.

#### 3-2-2- Dependent Variable

Public crisis decision-making performance is the independent and objective supervision and evaluation of the economy, efficiency, and effectiveness of public crisis management activities [39]. In general, the performance of public crisis decision-making is mainly measured from two aspects: a financial perspective and a time perspective. In addition to the above two important indicators, sometimes according to the management object will also consider quality indicators and innovation indicators. After referring to relevant theories, this study mainly measures the social benefits brought by decision-making, the economic benefits brought by decision-making, and the smooth implementation of decision-making. The relevant measurement items are shown in Table 3.

**Table 3. Measurement scale of public crisis decision-making performance**

Dependent Variable	Secondary Index	Question Item
Public Crisis Decision-making Performance	Comprehensive Assessment (DV1)	In your opinion, the factors affecting the performance of public crisis decision-making mainly include social benefit, decision-making cost, smooth implementation of decision-making, and economic benefit.
	Real Performance (DV2)	In your opinion, the local government has performed well in public crisis decision-making.

### 3-2-3- Intermediary Variable

The government is the core force to deal with the crisis, with legal authority and the ability to deploy resources. In moments of crisis, the decision-making body follows certain decision-making procedures to make decisions quickly. Crisis decision-makers need to quickly collect and analyze crisis-related information, formulate corresponding decision-making objectives, select the optimal plan for implementation and adjustment, and evaluate the effect of the decision after implementation [40]. In addition, the public crisis decision-making process also includes steps such as taking emergency measures, frank disclosure, investigating the situation, and determining countermeasures for the target group. After synthesizing related research viewpoints, this study mainly focuses on the normalization of the decision-making agenda, crisis event identification and prediction, collecting and organizing relevant data and information, developing an alternative plan, and carrying out a risk assessment to determine its feasibility and advantages and disadvantages [41] for measurement. The relevant measurement items are shown in Table 4.

**Table 4. Measurement of public crisis decision-making procedures**

Intermediary Variable	Secondary Index	Question Item
Decision-making Process	Standardization of decision agenda (MV1)	In your opinion, the standardization of the crisis decision-making agenda is conducive to the performance of crisis decision-making.
	Crisis event identification and prediction (MV2)	In your opinion, the identification and prediction of crisis events are conducive to the performance of crisis decision-making.
	Collect and organize relevant data and information (MV3)	You believe that the collection and collation of relevant data and information is conducive to the smooth implementation of crisis decision-making.
	Develop alternatives and conduct risk assessments to determine their feasibility and pros and cons (MV4)	In your opinion, making alternative plans and conducting risk assessments to determine their feasibility and pros and cons can ensure the positive effect of crisis decision-making performance.

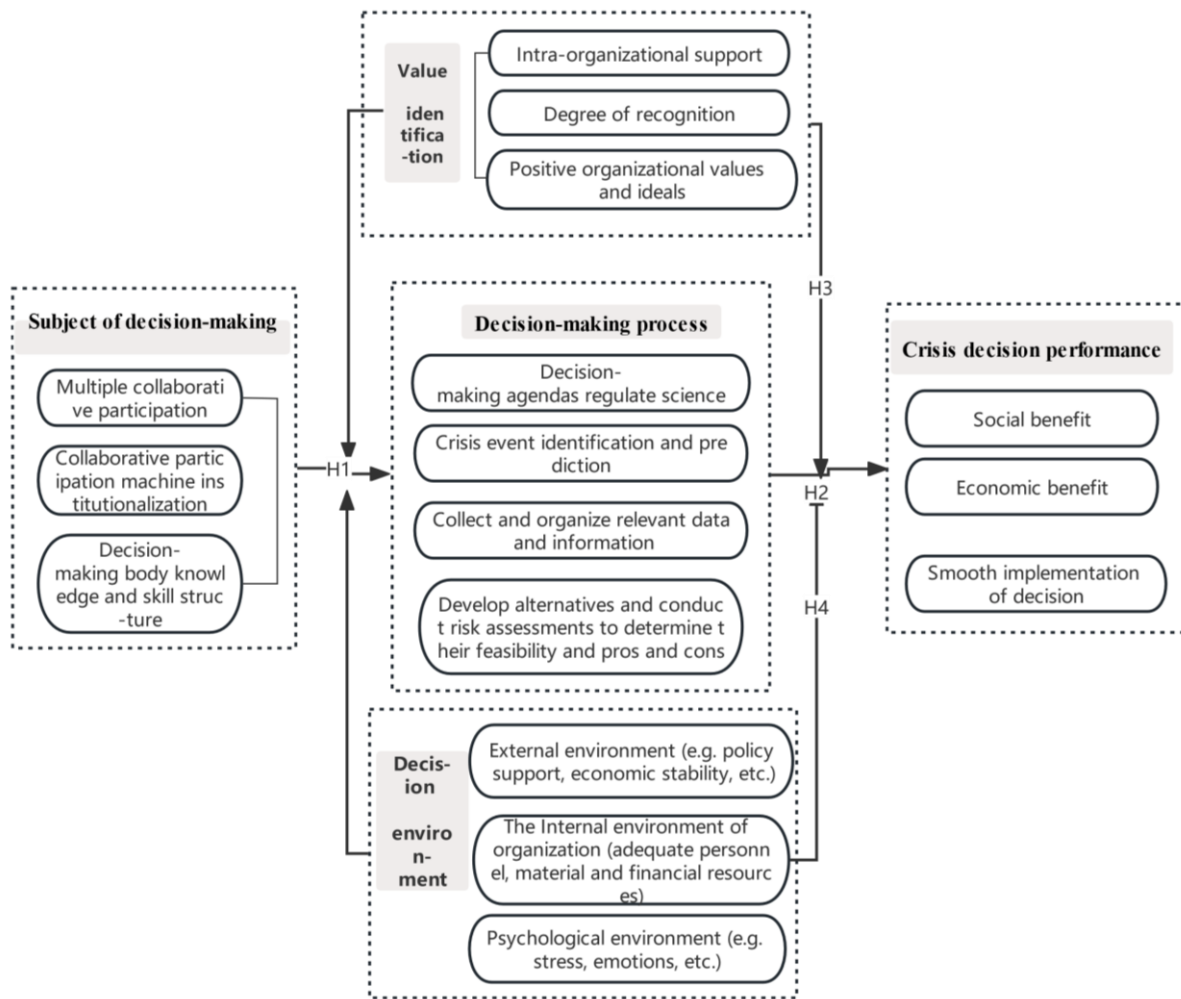
### 3-2-4- Moderator Variable

Value identification refers to the recognition and approval of certain values by crisis decision-makers. This study measures the value identification variables from three indicators: internal support of the organization, the importance of crisis decision-making, positive organizational values and ideals and beliefs [42], and the external environment of crisis decision-making (such as policy support, social identification, economic stability, and other factors). The internal environment of the organization (such as sufficient personnel, sufficient materials, sufficient funds, and others) and the psychological environment of the decision-making subject (such as pressure and tension caused by the external and internal environment) [39] are three indicators to measure the decision-making environment variables. The relevant measurement items are shown in Table 5.

**Table 5. Measurement of value identification and decision-making environment**

Moderator Variable	Secondary Index	Question Item
Value Identification	Intra-organizational support (RV1)	In your opinion, organizational or internal support is essential to improve the synergy of decision-makers and will affect the performance of crisis decision-making.
	Importance of crisis decision-making (RV2)	In your opinion, increasing the emphasis on crisis decision-making will enhance the coordination of decision-making bodies and improve the performance of crisis decision-making.
	Positive organizational values and ideals (RV3)	In your opinion, under the scenario of positive organizational values ideals, and beliefs, it is conducive to improving the coordination of decision-makers and ensuring the positive effect of crisis decision-making performance.
Crisis Decision Environment	External environment of crisis decision-making (RV4)	In your opinion, the positive external environment of crisis decision-making (such as policy support, social recognition, economic stability, and other factors), is conducive to improving the coordination of crisis decision-making bodies and ensuring the positive effect of decision-making performance.
	The internal environment of the organization (RV5)	In your opinion, under a good internal organizational environment (such as a large team, sufficient material and financial resources, and positive organizational culture factors), the coordination of crisis decision-making bodies is more conducive to crisis decision-making performance.
	Positive psychology (RV6)	In your opinion, the positive psychological environment of the decision-making subject, such as confidence, honesty, hope, optimism, courage, aggressiveness, generosity, tolerance, tact, sincerity, and rich common sense (Hill, 2001), is conducive to improving the coordination of decision-making and improving the performance of crisis decision-making.

Based on the above analysis, and after synthesizing the government service theory, collaborative governance theory, value identification theory and system evaluation theory, this study analyzes the influencing factors of public crisis decision-making from the perspective of public crisis, and proposes that the main factors affecting the performance of crisis decision-making are diversification of decision-making subjects, decision-making procedures, value identification and decision-making environment. Then try to put forward four related research hypotheses to form a research hypothesis model of influencing factors of public crisis decision-making. See Figure 2 for details of the research model.



**Figure 2. Research theoretical model**

### 3-3- Verification Method

Through structural equation model, this study tries to find the relationship between various factors and the degree of influence, and the data summarized in the study can be used to analyze relevant factors, and then determine the important influencing factors that affect the performance of crisis decision-making from the perspective of public crisis. Before the structural equation model analysis, this study first tests the reliability and validity of the data and then carried out the structural equation model analysis after passing the check. Data analysis mainly adopts the SPSSAU project (2023) <sup>1</sup>.

#### 3-3-1- Reliability Analysis

The SPSSAU [43] platform is used for reliability analysis in this study. As can be seen from Table 6, the reliability coefficient of relevant data in this study is 0.941, which is greater than 0.9, indicating that the reliability quality of research data is high [44]. The valid samples in the questionnaire are 46, and the invalid samples are 0, which do not affect the structural equation model analysis. In summary, the reliability coefficient value of the research data is higher than 0.9, which indicates that the data reliability quality is high and can be used for further analysis.

**Table 6. Cronbach Reliability Analysis**

Number of terms	Sample size	Cronbach $\alpha$
16	46	0.941
<b>Summary of missing samples</b>		
Item	Sample size	Scale
Valid sample	46	100.0%
Exclude invalid sample	0	0.0%
<b>Total</b>	46	100%

<sup>1</sup> The SPSSAU project (2023). SPSSAU. (Version 23.0) [Online Application Software]. Retrieved from: <https://www.spssau.com>.



### 3-3-2- Validity Analysis

Validity analysis is carried out by factor method, and comprehensive analysis is done by KMO value, common degree, variance explanation rate value, factor load coefficient value, and other indicators to verify the validity level of the data. As can be seen from Table 7, the common degree value corresponding to all research items is higher than 0.4, indicating that the information of research items can be effectively extracted. In addition, the KMO value is 0.791, greater than 0.6, and the data can be effectively extracted. In addition, the variance explanation rates of the three factors are 25.323%, 22.808%, and 22.529%, respectively, and the cumulative variance explanation rates after rotation are 70.660% > 50%, which means that the amount of information in the study can be effectively extracted. At the same time, when the absolute value of the factor load coefficient is greater than 0.4, it indicates that there is a corresponding relationship between option and factor [45].

**Table 7. Validity Analysis**

Name	Factor load coefficient			Common degree (common factor variance)
	Factor 1	Factor2	Factor3	
IV3	0.546	0.384	0.484	0.680
MV4	0.675	0.049	0.489	0.697
RV2	0.673	0.354	0.411	0.748
RV3	0.601	0.268	0.503	0.686
RV6	0.725	0.281	0.044	0.606
DV1	0.655	0.389	0.225	0.631
DV3	0.645	0.207	0.357	0.586
IV1	0.151	0.805	0.275	0.747
IV2	0.108	0.848	0.395	0.887
RV1	0.380	0.600	0.441	0.699
RV4	0.493	0.622	0.261	0.698
RV5	0.539	0.597	0.091	0.655
DV2	0.317	0.600	-0.022	0.461
MV1	0.122	0.367	0.856	0.881
MV2	0.478	0.049	0.756	0.802
MV3	0.238	0.250	0.851	0.843
Feature root (before rotation)	8.819	1.382	1.104	-
Variance explanation rate % (before rotation)	55.120%	8.638%	6.901%	-
Cumulative variance explanation rate % (before rotation)	55.120%	63.758%	70.660%	-
Feature root value	4.052	3.649	3.605	-
Variance interpretation rate % (after rotation)	25.323%	22.808%	22.529%	-
Cumulative variance explanation rate % (after rotation)	25.323%	48.131%	70.660%	-
KMO value	0.791	-	-	-
Barth spherical value	583.238	-	-	-
df	120	-	-	-
p	0.000	-	-	-

Note: If the numbers in the table have colors: blue indicates that the absolute value of the load factor is greater than 0.4, and red indicates that the common degree (common factor variance) is less than 0.4.

### 3-3-3- Verify the Structural Equation Model

In general, structural equation model fitting indexes are used to analyze the overall model fitting validity. There are so many model fitting indexes that it is usually difficult for all indexes to reach the standard. This study mainly analyzes the Chi-square freedom ratio, GFI, RMSEA, CFI, NFI, and NNFI. (The default model refers to the initial value estimation indicator of the fitted model, which usually has little meaning.) According to Table 8, the GFI in the structural equation model of this study is 0.952 > 0.9; RMSEA: 0.043 < 0.10; CFI: 0.976 > 0.9; NFI: 0.942 > 0.9; NNFI: 0.969 > 0.9. The above values are in line with the measurement standard, indicating that the structural equation model in this study has a good fit.

**Table 8. Model fitting index**

Common index	$\chi^2$	df	p	Chi-square Freedom/ Degree Freedom $\chi^2/df$	GFI	RMSEA	RMR	CFI	NFI	NNFI
Criteria	-	-	>0.05	<3	>0.9	<0.10	<0.05	>0.9	>0.9	>0.9
Numerical Value	138.702	83	0.000	1.671	0.952	0.043	0.08	0.976	0.942	0.969
Other indexes	TLI	AGFI	IFI	PGFI	PNFI	PCFI	SRMR	RMSEA 90% CI		
Criteria	>0.9	>0.9	>0.9	>0.5	>0.5	>0.5	<0.1	-		
Numerical Value	0.969	0.930	0.976	0.658	0.745	0.771	0.054	0.030 ~ 0.056		

Default Model:  $\chi^2(105) = 2400.056$ ,  $p = 1.000$ 

### 3-4- Pretest Analysis

#### 3-4-1- Distribution and Recovery of Questionnaires

The subjective measurement scale of the questionnaire is the key part of this study, which is composed of key variables such as diversified crisis decision-making subjects, crisis decision-making procedures, value recognition, decision-making environment, and crisis decision-making performance. To ensure the reliability and accuracy of the questionnaire, 55 questionnaires are sent to the above-mentioned interviewees through social media in the prediction stage, and 54 questionnaires are finally recovered. After eliminating the extreme values and the answers with obvious regularity, 46 valid questionnaires were obtained. The recovery rate is 98.18%, and the effective rate is 85.19%. Next, the 46 valid questionnaires are predicted and analyzed to determine whether the initial questionnaire is scientific and whether it needs to be deleted or modified.

#### 3-4-2- Reliability Analysis

In this study, Cronbach's Alpha and CITC were used as reliability tests, and the reliability between 0.7 and 0.9 is an ideal reference interval. If the reliability is below 0.65, the project may need to be redesigned, and if the reliability is above 0.9, the collinearity problem needs to be paid attention to. If the reliability is not good, it can be resolved by deleting the poor-quality answer items [46]. It can be seen from Table 9 that Cronbach's Alpha of all measurement items is higher than the critical value of 0.7, which is relatively ideal. In addition, the CITC of the measurement items is also higher than the critical value of 0.3, so the measurement items of related concepts were retained in this study.

**Table 9. Reliability analysis of measurement questions**

Item	Total correlation of correction items (CITC)	Deleted $\alpha$ coefficient	Cronbach $\alpha$ coefficient
IV1	0.650	0.939	0.941
IV2	0.718	0.937	
IV3	0.781	0.936	
MV1	0.718	0.937	
MV2	0.692	0.938	
MV3	0.723	0.937	
MV4	0.669	0.938	
RV1	0.779	0.936	
RV2	0.810	0.935	
RV3	0.758	0.936	
RV4	0.757	0.937	
RV5	0.664	0.939	
RV6	0.580	0.941	
DV1	0.702	0.937	
DV2	0.470	0.943	
DV3	0.663	0.938	

Standardized Cronbach  $\alpha$  coefficient: 0.944.

### 3-4-3- Validity Analysis

When predicting problems, this study refers to the value identification scale, decision conflict scale, autonomous decision scale, and general decision style scale and conducts exploratory research according to the general opinions of relevant experts. In formal surveys, this indicator is measured using factor analysis (EFA) and further measured using confirmatory factor analysis (CFA) [47]. According to the analysis in Table 10, KMO is 0.813, greater than 0.6, which meets the prerequisite requirements of factor analysis, which means that the data can be used for factor analysis research. The data passed the Bartlett sphericity test ( $p < 0.05$ ), indicating that the study data are suitable for exploratory factor analysis.

**Table 10. KMO and Bartlett tests**

KMO Value		0.813
Approximate chi-square		557.352
Bartlett sphericity test	df	105
p Value		0.000

Exploratory factor analysis is carried out. First, the total number of extracted factors is described, and the variance explanation rate and cumulative total variance explanation rate after rotation of each factor are analyzed [48]. As can be seen from the analysis of Table 11, a total of 5 factors were extracted from factor analysis, and the variance explanation rates of these 5 factors after rotation are 20.374%, 20.127%, 17.040%, 14.449%, and 10.677%, respectively. The cumulative variance explanation rates after rotation were 82.666%.

**Table 11. Variance interpretation rate**

Factor No.	Characteristic root			Rotational front difference interpretation rate			Explanation rate of variance after rotation		
	Characteristic root	Variance interpretation rate %	Cumulative %	Characteristic root	Variance interpretation rate %	Cumulative %	Characteristic root	Variance interpretation rate %	Cumulative %
1	8.575	57.168	57.168	8.575	57.168	57.168	3.056	20.374	20.374
2	1.287	8.579	65.747	1.287	8.579	65.747	3.019	20.127	40.501
3	1.102	7.346	73.093	1.102	7.346	73.093	2.556	17.040	57.541
4	0.746	4.975	78.068	0.746	4.975	78.068	2.167	14.449	71.990
5	0.690	4.598	82.666	0.690	4.598	82.666	1.601	10.677	82.666
6	0.601	4.004	86.670	-	-	-	-	-	-
7	0.415	2.766	89.436	-	-	-	-	-	-
8	0.395	2.635	92.070	-	-	-	-	-	-
9	0.343	2.284	94.355	-	-	-	-	-	-
10	0.268	1.788	96.143	-	-	-	-	-	-
11	0.201	1.338	97.480	-	-	-	-	-	-
12	0.141	0.941	98.422	-	-	-	-	-	-
13	0.119	0.791	99.213	-	-	-	-	-	-
14	0.063	0.421	99.634	-	-	-	-	-	-
15	0.055	0.366	100.000	-	-	-	-	-	-

Then the factor load coefficient after rotation is analyzed, mainly through the factor load coefficient value, and the corresponding relationship between each factor and the item is analyzed. Combined with the corresponding relationship between factors and items, each factor is named. In other words, the data in this study are rotated using the maximum variance rotation method (varimax) to find out the correspondence between factors and study items. The above table shows the information extraction of factors for research items and the corresponding relationship between factors and research items. According to the analysis in Table 12, the common degree value corresponding to all research items is higher than 0.4, which means that there is a strong correlation between research items and factors, and factors can effectively extract information.

**Table 12. Table of factor load coefficients after rotation**

Item	Factor load coefficient					Common degree
	Factor 1	Factor 2	Factor 3	Factor 4	Factor 5	
IV1	0.150	0.853	0.129	0.180	0.182	0.832
IV2	0.314	0.831	0.331	0.051	0.003	0.902
IV3	0.383	0.293	0.592	0.487	-0.009	0.820
MV1	0.791	0.440	-0.013	0.331	0.023	0.930
MV2	0.704	0.060	0.319	0.429	0.126	0.800
MV3	0.877	0.282	0.233	0.060	0.149	0.929
MV4	0.557	0.036	0.429	0.081	0.611	0.875
RV1	0.361	0.628	0.240	0.255	0.325	0.752
RV2	0.354	0.250	0.560	0.491	0.208	0.786
RV3	0.449	0.236	0.355	0.469	0.303	0.694
RV4	0.125	0.574	0.411	0.474	0.165	0.766
RV5	0.049	0.498	0.668	0.081	0.290	0.787
RV6	0.073	0.258	0.174	0.278	0.835	0.878
DV1	0.237	0.223	0.757	0.202	0.213	0.764
DV3	0.229	0.172	0.160	0.846	0.249	0.886

**Note:** If the numbers in the table have colors: blue indicates that the absolute value of the load factor is greater than 0.4, and red indicates that the common degree (common factor variance) is less than 0.4.

## 4- Results

### 4-1- Reliability and Validity Analysis

#### 4-1-1- Reliability Analysis

In this study, Cronbach's Alpha and CITC are first used for the reliability test, and the reliability between 0.7 and 0.9 is an ideal reference interval. As can be seen from Table 13, the reliability coefficient value is 0.891, which is greater than 0.8, indicating that the reliability quality of the research data is high. For the "α coefficient of deleted item", the reliability coefficient does not increase significantly after any item is deleted, so the item should not be deleted. For "CITC value", the CITC value of analysis items is greater than 0.4, indicating that there is a good correlation between analysis items and a good reliability level.

**Table 13. Reliability analysis of measurement questions**

Item	Total correlation of correction items (CITC)	Deleted α coefficient	Cronbach α coefficient
IV1	0.590	0.883	0.891
IV2	0.594	0.883	
IV3	0.615	0.882	
MV1	0.596	0.883	
MV2	0.570	0.884	
MV3	0.589	0.883	
MV4	0.571	0.884	
RV1	0.559	0.885	
RV2	0.537	0.886	
RV3	0.542	0.885	
RV4	0.557	0.885	
RV5	0.487	0.888	
RV6	0.559	0.885	
DV1	0.519	0.886	
DV2	0.516	0.887	

Standardized Cronbach α coefficient: 0.892.

In this study, both valid samples and excluded invalid samples are analyzed. As can be seen from Table 14, there are 15 scale items in this study, the total number of valid samples is 400, and the number of excluded invalid samples is 0. In summary, the reliability coefficient value of the research data is higher than 0.8, which indicates that the data reliability quality is high and can be used for further analysis.

**Table 14. Reliability analysis of measurement questions**

Number of items	Sample size	Cronbach $\alpha$ Coefficient
15	400	0.891
Summary of missing samples		
Items	Sample size	Proportion
Valid sample	400	100.0%
Exclude invalid sample	0	0.0%
<b>Total</b>	400	100%

#### 4-1-2- Validity Analysis

Both the content effect and structural validity are used for testing. The content validity mainly tests the accuracy and representativeness of the scale in this study, while the structural validity mainly measures the response of relevant data results to the proposed structure. Factor analysis (EFA) is first used to measure this index, and then confirmatory factor analysis (CFA) is used to measure it further [49]. It can be seen from Table 15 that the KMO value in this study is 0.864, greater than 0.7, which meets the prerequisite requirements of factor analysis and means that the data can be used for factor analysis research. At the same time, the relevant data passes the Bartlett sphericity test ( $p < 0.05$ ), indicating that the study data are suitable for exploratory factor analysis.

**Table 15. Reliability analysis of measurement questions**

KMO Value		0.864
Approximate chi-square		3120.152
Bartlett sphericity test	df	105
	p Value	0.000

When conducting exploratory factor analysis, factor extraction situations and extracted information are analyzed to analyze the variance explanation rate and cumulative total variance explanation rate after the rotation of each factor. As can be seen from the analysis of Table 16, a total of 5 factors are extracted from the factor analysis, and the variance explanation rate of the 5 factors after rotation is 19.586%, 15.819%, 15.585%, 15.582%, and 10.833%, respectively. The cumulative variance explanation rate after rotation is 77.405%, and the number of factors extracted is in line with the expectation.

**Table 16. Variance interpretation rate**

Factor No.	Characteristic root			Rotational front difference interpretation rate			Explanation rate of variance after rotation		
	Characteristic root	Variance interpretation rate %	Cumulative %	Characteristic root	Variance interpretation rate %	Cumulative %	Characteristic root	Variance interpretation rate %	Cumulative %
1	5.977	39.844	39.844	5.977	39.844	39.844	2.938	19.586	19.586
2	1.665	11.101	50.945	1.665	11.101	50.945	2.373	15.819	35.405
3	1.556	10.373	61.318	1.556	10.373	61.318	2.338	15.585	50.990
4	1.343	8.955	70.273	1.343	8.955	70.273	2.337	15.582	66.573
5	1.070	7.132	77.405	1.070	7.132	77.405	1.625	10.833	77.405
6	0.462	3.078	80.483	-	-	-	-	-	-
7	0.414	2.761	83.244	-	-	-	-	-	-
8	0.399	2.657	85.901	-	-	-	-	-	-
9	0.363	2.422	88.324	-	-	-	-	-	-
10	0.357	2.379	90.703	-	-	-	-	-	-
11	0.312	2.080	92.783	-	-	-	-	-	-
12	0.296	1.976	94.759	-	-	-	-	-	-
13	0.288	1.919	96.678	-	-	-	-	-	-
14	0.280	1.870	98.548	-	-	-	-	-	-
15	0.218	1.452	100.000	-	-	-	-	-	-



Then the factor load coefficient after rotation is analyzed to find out the corresponding relationship between the factor and the study item. The above table shows the information extraction of factors for research items and the corresponding relationship between factors and research items. According to the analysis in Table 17, the common degree value corresponding to all research items is higher than 0.4, which means that there is a strong correlation between research items and factors, and factors can effectively extract information.

**Table 17. Factor load coefficients after rotation**

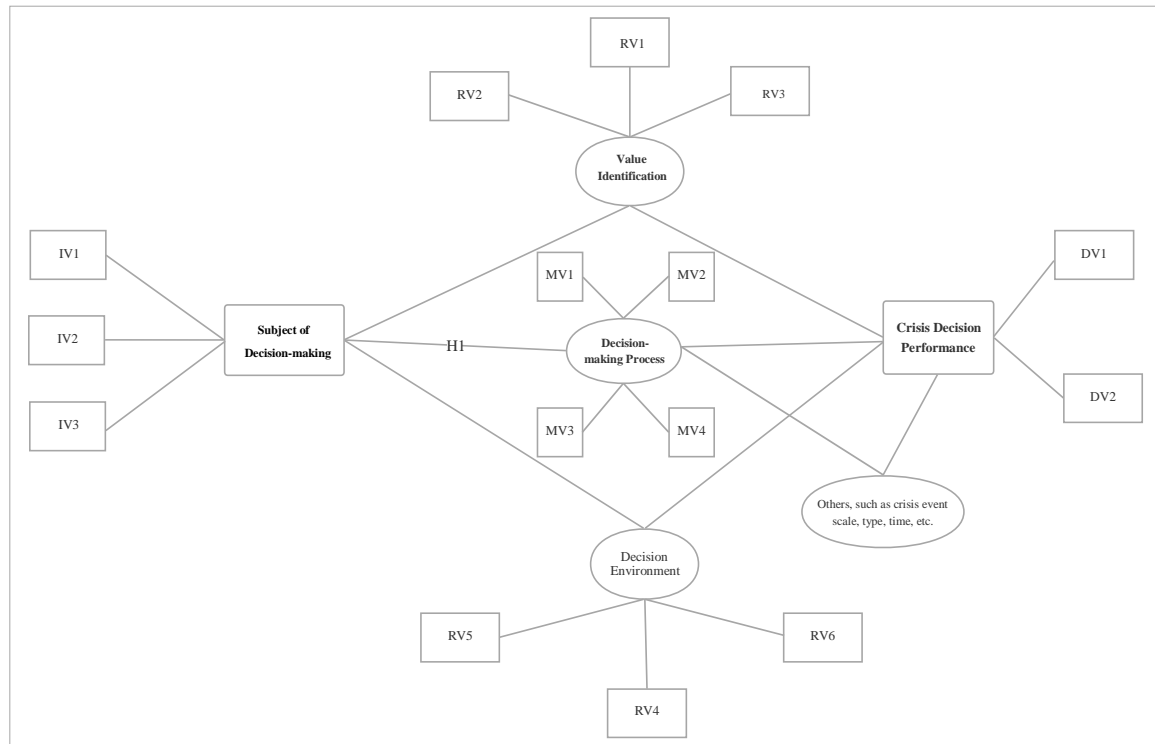
Item	Factor load coefficient					Common degree
	Factor 1	Factor 2	Factor 3	Factor 4	Factor 5	
IV1	0.172	0.124	0.844	0.161	0.147	0.804
IV2	0.210	0.194	0.819	0.152	0.058	0.779
IV3	0.157	0.170	0.815	0.159	0.221	0.792
MV1	0.816	0.134	0.147	0.132	0.135	0.741
MV2	0.812	0.133	0.168	0.061	0.132	0.726
MV3	0.820	0.135	0.172	0.124	0.085	0.743
MV4	0.801	0.115	0.094	0.224	0.071	0.718
RV1	0.156	0.836	0.145	0.122	0.162	0.786
RV2	0.169	0.853	0.154	0.090	0.086	0.795
RV3	0.126	0.831	0.157	0.147	0.118	0.766
RV4	0.180	0.151	0.118	0.855	0.106	0.811
RV5	0.096	0.070	0.144	0.841	0.135	0.761
RV6	0.193	0.141	0.181	0.808	0.078	0.748
DV1	0.156	0.212	0.132	0.153	0.844	0.823
DV2	0.171	0.118	0.221	0.135	0.841	0.817

Note: If the numbers in the table have colors: blue indicates that the absolute value of the load factor is greater than 0.4, and red indicates that the common degree (common factor variance) is less than 0.4.

To sum up, factor analysis (EFA) and confirmatory factor analysis (CFA) show that the scale in this study is accurate and representative, and the results of relevant data measured in the study correspond to the structure proposed in the study.

#### 4-2- Research Hypothesis Test

In this study, the previous exploratory factor analysis and confirmatory factor analysis are used to ensure that the measurement relationship is correct, and on this basis, the structural equation model graph is constructed, which could be used to study the influence relationship between multiple latent variables. The structural equation model consists of two parts: measurement relations and influence relations. The structural equation model in this study includes 5 latent variables (see Figure 3), which are diversified decision agents, decision procedures, value recognition, decision environment, and decision performance. From the perspective of measurement relationships, the diversified decision-making body consists of three measurements: IV1~IV3; The decision procedure is measured by MV1 to MV4. Value identification is measured by RV1~RV3. The decision environment is measured by RV4~RV6. Decision performance is measured by DV1 and DV2. From the perspective of the influence relationship: the diversified decision-making subject has an influence relationship to the decision-making process, and the decision-making procedure has an impact on decision-making performance. Value identification has an impact on decision-making performance. The decision environment influences the decision performance.



**Figure 3. Structural equation model diagram**

The focus of this study is to study the influence relationship and test the hypothesis. The measurement relationship is not the focus of attention, but the quality of the measurement relationship will have a great impact on the model fitting, so it is necessary to ensure the quality of the measurement relationship first. As for the influence relationship, we can see from Table 18.

**Table 18. Summary table of model regression coefficients**

X	Y	Non-standardized regression coefficient	SE	z (CR)	p	Standardized regression coefficient
Diversified crisis decision-making body	Decision-making process	0.854	0.101	8.436	0.000	0.886
Decision-making process	Decision performance	0.231	0.065	3.537	0.000	0.229
Diversified crisis decision-making body	Decision performance	0.256	0.078	3.296	0.001	0.271
Value identification	Diversified crisis decision-making body	0.354	0.053	6.680	0.000	0.349
Value identification	Decision performance	0.294	0.064	4.622	0.000	0.297
Decision environment	Diversified crisis decision-making body	0.353	0.052	6.782	0.000	0.357
Decision environment	Decision performance	0.217	0.061	3.574	0.000	0.226
Diversified crisis decision-making body	IV3	1.013	0.056	17.954	0.000	0.829
Diversified crisis decision-making body	IV2	0.983	0.056	17.487	0.000	0.806
Diversified crisis decision-making body	IV1	1.000	-	-	-	0.835
Decision-making process	MV4	0.914	0.055	16.583	0.000	0.768
Decision-making process	MV3	0.952	0.054	17.670	0.000	0.813
Decision-making process	MV2	0.922	0.054	16.961	0.000	0.786
Decision-making process	MV1	1.000	-	-	-	0.820
Value identification	RV3	0.948	0.056	17.019	0.000	0.799
Value identification	RV2	0.961	0.055	17.497	0.000	0.824
Value identification	RV1	1.000	-	-	-	0.836
Decision environment	RV6	0.865	0.051	16.881	0.000	0.783
Decision environment	RV5	0.923	0.055	16.646	0.000	0.775
Decision environment	RV4	1.000	-	-	-	0.869
Decision performance	DV2	0.990	0.093	10.639	0.000	0.777
Decision performance	DV1	1.000	-	-	-	0.822

Notes: Represents a regression influence relationship or measurement relationship.

(1) Diversified decision makers have a significant influence on the decision-making process at the 0.00 level, and the standardized path coefficient value is 0.886, which means that diversified decision makers have a positive influence on the decision-making process;

(2) The decision-making process has a significant impact on the decision-making performance at the level of 0.00, and the standardized path coefficient value is 0.229, which means that the decision-making process has a positive impact on the decision-making performance;

(3) Diversified decision-making agents have a significant impact on decision-making performance at the 0.01 level, and the standardized path coefficient value is 0.256, which means that diversified decision-making agents have a positive impact on decision-making performance;

(4) Value identification has a significant impact on decision-making performance at the level of 0.00, and the standardized path coefficient value is 0.297, which means that value identification has a positive impact on decision-making performance;

(5) The decision-making environment has a significant impact on decision-making performance at the level of 0.00, and the standardized path coefficient value is 0.226, which means that the decision-making environment has a positive impact on decision-making performance.

From the above analysis, we can also know that the Diversified Crisis Decision-Making Body positively affects the decision-making process, and the decision-making process positively affects the decision performance. The Diversified Crisis Decision-Making Body positively affects the decision performance, so some mediating effects in the model are significant.

Table 18 also shows all the measurement relationships, which can be visually viewed in the above table. In addition, the presence of '-' in the table means that the item is a reference item and therefore will not be output. When measuring the relationship, the first term is used as a reference term, so no p-values, etc., are presented.

For the measurement relationship, if the measurement relationship is good, generally speaking, the standardized load factor value is basically greater than 0.6. The standardized load coefficient values of each item in the above table are greater than 0.6, indicating that the measurement relationship is ideal.

In general, there are many fitting indicators, and few models can make all fitting indicators reach the standard. However, it is suggested that the fitting indicators used most should be within the acceptable range. As can be seen from Table 19, the Chi-square DOF ratio in this study is 1.286, which is less than 3, which means that the model has a good fitting effect. Meanwhile, the RMSEA value is 0.027 ( $< 0.1$ ), the RMR value was 0.057 (close to 0.05), while the values of GFI, CFI, AGFI, and NFI are all greater than 0.9, and the other indicators are all within the standard range, indicating that the model was well constructed and the model results were reliable.

**Table 19. Model fitting index**

Common index	$\chi^2$	df	p	Chi-square Freedom/ Degree Freedom $\chi^2/df$	GFI	RMSEA	RMR	CFI	NFI	NNFI
Criteria	-	-	>0.05	<3	>0.9	<0.10	<0.05	>0.9	>0.9	>0.9
Numerical Value	102.864	80	0.044	1.286	0.968	0.027	0.057	0.976	0.942	0.969
Other indexes	TLI	AGFI	IFI	PGFI	PNFI	PCFI	SRMR	RMSEA 90% CI		
Criteria	>0.9	>0.9	>0.9	>0.5	>0.5	>0.5	<0.1	-		
Numerical Value	0.990	0.952	0.993	0.645	0.737	0.756	0.033	0.005 ~ 0.041		

Default Model:  $\chi^2(105) = 3174.381$ ,  $p=1.000$ .

Based on the above analysis, in order to intuitively grasp the research results, the results of the equation structure model are obtained after synthesizing the result coefficients (see Figure 4). The research results show that there are four hypotheses in this study, all of which have been verified to be valid, and the results are shown in Table 20. The details are as follows:

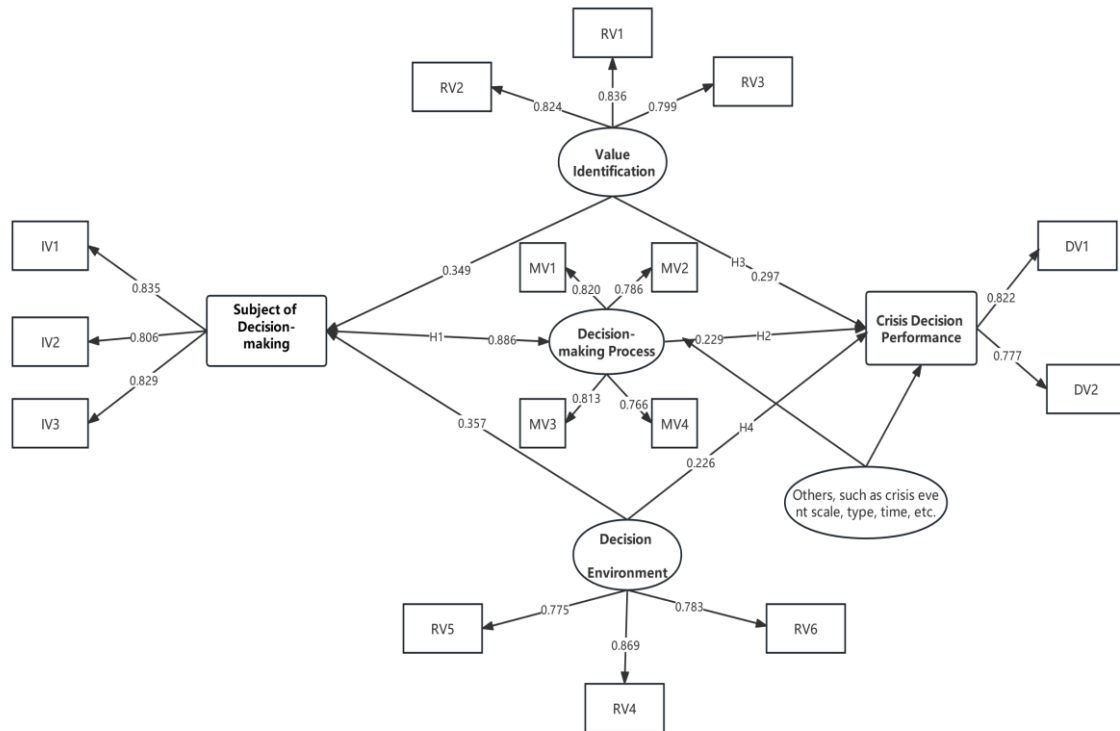


Figure 4. Structural equation model results

Table 20. Results of hypothesis testing

Hypothetically	Details	Results
H1	Diversified decision-making bodies have a positive and significant impact on the decision-making process.	Support
H2	The more standardized and scientific crisis decision-making procedures are, the more conducive to crisis decision-making performance.	Support
H3	The higher the degree of value identification, the higher the quality of crisis decision-making performance.	Support
H4	Crisis decision-making performance is directly affected by the crisis decision-making environment.	Support

## 5- Discussion and Conclusions

### 5-1-Discussion

This study explores the relationship between the influencing factors of crisis decision-making and the performance of crisis decision-making from the perspective of public management and verifies the positive relationship between the four factors of diversified crisis subjects, decision-making procedures, value recognition, and decision-making environment and crisis performance. Specifically, in the process of public crisis decision-making, the multi-participation of crisis decision-making subjects is conducive to the standardization and science of decision-making procedures and, thus, to the performance of crisis decision-making. The standard and scientific decision-making procedure is conducive to the performance of crisis decision-making. The subject of crisis decision-making will be affected by value identification. Such consensus not only contains the internal support of the organization but also attaches importance to crisis decision-making itself and has positive organizational values, ideals, and beliefs, which will interfere with crisis decision-making and further affect the performance of crisis decision-making. Crisis decision-making performance is directly affected by the crisis decision-making environment. The change in the decision-making environment will affect the difficulty and risk, rationality and feasibility, execution, and effect of crisis decision-making.

### 5-2-Academic Contributions

This study plays a positive role in improving the rationality and feasibility of decision-making performance, promoting the development of crisis decision-making research in depth, and improving the theoretical system of public crisis management and crisis decision-making. In the study, it can be seen that there is a positive and significant relationship between the decision-making subject and the decision-making process, as well as the decision-making process and the decision-making performance, in which the decision-making process plays an intermediary role. Value identification and the decision-making environment affect crisis decision-making performance and play a moderating role. These studies have clarified the logical connection and the relationship between the influencing factors of public

crisis decision-making performance, laid a foundation for subsequent researchers to further deepen the research on public crisis decision-making, and provided new research horizons and ideas. At the same time, the empirical analysis verified the validity of relevant hypotheses. These results can further deepen and improve the theoretical system of public crisis management and crisis decision-making and provide more scientific, reasonable, and feasible theoretical guidance for public crisis management and crisis decision-making.

### ***5-3- Management Suggestions***

The research results of this paper have some enlightenment for the relevant government departments to deal with public crisis decision-making. Based on the empirical results, this paper puts forward countermeasures and suggestions to improve the performance of public crisis decision-making from the following aspects. First, in the decision-making process of a public crisis, the government should establish an open participation mechanism, encourage experts, scholars, social organizations, and the public from different fields and backgrounds to participate in decision-making, and provide diversified decision-making suggestions and programs. Strengthen coordination and cooperation among different departments, promote information sharing and resource integration, and ensure the efficiency and effectiveness of decision-making. An external evaluation mechanism is introduced to evaluate and supervise the process, effect, and quality of decision-making so as to ensure the scientific and just nature of decision-making. Strengthen public education and information disclosure, enhance the public's awareness of crises and self-protection abilities, and enhance public trust and support for decision-making. Second, an effective information communication mechanism is established to obtain comprehensive crisis information in a timely manner. Optimize the process of crisis decision-making, including the cognition of crisis, assessment of crisis, formulation of coping strategies, implementation of coping strategies, adjustment and summary, etc., to ensure a smooth and efficient decision-making process. Identify potential risk factors and formulate corresponding risk response measures to reduce the risk caused by the crisis. After the crisis is over, the process and effect of crisis decision-making are summarized and evaluated to provide experience and reference for dealing with similar crises in the future. Third, decision-makers should have conditions to open and transparent decision-making process, explain to the public the basis and reasons for decision-making, and enhance the public's trust and recognition of decision-making. Fully consider the interests and needs of the public, formulate decisions in line with the public interest, and enhance public recognition and support for decisions. Fourth, establish a sound crisis decision-making system, including crisis early warning, decision-making procedures, communication mechanisms, evaluation systems, etc., to ensure the institutionalization and standardization of crisis decision-making. Strengthen public opinion guidance, control the spread of crises, reduce adverse effects, and improve the efficiency and effectiveness of crisis decision-making. Strengthen international cooperation, share crisis information, jointly respond to crises, and improve the efficiency and effectiveness of crisis decision-making.

### ***5-4- Research Limitations and Future Prospects***

Due to the uncertainty of the public crisis, there are still many shortcomings in this study. Mainly from several aspects: first, the empirical research is insufficient. Although this study uses case studies and experimental studies, it lacks large-scale empirical data support in the face of large groups of research objects. Second is the lack of dynamic, continuous research. This research is limited to a certain period of time. Compared with the dynamic change of public crises, this research is limited to the static decision-making research environment and lacks continuous dynamic tracking of the crisis decision-making process. Third, multidisciplinary research is insufficient. This study lacks the perspective and method of interdisciplinary research and cannot fully reflect the actual process of crisis decision-making and the mechanisms of influencing factors.

In order to fill the gaps in existing research, future research can take the following innovative ideas: First, develop new measurement tools and indicators. Develop new measurement tools and indicators to better evaluate the quality and effectiveness of public crisis decision-making and explore the influence of different factors on decision-making. The second is to combine the research methods of social science and natural science. Draw on research methods from the social and natural sciences, such as experiments, observations, big data analysis, etc., to provide a more comprehensive and in-depth understanding. Third, future research also needs to pay more attention to the application of new technologies such as artificial intelligence and machine learning in public crisis decision-making to improve the efficiency and accuracy of decision-making.

## **6- Declarations**

### ***6-1- Author Contributions***

Conceptualization, T.W. and C.K.; methodology, T.W.; software, H.B.; validation, C.K., T.W., and S.C.; formal analysis, T.W.; investigation, T.W.; resources, C.K.; data curation, C.K.; writing—original draft preparation, T.W.; writing—review and editing, C.K.; visualization, T.W.; supervision, C.K.; project administration, S.C. All authors have read and agreed to the published version of the manuscript.



### 6-2-Data Availability Statement

The data presented in this study are available on request from the corresponding author.

### 6-3-Funding

The authors received no financial support for the research, authorship, and/or publication of this article.

### 6-4-Institutional Review Board Statement

Not applicable.

### 6-5-Informed Consent Statement

Not applicable.

### 6-6-Conflicts of Interest

The authors declare that there is no conflict of interest regarding the publication of this manuscript. In addition, the ethical issues, including plagiarism, informed consent, misconduct, data fabrication and/or falsification, double publication and/or submission, and redundancies have been completely observed by the authors.

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