



An Intelligent Model of Transparent Governance in Policymaker Organizations with the Approach of Good Governance

Roya Sepehrnia

Ph.D. Candidate in Information Technology Management/ Business Intelligence, Department of Information Technology Management, Science and Research Branch, Islamic Azad University, Tehran, Iran. E-mail: roya.sepehrnia@srbiau.ac.ir

Mahmood Alborzi*

Corresponding author, Associate Professor, Department of Information Technology Management, Science and Research Branch, Islamic Azad University, Tehran, Iran. E-mail: mahmood_alborzi@yahoo.com

Ali Kermanshah

Associate Professor, Department of Management, Sharif University of Technology, Tehran, Iran. E-mail: akermanshah@sharif.edu

Adel Azar

Professor, Department of Management, Tarbiat Modares University, Tehran, Iran. E-mail: azara@modares.ac.ir

Rozita Sepehrnia

Assistant Professor of Social Science, Roudehen Branch, Islamic Azad University, Roudehen, Iran. E-mail: sepehrnia@riau.ac.ir

Received January 12, 2020; Accepted March 25, 2020

Abstract

The new paradigm of good governance has an emphasis on international transparency, and this in this study takes into account the actual impacts of organizational intelligence in policymaker organizations. This study primarily aims to design an intelligent model of transparent governance in policymaker organizations with the approach of good governance. The study is a fundamental research in terms of objectives. In the qualitative section, data collection was done through Delphi interview questions, and the statistical population was senior managers, specialists, and policymakers with targeted sampling. In the quantitative part, the population was mid-level managers and organizational intelligence experts. The random sampling method was via the Cochran formula, and 432 individuals were selected. Data gathering tools were interviews and researcher-made survey questionnaires. The content and face validity and Cronbach alpha reliability were employed. The data were analyzed by descriptive and inferential statistics, including factor analysis, regression, and structural equations. Model fit and Friedman test were employed. The findings indicated three dimensions in the proposed model design, including transparency, knowledge creation, and knowledge translation, along with six components, five subcomponents, and 23 indicators. The results suggested that there is a relatively strong and appropriate relationship between organizational intelligence and organizational transparency. Furthermore, sense-making had the highest correlation with organizational transparency. Also, the strongest predictor was the sense-making variable.

Keywords: Organizational intelligence; Intelligent governance; Good governance; Transparency; Policymaker organizations; Transparent intelligent governance.

1. Introduction

Globalization and easy access to information and knowledge have provided various advantages to different actors and imposed decision-making concerns and challenges on organizations, particularly policymaker organizations (Mason, 2017; Prashantham, Eranova, & Couper, 2018). To exploit this enormous wave of information, alongside information technologies, strategies, and factors also required, and good governance is one of the most important factors in this research. Transparency is introduced as the ground for all the good governance indicators (Ganguli, 2017; Gregory, 2018; Sepehrnia et al., 2019).

Policymaker organizations are the main responsible bodies for good governance (Laoworapong, Supattarakul, & Swierczek, 2015). Good execution of governance in organizations, specifically policymaker ones in terms of the number of beneficiaries, enhances abilities in organizations to suitably manage organizational assets, information, and resources.

Such good management eventually eliminates the root factors of corruption (Mr Gagandeep & Kumar, 2016). According to available statistics, Iran is considered one of the countries with high corruption that needs to look beyond the individual (Pakseresht & Afshar, 2017).

Decision-making is of great importance in good governance, provided that it could make differences in practice (Mr Gagandeep & Kumar, 2016). Organizational intelligence is an essential enabler of organizational decision-making (Popovič, Hackney, Coelho, & Jaklič, 2012). Considering the large amount of information and extensive range of good governance in organizations, technologies are required to make comprehensive and transparent decisions. Lack of good governance or failure of execution may result in the organization's bankruptcy and eliminate the self-confidence of policymaker organizations for proper asset management (Mr Gagandeep & Kumar, 2016).

This study primarily aims to design an intelligent model of transparent governance in policymaker organizations with the approach of good governance. Studies have mostly focused on why governance is applied rather than how to do it. The necessity of good governance in an organization has only theoretically considered, and there are practical gaps in its implementation. This study mainly emphasizes that technology seems to have not been employed to implement good governance in organizations.

Making policies lacks validity without applying associated technologies in the current time (Fleischmann, Schmidt, & Stary, 2013). Unfortunately, considering the necessity of establishing good governance in organizations, no satisfactory actions or studies have been conducted in this respect (Chen, Chiang, & Storey, 2012). Sepehrnia, Alborzi, Kermanshah and Azar (2019) conducted a study to make a transparent governance model (Figure 1) and suggested intelligentize the model. Based on the model of transparent governance, this study intended to intelligentize it.

2. Literature Review

The principle of good governance with unlimited boundaries yet specific objectives and culture (Ganguli, 2017), is the process of making and executing decisions for transparent, responsive, fairness-oriented management in both policy-making and execution (Parasuraman, Sekher, & Kattumuri, 2018). Through good governance, communities, organizations, citizens, and institutes with different and even contradicting interests (Millard, 2018; Ojo & Mellouli, 2018) could seek their legal rights, and fulfill their commitments. It involves the government, civil community, and private sector. And its lack results in instability, corruption, and inefficient bureaucracy, considering their excessive resources (Keser & Gökmen, 2018; Saadat, Nia, Abedi, & Rahnema, 2017).

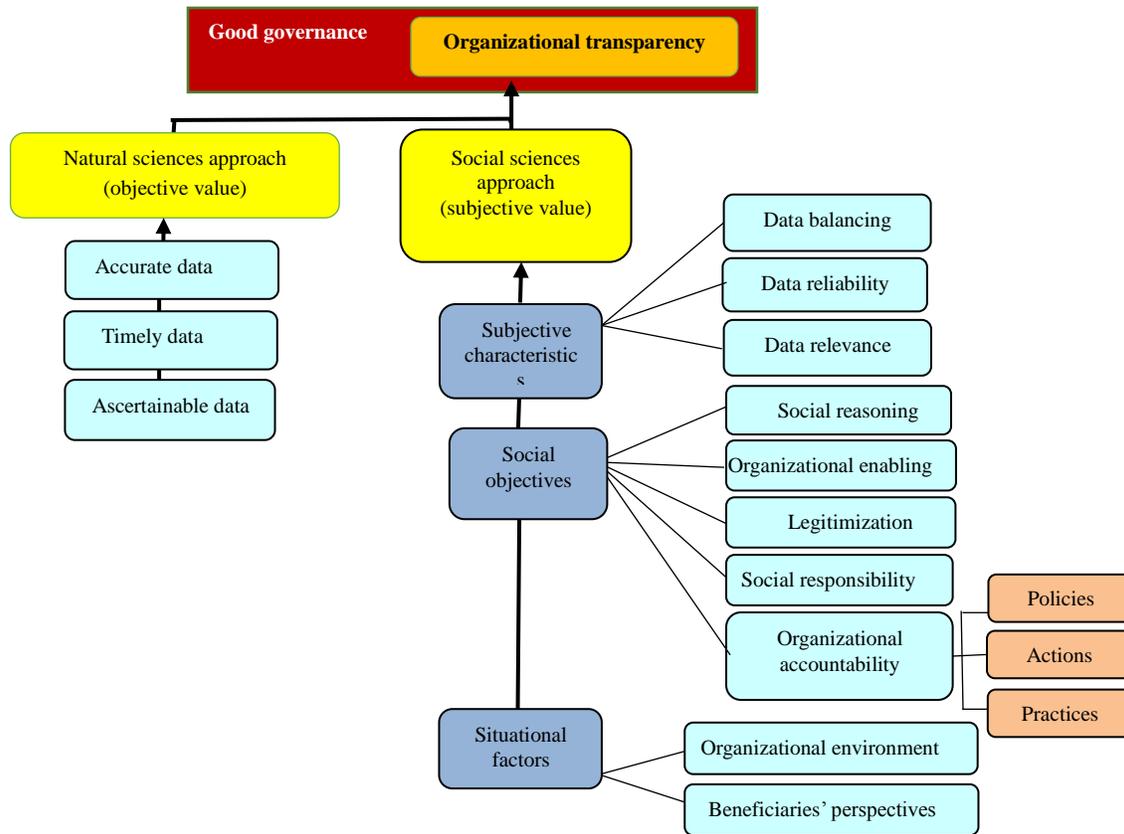


Figure 1. The model of transparent governance for policymaker organizations (Sepehrnia et al., 2019)

The perspective of good governance has considerably changed, it aims to enhance transparency as the most important indicator of good governance (Reuer & Klijn, 2018). Transparency is a factor which prevents all kinds of corruption (corporate, political, economic, financial, ethical, administrative, and information corruption) because it creates a kind of accountability. From the post-modernist approach, the definition of transparency is enhanced and classified into three categories: transparency as a public value, transparency as open decision-making by governments, and transparency as a complex tool of good governance in programs, policies, organizations, and nations. In the third category, policymakers create transparency alongside accountability, efficiency, and effectiveness (Oliver, 2009). The literature on transparency in policymaking is flourishing. With the increased digitization of our world, transparency could be of great importance especially in decision-bias of beneficiaries in policymaker organizations (Brunswicker, Pujol Priego, & Almirall, 2019). Taking a step forward, considering the model formed by Sepehrnia et al. (2019) in Figure 1, this study explains how organizational intelligence influences actions and practices to create good governance in line with transparency.

Information and communication technologies are known as good means to enhance transparency and reduce corruption (Cucciniello, Porumbescu, & Grimmelikhuijsen, 2017).

Recent studies used organizational intelligence systems as a means of creating knowledge to make decisions. However, technology alone cannot result in intelligence (Meijer & Bolívar, 2016) and organizations require a political understanding of technology that involves human participation, which is realized through the model of transparent governance in this study. From this perspective, the study considered organizational intelligence systems as an active partner in knowledge works. The effect of organizational intelligence on the organizational benefits is rare (Rouhani, Ashrafi, Zare Ravasan, & Afshari, 2016). The current literature did not sufficiently investigate the role that organizational intelligence may play in translating individual knowledge into organizational knowledge, and eventually, practice and learning (Shollo & Galliers, 2016). As a result, this study considered the organizational knowledge and knowing literature.

The transparency in the transparent governance model of Sepehrnia et al. (2019) considered the overlap of the objective and subjective value. So in this study, organizational intelligence required to cover the objective and subjective value of transparency. In other words, organizational intelligence should simultaneously explore and establish knowledge to result in organizational ambidexterity (Huang, Newell, Huang, & Pan, 2014). Here this is manifested in two dimensions as “knowledge creation” and “knowledge translation”, knowledge creation and learning are mostly social and collective actions (Cook & Brown, 1999).

Organizational intelligence systems play a role in the knowing approach of organizations, disclosure, and transparency via selecting data in the knowledge creation process. “Data selection” practices to respond to organizational decision-makers’ information requirements at different management levels have two main aspects: “data on-demand” and “data transformation into evidence” (Shollo & Galliers, 2016).

According to the model of transparent governance of Sepehrnia et al. (2019), the characteristics of the instrumental transparency approach are defined as “accurate data”, “timely data”, and “ascertainable data”. Accurate data means the real or relatively real amount of data, and timely data results from the organization’s updated data applying, at the right time (Nonaka & Konno, 1998). In this study “Drill down” and “roll-up” activities provide visibility and transparency in terms of their amounts and their way of calculating. Through drill-down data, individuals can engage in details, to identify their weakest link (i.e., organizational weakness discovery) and track the organization’s performance over time (i.e., performance trends evaluation). On the other hand, through general-oriented data (roll-up data), the managers may draw a general perspective of their organizations and investigate the effectiveness of branches. Transparency is an intentional attempt to achieve legitimate publishable information in an accurate, timely, and balanced manner, (Brinkerhoff, 2018; Rawlins, 2008).

In the model of transparent governance, the subjective value of transparency is in the components of “subjective characteristics”, “social objectives”, and “situational factors”. Subjective characteristics are the result of “data balancing”, “data reliability”, and “data

relevance”. Data balancing is the creation of data that respond to the organization’s objectives and provide the organization with social responsibility. These data are not oriented toward providing organizational benefits only (Lee & Boynton, 2017), valid data are required to be available to associated beneficiaries and concerned with the organization’s objectives (Hansen & Flyverbom, 2015).

The social objectives are in the characteristics of “social reasoning”, “organizational enabling”, “legitimization” (De Fine Licht, Naurin, Esaiasson, & Gilljam, 2014), “social responsibility”, and “organizational accountability” (Rawlins, 2008). Transparency is a factor to enhance public reasoning, to create evidence and organizational accountability in response to their actions, policies, and practices (Lee & Boynton, 2017). Organizational enabling is a crucial component of social objectives, including organizational information, which is used to conduct actions (Hansen & Flyverbom, 2015). The assurance of ownership rights and the execution of contracts are among an organization’s legitimacy factors (Keser & Gökmen, 2018). Social responsibility involves a sustainable environment, and objectives for the society’s interests (Hansen & Flyverbom, 2015).

The third component of the subjective value is situational factors that describe under what conditions information is received and shared. They include the components of the organizational environment and beneficiaries’ perspectives, i.e., what are a specific group of people’s perspectives and expectations from information and for what purposes they need information (Lee & Boynton, 2017). The environment involves everything in the organization’s scope, including rules, regulations, and social norms, which can be important situational factors to form the initial principles of transparent ideas (Lee & Boynton, 2017). Transparency is a result of a system of sense consistency between different actors (Sudhir & Talukdar, 2015).

Depending on the beneficiaries’ assumptions, analyses and perspectives, individuals need to provide data in the form of evidence to succeed in reasoning. In a simple sense, organizational intelligence, records and uses in the right place the forms and nature of reasoning articulated before (Shollo & Galliers, 2016), in this study, it is realized through “making reasoning”.

In knowledge translation, the “sense-giving” process involves exchanging information with beneficiaries to offer interpretations (Bowman, 2016). Sense-giving is a top-down process from organizational leaders and managers toward individuals who want to influence them. Sense-giving can become a challenge to enhance or inhibit transparency principles in organizational changes (Bencherki, Basque, & Rouleau, 2019). Knowledge translation in organizations begins from individual experiences and actions that lead to new distinctions. In the sense-giving process, immediately after knowledge is applied to individuals’ minds (i.e., knowledge penetration), a new distinction appears (i.e., distinction creation), but this only happens when the individual communicates with others. Based on discussions, negotiations, and arguments, the transformations and changes happen (a network of interactions). Immediate individual

experiences and actions are a base for observations and reflections that lead to new distinctions (Kolb & Kolb, 2005).

The "sense-making" process states how individuals attempt to identify ambiguous, unexpected, and new perceptions (Maitlis & Christianson, 2014), while "sense-giving" process articulates how individuals attempt to affect others' sense-making processes and it leads them toward a new definition of organizational reality (Hong, Snell, & Mak, 2016). Sense-making and sense-giving are two faces of the same coin and make no sense without each other. Sense-making results in knowing creation (Cook & Brown, 1999; Tavares & da Cruz, 2017). Tavares and Cruz (2017) propose these two concepts to be adaptations of supply factors and demand factors. These are generally participatory achievements and can link a set of organizational beneficiaries, leading to the acceptance of coherent interpretations resulting from multilateral relationships (Tao & Tombros, 2017). In the articulating practice, components resulting from knowing creation are provided; Newell (2015) named it the translation process where individuals and objects are mediators that actively translate knowledge.

The articulation practice appears via three components: the articulation of new distinctions, articulation of perspectives, and articulation of organizational actions. Ninety percent of individuals' use of organizational intelligence is dedicated to articulate deviations and distinctions. Depending on the need for more analysis, new distinctions result from the interpretation of data selection in organizational intelligence. However, organizational intelligence does not ensure distinction identification because such differences take place in the analyzer's mind. The articulation experiences form via the interaction between organizational intelligence systems and personal knowledge. In an attempt to distinguish and find an acceptable explanation for the new distinction that appears in the knowing process, different perspectives are manifested via articulation, argued, and negotiated (Shollo & Galliers, 2016).

Knowledge creation in organizational intelligence plays another important role in transforming these insights into organizational knowledge, which can be later used to do actions. To identify such previously unknown models, individuals engage in conversations with others in the organization and with the system. Here, they performed argumentation and negotiation (Kuhn & Jackson, 2008). In fact, in the cycle of knowledge creation and knowledge translation, the generative dance of knowledge and knowing takes place (Cook & Brown, 1999), which is the propulsive force for the model of this study. Figure 2 shows the research framework in part of organizational intelligence.

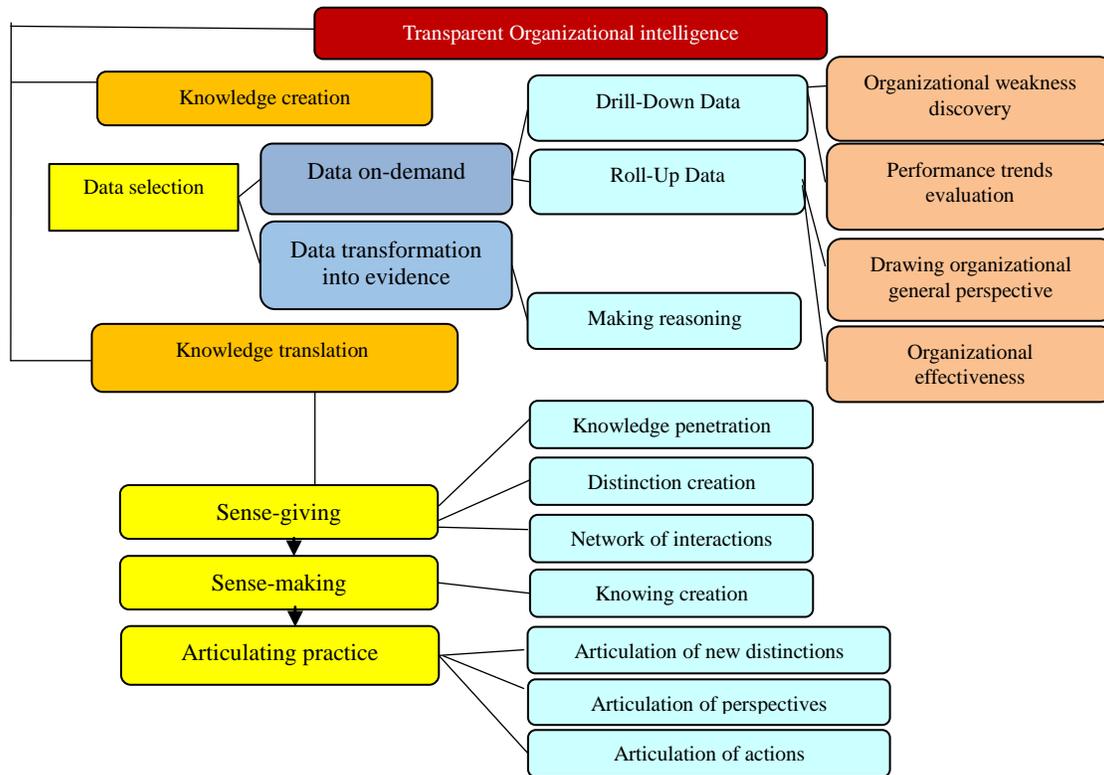


Figure 2. The intelligent model of organizational transparency

3. Materials and Methods

This study performed three processes in the following order: conceptualization, model-making, and model testing. The indicators generated via the Delphi Interview, and then the resulted model was tested. Based on the adopted qualitative-quantitative approach, the philosophy of this study was triangulation. The methodology was mixed in terms of data type and fundamental in terms of the objective, because the objective was to generate an intelligent model of transparent governance and the resultant solution could be used at the macro-level in organizations. The statistical population of the qualitative section consisted of policymaker elites at high levels, expert managers, and academic experts in organizational intelligence. The population of the quantitative section involved mid-level managers and organizations' experts. It included Customs of the Islamic Republic of Iran, airlines, banks, and universities in Iran. A sample size of 432 were obtained by the SPSS Sample Power. In the qualitative section, the target sampling method, and in the quantitative one, the stratified random and cluster sampling method, was employed. The instrument was the researcher-made questionnaire.

A 3-step questionnaire has been designed to study the opinions of elites in the field of organizational intelligence on the subject of transparency. The questionnaire has also been used to identify the dimensions, components, elements, and indicators required for shaping the model. In the first step, the "consensus index" on each of the factors of "organizational intelligence" was

considered using the Likert scale from 0 (lowest) to 10 (highest). In the second step, each participant received feedback from the first step, and then the participants were asked to determine the "importance index" of the indicators. In the third stage, alongside the former feedback, the "priority index" was included.

3.1 The Method of Calculating the Consensus Index

To reach a consensus on these theoretical concepts, the consensus index was calculated as follows: $\text{Number of options } 10 \times 5 + \text{Number of options } 9 \times 4 + \text{Number of options } 8 \times 3 + \text{Number of options } 7 \times 2 + \text{Number of options } 6 \times 1 + \text{Number of options } 5 \times (-1) + \text{Number of options } 4 \times (-2) + \text{Number of options } 3 \times (-3) + \text{Number of options } 2 \times (-4) + \text{Number of options } 1 \times (-5)$ / The total number of answers to options 0 to 10. The closer the consensus index is to zero, the lower the index of consensus and the further the consensus index is from zero, indicating agreement on the subject.

3.2 The Method of Calculating the Importance and Priority Index

$\text{Number of options } 10 \times 1000 + \text{Number of options } 9 \times 900 + \text{Number of options } 8 \times 800 + \text{Number of options } 7 \times 700 + \text{Number of options } 6 \times 600 + \text{Number of options } 5 \times 500 + \text{Number of options } 4 \times 400 + \text{Number of options } 3 \times 300 + \text{Number of options } 2 \times 200 + \text{Number of options } 1 \times 100$ / The total number of answers. In this regard, the closer the "importance or priority index" to 100 indicates the greater the importance or priority of these issues.

The Second questionnaire was designed to investigate the degree of agreement between the elites in the field with the pattern created. The questionnaire consisted of 12 statements ranging from very high to very low on the 5-point Likert scale and also included the demographic characteristics of the respondents. Then based on the formed conceptual model, Cronbach's alpha test was used to assess the reliability, and factor validity of variables, to obtain the final questionnaire.

Data description was done by the descriptive tables and frequency distribution of respondents, this section involved describing context variables such as gender, age, and educational level. The Friedman test has been conducted to rank the variables. Then, exploratory relationships between the variables were investigated and the main hypothesis was examined by explanatory tables and statistical tests, including Pearson test, t-test, variance analysis, and bivariate and multivariate regression in SPSS. The model investigation, factor analysis, and structural equation analysis were performed in Lisrel. And consequently, the model-fitting process has been conducted.

4. Results

4.1 Delphi Results

The findings showed that the elites' opinions on the dimensions and components of the concept of organizational intelligence is considered to be acceptable. Since content validity was reported

in a sample of 30 referees at least 0.35 in desirable sources, so all of the references in this study are desirable. According to the Delphi interview's indicators in Table 1, the organizational intelligence "consensus index", which, in other words, examined the validity of the content, indicated that all indicators have a score above the positive average, which means that the experts' consensus score was optimal. The theoretical adequacy of these items was appropriate to measure the theoretical concept of organizational intelligence. In general, the indexes had a very high level of consensus (score 5), and the only knowledge translation index with 4.95 was second in rate. In Delphi's second step, regarding the importance of each of the agents in constructing the concept of organizational intelligence, the "importance index" survey indicated that almost all indicators have a very high level of importance (100%). The only knowledge translation index was 0.99 in the second order of importance.

Finally, according to Table 1, these components are prioritized respectively as data selection, reason-making, data on-demand, sense-giving, knowledge penetration, articulation of new distinctions, drill-down data, organizational weakness discovery, performance trends evaluation, roll-up data, organizational general perspective drawing, organizational effectiveness, sense-making, knowledge creation, data transformation into evidence, articulation of perspectives, a network of interactions, distinction creation, knowledge translation, articulating practice, articulation of actions. Due to the high score of the findings, the variables in Table 1 were allowed to enter the model.

Table 1. Indicators of content validity, consensus, importance, and priority of organizational intelligence

Concept	Dimension	Component	Subcomponent	Indicator	Item	Content Validity (CVR)	Consensus	Importance	Priority
	Knowledge creation					1	5	100	0.98
		Data selection				1	5	100	100
			Data on-demand			1	5	100	100
				Drill-down data		1	5	100	0.99
					Organizational weakness discovery	1	5	100	0.99
					Performance trends evaluation	1	5	100	0.99
				Roll-up data		1	5	100	0.99
					Organizational general perspective drawing	1	5	100	0.99
					Organizational effectiveness	1	5	100	0.99
			Data transformation into evidence			1	5	100	0.98
Organizational Intelligence				Making reasoning		1	5	100	100
	Knowledge translation					98.0	95.4	99.0	0.94

			Sense-giving		1	5	100	100
				Knowledge penetration	1	5	100	100
				Distinction creation	1	5	100	0.95
				A network of interactions	1	5	100	0.95
			Sense-making		1	5	100	0.98
				Knowing creation	1	5	100	100
			Articulating practice		1	5	100	0.92
				Articulation of new distinctions	1	5	100	100
				Articulation of perspectives	1	5	100	0.95
				Articulation of actions	1	5	100	0.91

Following the results obtained from the qualitative section, the model moved to the explanatory phase via a researcher-made questionnaire.

4.2 Factor Analysis and Reliability

Content validity (C. H. Lawshe) and structural validity (factor analysis) have been employed to investigate the questionnaire's validity. Table 2 indicates that the Kaiser-Meier test coefficient for different dimensions of independent research variable was different; however, the coefficient of this index as a factor of admission to factor analysis for two dimensions of knowledge creation and knowledge translation (sense-giving and articulating practice components) was at or near the desired level. In all of these dimensions, the significance level was 0.000, which means authorization of exploratory factor analysis and sample adequacy over the dimensions. The eigenvalue, obtained from factor analysis on the dimensions of this variable, indicated that we have only a unique factor in the analysis of all these dimensions, and so each, theoretically, constitutes a single conceptual dimension, as it was predicted.

The eigenvalue of these factors was (3.66) for knowledge creation or data selection. This value for the component of knowledge translation (sense-giving) was (2.12) and for articulating practice was (2.13). Also, these factors explained 0.73, 0.70 and 0.71 of the variances of these dimensions, respectively. As can be seen in Table 2, the items collected under each factor (without the need to rotate) contained a factor load of more than 0.4 (desirable factor verification threshold); the agents obtained the permission to attend the final questionnaire. In all dimensions, the Cronbach's alpha coefficient was higher than or close to 0.7 (the optimal level of this index).

It is important to note that since the dimension of sense-making has been measured by a single indicator of "knowledge creation", therefore it was not possible to evaluate the validity and reliability of this dimension at this stage; thus only the Delphi method section and the content and face validities were applied to evaluate the validity of this dimension.

Table 2. Factor analysis and reliability of organizational intelligence

Dimensions		Assessment indicators	Factor load value	Cronbach Alpha
Organizational intelligence	Knowledge creation	Data selection KMO= 0.78 Sig= 0.000 Eigen Value= 3.66 R2=73.3	0.89	0.91
			0.83	
			0.75	
			0.86	
			0.81	
	Knowledge translation	Sense-giving KMO= 0.67 Sig= 0.000 Eigen Value= 2.12 R2=70.7	0.89	0.879
			0.80	
			0.83	
		Articulation practice KMO= 0.62 Sig= 0.000 Eigen Value= 2.13 R2=71.1	0.90	0.808
			0.69	
			0.91	

4.3 Individual Characteristics of Respondents

This study also investigated the demographic characteristics of the respondents. Table 3 provided the frequency distribution of respondents by gender, age, and educational level. Findings showed that 28.7 percent of respondents were female and 71.3 percent were male, and the majority of respondents were in the age group of 31 to 50. Also, the majority of the respondents (75.9%) were bachelors and masters, less than 15 percent were people with a doctoral degree and about the same number had a diploma or associate degree.

Table 3. The descriptive statistics (the demographic characteristics)

Variable	Scope	Frequency	Validity percentage
Gender	Female	123	28.7
	Male	306	71.3
Age	Lower than 30	57	13.3
	31-40	215	50.4
	41-50	128	30
	Above 50	27	6.3
Educational level	Diploma	22	5.1
	Associate	21	4.9
	Bachelor	162	37.5
	Master	166	38.4
	Ph.D.	61	14.1

4.4 The Friedman Test

The Friedman test has been conducted to check if some variables had the same ranking. The null hypothesis states that the averages are the same and the opposite assumption states that there are at least two factors that have different average in the ranking. The results of the Friedman test to

rank the organizational intelligence variables indicated in Table 4. This test is as follows:

H ₀	The mean rank of all variables is the same
H ₁	There are at least two variables that have different mean ratings

Table 4. Friedman test results for comparing organizational intelligence

Chi-square statistic	Degrees of freedom	The significance level	Number	Error value	Test result
175.225	11	0.000	427	0.05	Rejecting H ₀

According to Table 4, the chi-square statistic and the significance level, the H₀ hypothesis is rejected at the significance level of 0.05, and it can be said that there is a significant difference between the organizational intelligence indicators. The ranking of these capacities has been outlined in Table 4. Tables 5, provides the Friedman test's ranking results, this table shows that the network of interactions ranks first and articulation of new distinctions second.

Table 5. Ranking organizational intelligence indicators

Dimensions	Components, subcomponents	Indicators	Mean Ranking	Ranks
Knowledge creation	Data selection Data on-demand	Roll-up data	7.00	3
		Roll-up data	6.97	4
		Drill-down data	6.25	7
		Drill-down data	6.04	9
	Data selection Data transformation into evidence	Making reasoning	5.82	11
Knowledge translation	Sense-giving	Knowledge penetration	6.89	5
		Distinction creation	6.38	6
		Network of interactions	7.66	1
	Sense-making	Knowing creation	7.10	2
	Articulating practice	Articulation of new distinctions	5.74	12
		Articulation of perspectives	6.15	8
		Articulation of actions	5.98	10

4.5 The Relationship between Dimensions of Organizational Intelligence and Dimensions of Organizational Transparency

Table 6 represents the relationships between dimensions of organizational intelligence (objective value, subjective characteristics, social objectives, situational factors, and subjective value) and dimensions of organizational transparency (drill-down data, roll-up data, data transformation into

evidence, knowledge creation, sense-giving, sense-making, articulation practice and translation of knowledge). There is no equilibrium relationship between the different dimensions of organizational intelligence and the dimensions of organizational transparency (good governance). Also, each of the following dimensions has an independent relationship intensity concerning the other dimensions.

- The ratio between objective value and all dimensions of organizational intelligence is moderate (0.33 to 0.48). All of these relationships are positive and meaningful.

- All relationships between the subjective characteristics and the different dimensions of organizational intelligence are moderate to strong. There is the least correlation between subjective characteristics and roll-up data dimensions (0.38) and the highest correlation with knowledge translation (0.56). All the relationships between the subjective characteristics dimension and different dimensions of organizational intelligence are also positive and significant.

- The relationship between social objectives dimension and different dimensions of organizational intelligence is strong. There is the least intensity of correlation between the social objectives dimension and roll-up data dimension (0.49), and the highest intensity correlation (0.66) with knowledge production dimension. The relationship between the social objectives dimension and different dimensions of organizational intelligence is also positive and significant.

- The relationships between situational factors and all dimensions of organizational intelligence is weak to moderate (0.16 to 0.33). All of these relationships are positive and meaningful.

- The relationships between the subjective value dimension and the different dimensions of organizational intelligence are strong, positive, and significant. There is the lowest intensity of correlation between the subjective value dimension and the data transformation into evidence dimension (0.47) and the highest intensity correlation (0.63) with the knowledge creation dimension.

According to Table 6, there are positive relationships between the dimensions of organizational intelligence and all aspects of organizational transparency. This means that all elements of organizational transparency with organizational intelligence in the dimensions of (drill-down data, roll-up data, data transformation into evidence, knowledge creation, sense-giving, sense-making, articulation practice, and knowledge translation) are directly correlated. Table 6 indicates the dimensions and components of social objectives, subjective value, subjective characteristics, objective value, and situational factors have the highest correlation with dimensions of organizational intelligence, respectively. Also, the dimensions and components of knowledge creation, knowledge translation, sense-giving, drill-down data,

articulation practice, sense-making, roll-up data, and data transformation into evidence have the highest correlation with different dimensions of organizational transparency, respectively.

Table 6. The Relationship between organizational intelligence and organizational transparency

Organizational transparency (good governance)	Organizational intelligence							
	Drill-down data	Roll-up data	Data transformation into evidence	Knowledge creation	Sense-giving	Sense-making	Articulation practice	Translation of knowledge
Objective value	R = 0.43 Sig = 0.000	R = 0.44 Sig = 0.000	R = 0.43 Sig = 0.000	R = 0.48 Sig = 0.000	R = 0.43 Sig = 0.000	R = 0.48 Sig = 0.000	R = 0.40 Sig = 0.000	R = 0.46 Sig = 0.000
Subjective characteristics	R = 0.48 Sig = 0.000	R = 0.38 Sig = 0.000	R = 0.44 Sig = 0.000	R = 0.53 Sig = 0.000	R = 0.54 Sig = 0.000	R = 0.47 Sig = 0.000	R = 0.52 Sig = 0.000	R = 0.56 Sig = 0.000
Social objectives	R = 0.59 Sig = 0.000	R = 0.49 Sig = 0.000	R = 0.52 Sig = 0.000	R = 0.66 Sig = 0.000	R = 0.51 Sig = 0.000	R = 0.52 Sig = 0.000	R = 0.54 Sig = 0.000	R = 0.58 Sig = 0.000
Situational factors	R = 0.29 Sig = 0.000	R = 0.32 Sig = 0.000	R = 0.16 Sig = 0.000	R = 0.33 Sig = 0.000	R = 0.33 Sig = 0.000	R = 0.20 Sig = 0.000	R = 0.27 Sig = 0.000	R = 0.29 Sig = 0.000
Subjective value	R = 0.56 Sig = 0.000	R = 0.50 Sig = 0.000	R = 0.47 Sig = 0.000	R = 0.63 Sig = 0.000	R = 0.58 Sig = 0.000	R = 0.50 Sig = 0.000	R = 0.55 Sig = 0.000	R = 0.60 Sig = 0.000

In the stepwise regression model in Table 7, the results showed that in model number 1 concerning the sense-making dimension entered into the model; this dimension alone could predict 57.2 percent of the changes in organizational transparency. Model number 2 indicated that after adding the sense-making dimension this figure increased to 64 percent. The results of model number (3) revealed that by adding the drill down-data dimension to the above equation this figure increased to 66.6 percent. Finally, in model number 4, this figure increased to 67.8 percent with the subsequent entry of the roll-up data. The results in Table 7 showed that the sense-making dimension had the highest correlation with organizational transparency, while the roll-up data dimension had the lowest correlation with total organizational transparency. Also, the strongest predictor was the sense-making dimension.

Table 7. The exploratory regression model of organizational intelligence dimension's effects on organizational transparency (good governance)

Model	R	R Square	Adjusted R Square	Anova (F)	sig
N. 1	0.572	0.327	0.325	208.745	0.000
N. 2	0.64	0.410	0.407	149.022	0.000
N. 3	0.666	0.444	0.44	113.827	0.000
N. 4	0.678	0.459	0.454	90.609	0.000

Table 8 illustrates the coefficients effect of the final exploratory model of organizational intelligence dimensions that explains organizational transparency. As shown in this model, the coefficients effect of the sense-making, sense-giving, drill-down data, and roll-up data dimensions on organizational transparency were 0.169, 0.164, 0.106, and 0.104, respectively. It is worth noting that the sense-making dimension had the highest coefficient effect when the mentioned dimensions incorporated into the regression system in the order of higher coefficients

effect. However, in the next stage, where other dimensions incorporated in the regression system, the coefficient effect of sense-making on organizational transparency reduced such that, it had its lowest value when the last dimension (i.e., roll-up data) was incorporated.

Table 8. Coefficients effect of exploratory model of organizational intelligence dimensions on organizational transparency (good governance)

	Variables	Non-standard Regression Coefficient (B)	Std. Error	Standard Regression Coefficient (Beta)	T-value	Sig
	The constant value of the final model	1.853	0.119	-	15.613	0.000
1	Sense-making	0.322	0.022	0.57	14.448	0.000
2	Sense-making	0.22	0.025	0.389	8.867	0.000
	Sense-giving	0.275	0.035	0.341	7.774	0.000
3	Sense-making	0.179	0.025	0.317	7.04	0.000
	Sense-giving	0.195	0.038	0.242	5.147	0.000
	Drill-down data	0.125	0.024	0.238	5.103	0.000
4	Sense-making	0.169	0.025	0.30	6.708	0.000
	Sense-giving	0.164	0.038	0.203	4.269	0.000
	Drill-down data	0.106	0.025	0.203	4.288	0.000
	Roll-up data	0.104	0.03	0.146	3.479	0.001

4.6 Hypothesis Test & Investigation of Structural Equations of Research Conceptual Model

According to the results, a rise in organizational intelligence can improve organizational transparency. In other words, there is a direct relationship between organizational intelligence and organizational transparency. As shown in Table 9, the correlation coefficient between organizational intelligence and organizational transparency is 0.67. The portion of organizational transparency's variance explained by organizational intelligence is 0.45. The F-value implies that the relationship between organizational intelligence and organizational transparency is statistically significant (sig=0.000). The intercept suggests that by controlling the effect of organizational intelligence, the base of organizational transparency could be 2.003. If this concept includes in the equation, for each unit change in organizational intelligence variable, about (0.51) positive change in organizational transparency is predicted. β indicates that the net effect of organizational intelligence on organizational transparency is 0.67.

Table 9. The correlation coefficient between organizational intelligence and organizational transparency

Organizational intelligence & organizational transparency	correlation coefficient (R)	(R Square)	(β)	(Constant) B	(Sig)
	0.67	0.449	0.67	2.003 0.509	0.000

Figure 3 shows the estimated standardized factor loads (standardized regression coefficients) of the conceptual model. The relationship between the independent variable and the dependent variable was investigated using structural equation analysis. Also, Figure 4 demonstrates the t-student of the conceptual model. Regarding the t-student, the relationships between the entire variables were significant, since all the t-values were above 1.96. Considering the t-student of the errors, the t-values were above 1.96 for all the indicators and variables. So, there was a significant amount of errors, such errors typically happen due to the low sample size. The

standardized factor load between organizational intelligence and organizational transparency was 0.75, implying a relatively strong and good relationship. The largest factor load was for social objectives, while the smallest factor load was for situational factors.

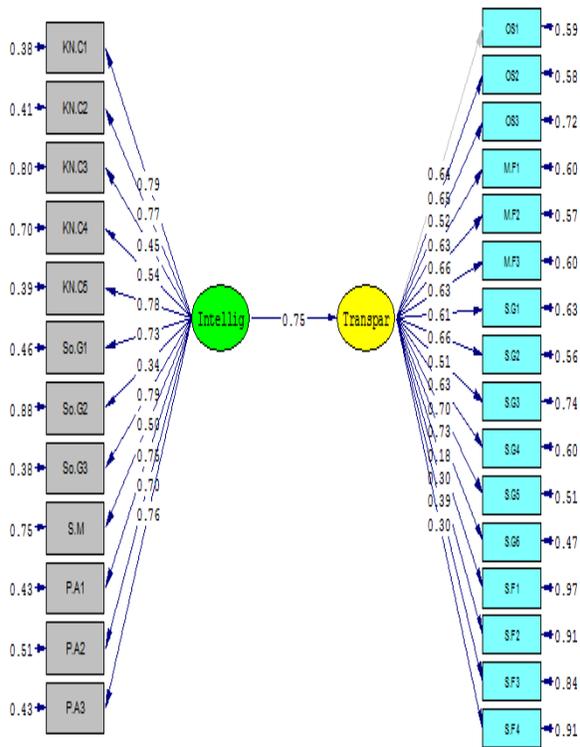


Figure 3. Estimated standardized factor loadings of the model

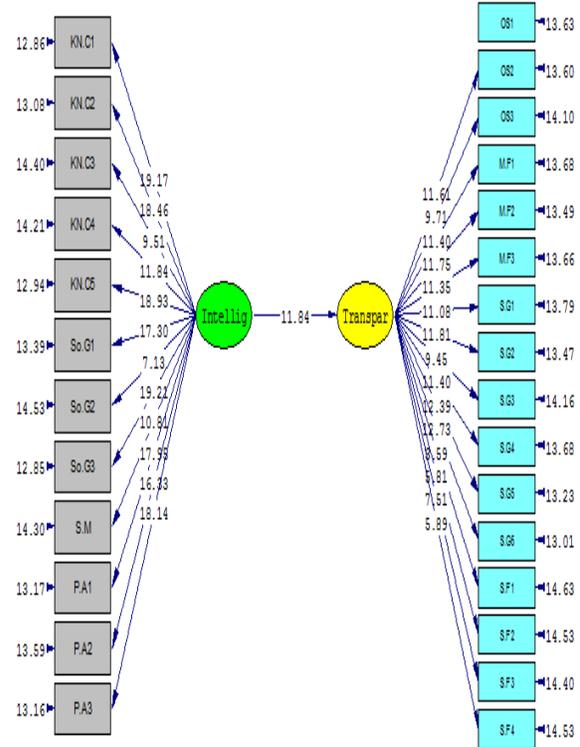


Figure 4. Statistical value of the conceptual model's t-student

Table 10 provides the goodness of fit indicators along with each indicator's interpretation criterion to investigate the total significance of the proposed model. The fit indicators suggest that the model has a good overall fit, considering each indicator's criteria. According to the provided findings, Figure 5 represents the intelligent model of transparent governance for policymaker organizations.

Table 10. The goodness of fit indices

Goodness of Fit Index		Index Value	Criterion	Result
CMIN	χ^2	1919.60	-	-
	DF	349	-	
RMR, GFI	RMR	0.031	Close to 0	Good fit
	GFI	0.91	Close to 1	Good fit
	AGFI	0.90	Close to 1	Good fit
	PGFI	0.50	>0.5	Good fit
RMSEA	RMSEA	0.097	<0.1	Good fit
Baseline Comparisons	NFI	0.95	>0.90	Good fit
	NNFI	0.95	0.90>	Good fit
	CFI	0.96	0.90>	Good fit
	RFI	0.94	Close to 1	Good fit
	IFI	0.96	Close to 1	Good fit

5. Conclusion and Recommendations for Further Research

The question of the study was, “How is the intelligent model of transparent governance in policymaker organizations with the approach of good governance?” The results indicated that, according to Figure.5, the model had three dimensions, including organizational transparency, knowledge creation, and knowledge translation. Also, the model had six components, including objective value, subjective value, data selection, sense-giving, sense-making, and articulation practice, along with five subcomponents, including subjective characteristics, social objectives, situational factors, data-on-demand, and data transformation into evidence. The model’s indicators were accurate data, timely data, ascertainable data, data balancing, data validating, data relevance, social reasoning, organizational enabling, legitimization, social responsibility, organizational accountability, organizational environment, beneficiaries’ perspectives, drill-down data, roll-up data, making reasoning, knowledge penetration, distinction creation, network of interactions, knowing creation, articulation of new distinctions, articulation of perspectives, and articulation of actions.

Considering the rank of variables, the item of “organizational weakness discovery” in “drill-down data” was the lowest in the responses. Since managers tend to use such data to analyze their performance and not their weaknesses, this can raise their cost-benefit. In three studies of Shollo and Galliers, moving into the data depth, or drilling down the details to discover organizational weakness, are greatly emphasized.

It is recommended to conduct studies to investigate the causes of this issue. The fact that the network of interactions was paid less attention than the two other indicators of the sense-giving component, maybe due to the respondent’s Conservatism for sharing organizational data. As the second suggestion, senior managers are suggested to provide more support to engage individuals in interactions, which can be the second suggestion of this study. In the “articulation practice” component, the indicator of articulating new distinctions was in low rank in the responses. Because the respondents viewed the articulation of organizational deviations to be less important, or they might act conservatively, which could be due to their lack of managers’ support and their encouragement.

According to the results of this study, with regard to transparency, this low rank could be due to a poor attitude towards transparency as an objective value. In this study, the overlap between the objective and subjective perspectives was considered, which unfortunately we had less emphasis on transparency with a subjective value in our organizations. Articulating practice by this model enables the organizational actors to make a social balance by articulating distinctions, perspectives, and actions. The excessive weakness and strength of a specific number of organizational beneficiaries and actors would eliminate the social balance.

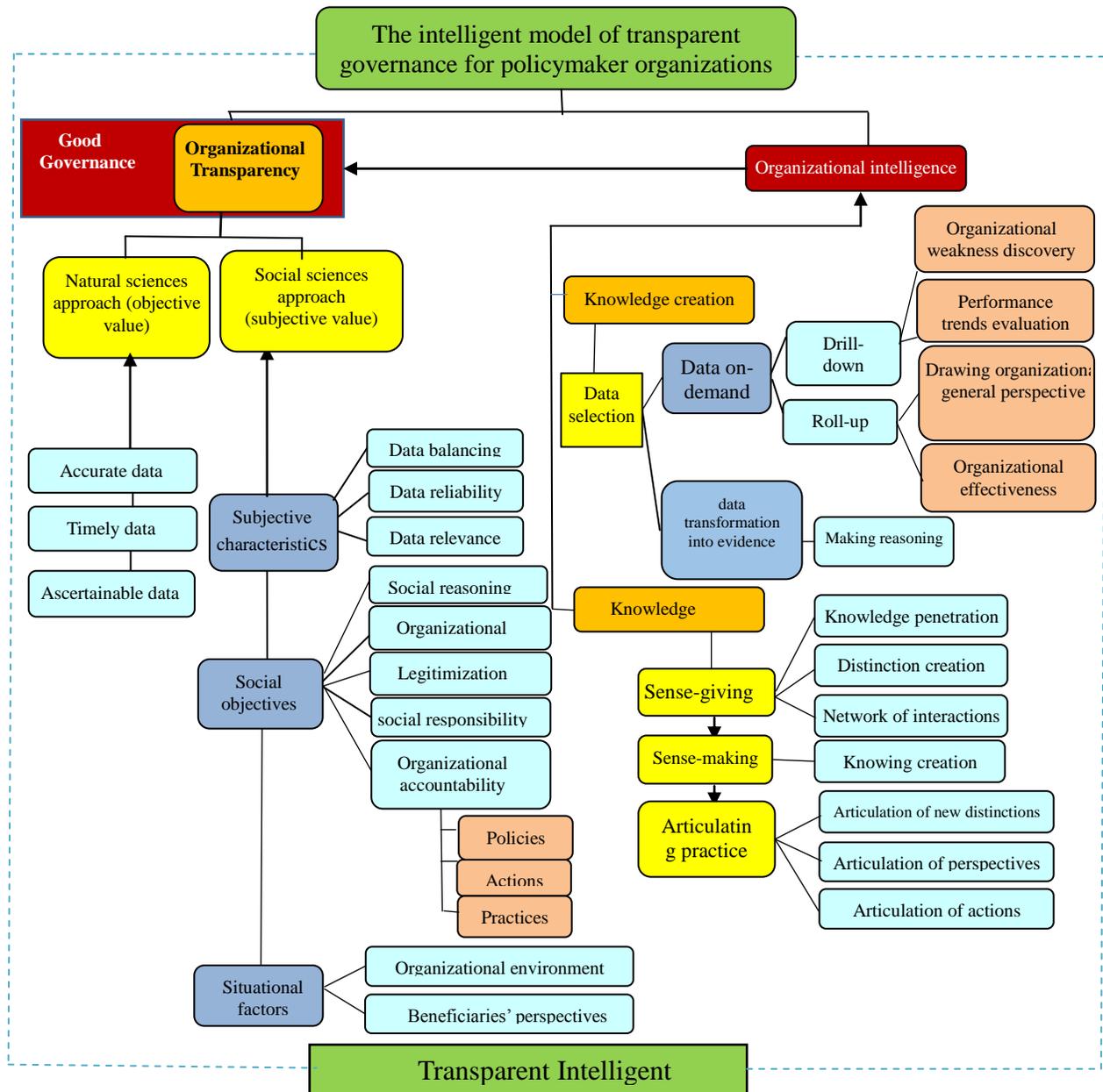


Figure 5. The intelligent model of transparent governance for policymaker organizations

As the findings revealed, there is a strong correlation between organizational intelligence and transparency, so due to the results of this model, it can be said that not articulating transparency will impose consequent deviations resulting from not articulating organizational distinctions. Where intelligence neglects articulation, the subjective value of transparency will be suppressed, and this will eventually destroy the whole economy.

Organizational intelligent systems, cannot alone improve good governance, this objective needs strategies in the form of operations, processes, and cooperation levels between different sectors. To combine technology, intelligence, and transparency, a unified perspective is required,

and the model of this study is in this regard. Managers should find that technology alone cannot result in intelligence, and this is in line with the study of Meijer & Bolívar (2016).

This model functions as a real-life identity, it is a cycle that continuously updates itself. Since it is not only affected by organizational processes, but it is mutually influenced by the practices of the entire organizational beneficiaries and actors. Considering the space provided by this model in policymaker organizations, the resultant transparent governance intelligence, can provide the best consulting institutions along with the government via sense-giving and sense-making at the same time. With the transparent intelligent governance model, one can cope with the crises of privatization of public corporations, financial liberalization, and business development challenges, via providing beneficiaries, with transparent access to information and actions.

Due to the use of the entire organizational actors, the model's disclosure and anti-corruption policies are not considered as individual-oriented, and this is consistent with the research of Pakseresht and Afshar (2017). Considering that this model involves the entire beneficiaries, it functions the same as blockchain in terms of transparency and security, as a result, it is the least susceptible to deviation and corruption factors. The governance intelligence resulting from this model can provide the precondition for the next generation of digital government by providing a framework to manage partnerships between public and private parties. Also, this model can prepare a suitable space for organizations' economic and social factors to move toward a suitable condition, since it transparently penetrates this space.

5.1. Suggestions for Future Works

The model was considered at the macro-level, there is a suggestion to investigate it at the micro-level and to compare the results. As the intelligent model of transparent governance is new, rich studies should be done to investigate this study's items and variables separately. To improve the proposed model, increasing the number of case studies, particularly interpretational ones, can demonstrate simultaneous experiences. This study's scope did not involve the model's technical aspects, so independent studies should be done with this approach.

5.2. Limitations

Time limitation did not allow investigating different kinds of organizations. Also, there was the language limitation of beneficiaries, for proper sense-making and sense-giving, individuals are required to achieve a shared understanding and a shared language. Concerning organizational transparency, it could be beneficial to adopt a gender perspective, however, this would need a long time. For organizational culture, separate investigations were not possible, but it could be effective in this issue.

5.3. Study considerations

This study protected the privacy of the respondents and did not disclose sensitive organizational

information. The authors valued the rights of the respondents. This research only proposed a model, which originated from good governance. The good governance was the product of a competitive economy, such an apparently competitive economy today is the main core of corruption in Iran. The result is the formation of the intensive monopolies that control the government and are the main component of poverty and corruption. Inflation in Iran is structural and results from the decision-making structure of the country. Hopefully, this model will overcome the decision-making crisis with the approach of transparency and provide intelligent governance to policymaker organizations. This research was a part of a doctoral dissertation at Islamic Azad University, Sciences and Research Branch, Tehran, Iran.

6. Acknowledgment

The authors would like to thank Islamic Republic of Iran Customs Administration, Ministry of Culture and Islamic Guidance, Ministry of Education, Ministry of Science, Research and Technology, Banking Industry experts, Ministry of Sport and Youth, and Ministry of Cooperatives, Labor, and Social Welfare for their contributions and all those who helped us in this study. We appreciate the efforts of elites of Islamic Azad University, Tarbiat Modares University, Sharif University of Technology, and Mehrlaborz University.

6. Funding

This research did not receive any specific grant from funding agencies in the public, commercial, or not-for-profit sectors.

References

- Bencherki, N., Basque, J., & Rouleau, L. (2019). A Sensemaking Perspective on Open Strategy. In D. Seidl, R. Whittington, & G. von Krogh (Eds.), *Cambridge Handbook of Open Strategy* (pp. 241–258). Cambridge, UK: Cambridge University Press. <https://doi.org/10.1017/9781108347921.015>
- Bowman, G. (2016). The Practice of Scenario Planning: An Analysis of Inter- and Intra-organizational Strategizing. *British Journal of Management*. <https://doi.org/10.1111/1467-8551.12098>
- Brinkerhoff, D. W. (2018). Accountability and Good Governance: Concepts and Issues. In *International Development Governance* (pp. 269–287). Routledge. <https://doi.org/10.4324/9781315092577-15>
- Brunswicker, S., Pujol Priego, L., & Almirall, E. (n.d.). Transparency in policymaking: A complexity view. *Elsevier*. Retrieved January 10, 2020, from <https://www.sciencedirect.com/science/article/pii/S0740624X18301047>
- Cheng, S., Dai, R., Xu, W., & Shi, Y. (2006). Research on data mining and knowledge management and its applications in China's economic development: Significance and trend. *International Journal of Information Technology and Decision Making*, 5(4), 585–596. <https://doi.org/10.1142/S021962200600226X>

- Clark, T. D., Jones, M. C., & Armstrong, C. P. (2007). The dynamic structure of management support systems: Theory development, research focus, and direction. *MIS Quarterly: Management Information Systems*, 31(3), 579–615. <https://doi.org/10.2307/25148808>
- Cook, S. D. N., & Brown, J. S. (1999). Bridging Epistemologies: The Generative Dance between Organizational Knowledge and Organizational Knowing. *Organization Science*, 10(4), 381–400. <https://doi.org/10.1287/orsc.10.4.381>
- Cucciniello, M., Porumbescu, G. A., & Grimmelikhuijsen, S. (2017). 25 Years of Transparency Research: Evidence and Future Directions. *Public Administration Review*, 77(1), 32–44. <https://doi.org/10.1111/puar.12685>
- De Fine Licht, J., Naurin, D., Esaiasson, P., & Gilljam, M. (2014). When Does Transparency Generate Legitimacy? Experimenting on a Context-Bound Relationship. *Governance*, 27(1), 111–134. <https://doi.org/10.1111/gove.12021>
- Ganguli, D. (2017a). Corporate Governance and Implications. *Journal of Industrial Relationship, Corporate Governance & Management Explorer (e ISSN 2456-9461)*, 1(1), 1–5.
- Ganguli, D. (2017b). Corporate Governance and Implications. *Journal of Industrial Relationship, Corporate Governance & Management Explorer (e ISSN 2456-9461)*, 1(1), 1–5.
- Golfarelli, M., Rizzi, S., & Cella, I. (2004). Beyond data warehousing: What's next in business intelligence? In *DOLAP: Proceedings of the ACM International Workshop on Data Warehousing and OLAP* (pp. 1–6). ACM.
- Gregory, R. (2018). Assessing 'good governance': 'scientific' measurement and political discourse. *Policy Quarterly*, 10(1). <https://doi.org/10.26686/pq.v10i1.4478>
- Hansen, H. K., & Flyverbom, M. (2015). The politics of transparency and the calibration of knowledge in the digital age. *Organization*, 22(6), 872–889. <https://doi.org/10.1177/1350508414522315>
- Hong, J. F. L., Snell, R. S., & Mak, C. (2016). Knowledge Assimilation at Foreign Subsidiaries of Japanese MNCs through Political Sensegiving and Sensemaking. *Organization Studies*, 37(9), 1297–1321. <https://doi.org/10.1177/0170840616634128>
- Huang, J., Newell, S., Huang, J., & Pan, S. L. (2014). Site-shifting as the source of ambidexterity: Empirical insights from the field of ticketing. *Journal of Strategic Information Systems*, 23(1), 29–44. <https://doi.org/10.1016/j.jsis.2014.01.001>
- Janssen, M., Chun, S. A., & Gil-Garcia, J. R. (2009). Building the next generation of digital government infrastructures. *Government Information Quarterly*, 26(2), 233–237. <https://doi.org/10.1016/j.giq.2008.12.006>
- Keser, A., & Gökmen, Y. (2018). Governance and Human Development: The Impacts of Governance Indicators on Human Development. *Journal of Public Administration and Governance*, 8(1), 26–39. <https://doi.org/10.5296/jpag.v8i1.12336>

- Kolb, A. Y., & Kolb, D. A. (2005). Learning styles and learning spaces: Enhancing experiential learning in higher education. *Academy of Management Learning and Education*, 4(2), 193–212. <https://doi.org/10.5465/AMLE.2005.17268566>
- Kuhn, T., & Jackson, M. H. (2008). Accomplishing knowledge: A framework for investigating knowing in organizations. *Management Communication Quarterly*, 21(4), 454–485. <https://doi.org/10.1177/0893318907313710>
- Laoworapong, M., Supattarakul, S., & Swierczek, F. W. W. (2015). Corporate Governance, Board Effectiveness, and Performance of Thai Listed Firms. *AU Journal Management*, 13(1), 25–40. Retrieved January 10, 2020, from <https://www.aujm.au.edu/index.php/aujm/article/view/17>
- Lee, T. H., & Boynton, L. A. (2017). Conceptualizing transparency: Propositions for the integration of situational factors and stakeholders' perspectives. *Public Relations Inquiry*, 6(3), 233–251. <https://doi.org/10.1177/2046147X17694937>
- Maitlis, S., & Christianson, M. (2014). Sensemaking in Organizations: Taking Stock and Moving Forward. *Academy of Management Annals*, 8(1), 57–125. <https://doi.org/10.1080/19416520.2014.873177>
- Mason, R. O. (1986). Four ethical issues of the information age. In *MIS Quarterly: Management Information Systems* (Vol. 10, pp. 5–12). Routledge. <https://doi.org/10.4324/9781315259697-8>
- Meijer, A., & Bolívar, M. P. R. (2016). Governing the smart city: a review of the literature on smart urban governance. *International Review of Administrative Sciences*, 82(2), 392–408. <https://doi.org/10.1177/0020852314564308>
- Mr Gagandeep, & Kumar, D. R. S. (2016). Corporate Governance in Banking Sector. *CORPORATE GOVERNANCE*, 20. Retrieved January 10, 2020, from <http://www.eminencejournal.com/images/pdf/AG3.pdf>
- Newell, S. (2015). Managing knowledge and managing knowledge work: What we know and what the future holds. *Journal of Information Technology*, 30(1), 1–17. <https://doi.org/10.1057/jit.2014.12>
- Oliver, R. E. (2009). *What is transparency?* McGraw Hill Professional.
- Pakseresht, S., & Afshar, Z. (2017). Assessment of program theory of anti-corruption policies in Iran of after revolution. Retrieved January 10, 2020, from <https://www.sid.ir/en/journal/ViewPaper.aspx?id=611966>
- Prashantham, S., Eranova, M., & Couper, C. (2018). Globalization, entrepreneurship and paradox thinking. *Asia Pacific Journal of Management*, 35(1), 1–9. <https://doi.org/10.1007/s10490-017-9537-9>
- Rawlins, B. (2008). Give the emperor a mirror: toward developing a stakeholder measurement of organizational transparency. *Journal of Public Relations Research*, 21(1), 71–99. <https://doi.org/10.1080/10627260802153421>

- Reuer, J. J., & Klijn, E. (2018). Governance of Hybrid Organizations. *Annals of Corporate Governance*, 3(1), 1–81. <https://doi.org/10.1561/109.00000008>
- Rouhani, S., Ashrafi, A., Zare Ravasan, A., & Afshari, S. (2016). The impact model of business intelligence on decision support and organizational benefits. *Journal of Enterprise Information Management*, 29(1). <https://doi.org/10.1108/JEIM-12-2014-0126>
- Sepehrnia, R., Alborzi, M., Kermanshah, A., & Azar, A. (2019). Creative Pattern of Transparency with an Emphasis on Good Governance for Policymaker Organizations in Iran. *Quarterly Journal of Innovation and Creativity in Human Sciences*, 9(2), 77–102.
- Shollo, A., & Galliers, R. D. (2016). Towards an understanding of the role of business intelligence systems in organizational knowing. *Information Systems Journal*, 26(4), 339–367. <https://doi.org/10.1111/isj.12071>
- Sudhir, K., & Talukdar, D. (2015). The “Peter Pan Syndrome” in Emerging Markets: The Productivity-Transparency Trade-off in IT Adoption. *Marketing Science*, 34(4), 500–521. <https://doi.org/10.1287/mksc.2015.0921>
- Tao, Y., & Tombros, A. (2017). How collaborators make sense of tasks together: A comparative analysis of collaborative sensemaking behavior in collaborative information-seeking tasks. *Journal of the Association for Information Science and Technology*, 68(3), 609–622. <https://doi.org/10.1002/asi.23693>
- Tavares, A. F., & da Cruz, N. F. (2017). Explaining the transparency of local government websites through a political market framework. *Government Information Quarterly*. <https://doi.org/10.1016/j.giq.2017.08.005>

Bibliographic information of this paper for citing:

Sepehrnia, R., Alborzi, M., Kermanshah, A., Sepehrnia, R., & Azar, A. (2020). An intelligent model of transparent governance in policymaker organizations with the approach of good governance. *Journal of Information Technology Management*, 12(1), 43-66.