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Modeling The Impact Of The Stakeholders Value On The Sectoral or National Innovation System, in Computer Game Industry

(With The PLS Approach In The Second Order & General Structures)

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***Abstract*—The first paper states that by selecting, identifying and operating stakeholder value (SV) and sectorial innovation system (SIS) and by investigating their effects and relationship with each other in the first step, Among 32 main hypotheses 18 hypotheses were confirmed. As mentioned, this research has been conducted in two papers. In the second paper, we look at how these effects and their relationship are in the second order and general structures.**

This article is based on the previous study in the first paper and it is conducted with the same statistical sample of 216 people which includes all stakeholders identified In the gaming industry in IRAN and participants in the international TGC conference.

Using structural equation model and with partial least squares approach with R.3.3.2 and SPSS 23 software, all research hypotheses are tested and data are collected by a questionnaire.

The research is continued using the results of the first paper after measurement and fitting rest of the model which the results show. In the second order study, 6 hypotheses are confirmed among 11 sub-hypotheses. Among 4 main questions 3 questions were confirmed. Finally, Researcher's suggested model was also confirmed with appropriate medium validity.

Keywords—stakeholders value, stakeholder, Value creation, sectorial or transnational innovation system, videogame industry, structural equation in the second and higher orders.

I. INTRODUCTION

Policymakers, managers and researchers concluded that paying attention to cultural industry especially innovation system framework in cultural industries that has been categorized into 5 domains of videogames, toys, publishing, fashion, stationery (Sari et al, 2015: 243) that can have positive consequences and effects on creation, publishing and utilization of "knowledge interactions (or flow of knowledge)", "institutions (or "institutional environment)" and "functions" (or Activities) in sectoral or transnational innovation system (Faghihi & Bagher Salimi, 2009:5). In our country videogames domain like other domains covers a wide range.

Innovation system in videogame domain different stakeholders that each has different concerns and demands. These concerns and demands can Value creation for stakeholder (Bachinger,2012). Value creation by stakeholders in innovation system of country and its modeling in these domains would not have required executive guarantee and effectiveness in this domain. Thus SV is used as a tool for recognizing the role of stakeholders and main actors of this domain and for evaluating knowledge, interests, orientation and their alliance and every important related issue to its policy. This study provides the possibility of effective interaction with stakeholders for policymakers, managers and knowledge of day. It makes them support considered policy or program more. If this valuation and modeling is done before implementing policy it will provide required field for identifying and effective measure to prevent potential misunderstanding or possible oppositions. In this case implementation program or policy look likely to be successful. (Sari et al, 2015: 25; Ghazinoory et al., 2018:18) As we said in the first paper, In this research, we intend to do that recognize determinative factors of stakeholder value in videogames industry in Iran and then we evaluate the effect of Value creation on three main interfaces from sectoral or transnational innovation system (include: function, flow of knowledge, institutional environment) from actors' and stakeholders' viewpoints. Finally by presenting a proposed model and by recognizing, selecting and operating structures of SV and sectoral or transnational system we try to study their effects and relations with each other and develop an integrated model to measure Value creation by stakeholders in innovation system as a case in this industry, we also try to provide the possibility of videogames producer companies and stakeholder function upgrade in this industry.

II. LITERATURE

According the research background presented in the first paper, the following is a general theoretical framework: In which, Mikael Gidhagen et al., (2011), have studied "The orchestrating firm: value creation in the video game industry". And "Kokko et al. (2018) have studied "creation of cooperation value and its destruction in online videogame: an exploratory study and future researches consequences. As seen, much of the research in the field of the computer game industry has been focused on the perspectives of users in this industry, and so far no research on the institutional environment, flow of knowledge, activities and functions within the system or the same sectoral innovation system in which the value created is measured by the stakeholders has been done. Considering the extensive research done in the field of sectoral innovation system and stakeholder value, nationally or internationally, we have two important research objectives in which a part of the research constructs is stated: A study by Abolhassan Faghihi and saeid Bagher Salimi (2009) on sectoral innovation system in one of the industrial parts of Iran. The concepts of which are based on Malerba model (1991), their research questions are: Q1: What kind of institutions, knowledge cooperation and functions affect sectoral innovation system of Iran? Q2: How is the condition of these variables now? Q3: How institutions affect knowledge relationship between Iran sectoral innovation system and its functions? And Monica Bachinger's research on "Stakeholder Value in Regional Development Process" which attempts to In this study by considering relationship among ten sub-variables and measuring these ten variables with main variable " satisfaction from relationship". three main questions were answered.Q1: What is the role of latent quality of pool or cross linking (communication depth) for generation of values in active networks (investment)? Q2: How can cooperation quality of Value Creation among stakeholders be supported in active networks? Q3: What are active networks values in terms of understanding of the stakeholders that have special importance?

According to the previous research, the question is that which stakeholders create value for the sectoral innovation system, or whether only those stakeholders who have financial benefits and profits can create value for the system or can we trust in the stakeholder value before financial profits and benefits (i.e., primary data in a system such as value created in the role of networking quality, cooperation quality, relationship satisfaction, etc.). In this study, we attempt to investigate and measure the impact of stakeholder value on the transnational or sectoral innovation system (i.e., the impact of stakeholder value creation on the institutional environment, flow of knowledge, functions, relationships among actors, etc.).

According to above-mentioned researches and goals and for covering researchers' opinions, wide research literature has been carried out on this field, which are mentioned in a number of the most important in Table 6:

Table 6: Related research literature about sectoral or transnational innovation system, stakeholders value and innovation network

Research title	Authors	Subject and Results
To study Sectoral innovation system by emphasizing on determining relations among institutions, knowledge interactions and functions	Abolhassan Faghihi and saeid Bagher Salimi (2009)	Sectoral innovation system is one of triple levels in innovation system that interact with its institutional environment. Accordingly the main elements of sectoral innovation system are: knowledge and technology, actors, networks and institutions. This study aimed at studying institutional impact method on innovation functions (include innovation strategies, creating innovation capacity, provision and financial facilitation, making infrastructure, developing innovative human resources,…) via knowledge relations in one of industrial regions in Iran.
To study the level of Iran underlying conditions support of open innovation approach (case study in aviation innovation system)	Tabaeian et al (2011)	This study by reviewing innovation systems literature, emphasizing on Malerba ideas about sectoral innovation system and Henry Chesbrough theory about open innovation approach tried to integrate them in framework of Iran's aviation innovation model. Consequently, underlying conditions of Iran supports open innovation approach in aviation industry. It introduced open innovation approach as a solution for upgrading innovation effectiveness in Iran aviation industry
Modeling sectoral-technical innovation system with dynamics approach of systems (case study: software industry)	Hassan Ghodsipour (2014)	Structure of sectoral management in Iran especially in IT needs a combination of sectoral approach with other approaches. Accordingly in this research by combining two sectoral and technical systems and by using system dynamics tool and also by using relationships in sectoral innovation system a general model has been modelling and evaluated for related innovation system and system condition in software industry.
Sectoral Innovation System of a Complex Product System Industry: Gas Turbine	Safdari Ranjbar et al (2018)	Sectoral innovation systems perspective presents a proper framework to analyze formation and evolution of different industries. In this research with introducing key players and actors, describing the path of formation and evolution of knowledge and technology, identifying influential policies and institutions, and explaining market structure and demand condition of Iran's gas turbine industry as a complex product systems industry, through employing qualitative approach and case study strategy.
Industrial development environment and innovation efficiency of high-tech industry: analysis based on the framework of innovation systems	Liu et al. (2017)	In this study the relationship between industrial development environment and industries innovation efficiency with high technology in China is studied about regional innovation system (RIS) and sectoral innovation system (SIS). By analyzing three main parts (regional development conditions, regional consumption potential and interactions between innovation actors) industrial development environment in industry efficiency and research results show that policy makers are able to provide an appropriate environment for industries with China high technology.

Technological shape and size: A disaggregated perspective on sectoral innovation systems in renewable electrification pathways	Hansena et al. (2018)	Systematic viewpoint of innovation system is developed by an analytical framework for analyzing and understanding innovation dynamics into different parts of development: underground sections (large and small) and solar and wind technology. Most done studies on innovation systems of sections concentrated on total analysis in all sections whereas this study states that a divided concentration is appropriate for policymaking in development of renewal energies mostly.
Evolution of an Innovation Network in Tourism: Towards Sectoral Innovation Eco-System	Stare & Križaj (2018)	This study concentrate on complicated communications between related actors via web platform in producing ideas and performing innovation in tourism. This evaluation shows the dynamics of web platform accommodation with sectoral innovation system, eco-system in tourism system. This is acquired by a deep analysis of actors networks, cooperation and mutual learning in innovation implementation.
Explanation the formation of Sectoral Innovation System, Case: General Aviation industry of I.R. of Iran	Saghafi et al (2020)	the aviation sector can With an efficient innovation system, influence on economic development and even science and technology diplomacy with other countries. The purpose of this article is to explain the factors affecting the formation of aviation sectoral innovation system. the innovation system was reviewed and its contribution to the system of technological innovation and two structural and operational approaches were indagated.
Many Miles to Paris: A Sectoral Innovation System Analysis of the Transport Sector in Norway and Canada in Light of the Paris Agreement	Koasidis et al. (2020)	Transport is associated with high amounts of energy consumed and greenhouse gases emitted.In this research, we examine the transport systems of Norway and Canada, two countries with similar shares of greenhouse gas emissions from transport and powerful oil industries operating within their boundaries. Our socio-technical analysis, based on the Sectoral Innovation Systems approach, attempts to identify the elements enabling Norway to become one of the leaders in the di_usion of electric vehicles, as well as the di_erences pacing down progress in Canada.
The Dynamics of Sectoral Networks during Digitalization: A Case Study of the Game Software Industry and the Automotive Industry in Korea	Park(2020)	According to the Sectoral Innovation Systems (SIS) theoretical framework, digital technology can be one of the main factors that co-evolves with actors, market or non-market interactions, and institutions.This research applies social network analysis (SNA) methodology and the Stochastic Actor-Oriented Model (SAOM) based on the SIS framework, to examine the rate of network evolution in the game software industry (GSI) and the automobile industry (KAI) in Korea undergoing digitalization.
Dynamics in innovation systems: Evidence from Japan's game software industry	Storz (2008)	It seems Japan is weak in creating new industries compared with The U.S.A and Europe especially in innovation section and global business. This study has addressed The U.S power or Japan weakness in special settings, institutional abilities and capacities related to actors in national innovation system. It is argued that unlike American innovation system that act with power in Japan innovation and creating new industries is difficult. This study investigates two considerable shortages. It helps to eliminate lack of dynamism in innovation systems. A dynamism that has been created based on routeability concept and makes Japan a global leader in innovation in games software section.
The orchestrating firm: value creation in the video game industry	Mikael Gidhagen et al., (2011)	This research is to present an empirically founded outline of value creationand the orchestration of this process. A qualitative study of the video game industry was undertakenfor which data were collected through use of both primary and secondary sources. The gathered dataenabled a categorization of the industry, from both a user and a firm perspective, into differentarchetypical modes of value creation. Findings this study empirically exemplifies how value creation is orchestrated bydeveloping firms within the video game industry and illustrates value creation as a continuousprocess; a value emergence process.
Stakeholder value derived from sustainability reporting	Ngorima (2012)	This study has defined SV based on reports by companies, accordingly it is a communicational tool with potential to make trust, to affect stakeholders attitude and understanding. Results show that relations between company and a group of stakeholders affect prioritization and cooperation of stakeholders group
Stakeholder Value in Regional Development Processes: A Relational Perspective	Monika Bachinger (2012)	Stakeholders in regions turn to synergic based on special benefits, they share collective learning capabilities and achieving to individual and collective goals. In this study by using network, author studies a special combination of different expertise, competency or experience or knowledge method as a base for creating regional value. Beyond economic discussions, social interactions with network partners this study focuses on stakeholders.
To draw and pathology of stakeholders institutional mapping in videogames industry in Iran	Sayed Amir Aghaei et al. (2015)	This study is about vacuum of institutions in key sections and expansion of actors in other sections, analyzing the role of industry stakeholders challenges and appropriate approaches. Results show that there is an institutional vacuum in research and development, education, financial providers, standard and evaluation, marketing and publishing. In policy making and governing section the plurality of institutions makes development process split.
Value Co-Creation and Co-Destruction in Online Video Games: An Exploratory Study and Implications for Future Research	Kokko et al. (2018)	These three items (relationship among players, communication among players and game groups) have important roles in value co-creation and its destruction in online video game by players, a feedback that is formed from players understanding in their relationship. Interaction between value creation and cooperation destruction is very strong.

Questions and major and sub hypotheses of research

Research questions are as follow:

1. What is the effect of SV on sectoral or transnational innovation system via network quality?
2. What is the effect of SV on sectoral or transnational innovation via cooperation quality?
3. What is the effect of SV on sectoral or transnational innovation via relationship satisfaction?
4. What is the effect if other factors in SV on sectoral or transnational system?

Major and sub hypotheses of research are presented With results in following table 7 briefly:

Table 7: Summary Results of model questions and hypotheses based on structural equations with PLS approach (in the first and second papers)

Q: Research questions	SH: The second stage of constructs		H: Model hypotheses in the first stage of constructs
Q1: Network quality: What is the effect of SV on sectoral or transnational innovation system via network quality? ×	**SH1:** Network quality has a positive effect on sectoral innovation system functions by stakeholders×		H3: identification in network quality has a positive effect on SIS functions by stakeholders. × H5: Reciprocity in network quality has a positive effect on SIS functions by stakeholders. × H7: Trust in network quality has a positive effect on SIS functions by stakeholders. ×
	SH2: Network quality has a positive effect on flow of knowledge of SIS by stakeholders. ×		H1: structure in Network quality has a positive effect on flow of knowledge of SIS by stakeholders. ✓ H4: Identification in network quality has a positive effect on FOK of SIS by stakeholders. × H6: Reciprocity in network quality has a positive effect on FOK of SIS by stakeholders. × H8: Trust in network quality has a positive effect on FOK of SIS by stakeholders. ✓
	SH3: Network quality has a positive effect on institutional environment of SIS by stakeholders. ×		H2:structure in Network quality has a positive effect on institutional environments of SIS by stakeholders.× H9: Trust in network quality has a positive effect on institutional environment of SIS by stakeholders. ✓
Q2: Cooperation quality: What is the effect of SV on sectoral or transnational innovation system via cooperation quality? ✓	**SH4:** Cooperation quality has a positive effect on functions of SIS by stakeholders. ×		H10: Learning routine in cooperation quality has a positive effect on SIS functions by stakeholders. ✓ H12: Network-specific investment in cooperation quality has a positive effect on SIS functions by stakeholders. ✓ H15: Full presence of resources in cooperation quality has a positive effect on SIS functions by stakeholders. ✓
	SH5: Cooperation quality has a positive effect on FOK of SIS by stakeholders. ✓		H13: Network-specific investment in cooperation quality has a positive effect on FOK of SIS by stakeholders. ✓ H16: Full presence if resources in cooperation quality has a positive effect on FOK of SIS by stakeholders. ✓
	SH6: Cooperation quality has a positive effect on institutional environment of SIS by stakeholders. ✓		H11: Learning routine in cooperation quality has a positive effect on institutional environment of SIS by stakeholders.✓ H14: Network-specific investment in cooperation quality has a positive effect on institutional environment of SIS by stakeholders. × H17: Full presence of resources in cooperation quality has a positive effect on institutional environment of SIS by stakeholders. ✓
Q3: Relationship satisfaction: What is the effect of SV on sectoral or transnational innovation system via relationship satisfaction? ✓	Functional benefits	**SH7:** Functional relationship satisfaction has a positive effect on SIS by stakeholders. ✓	H18: Functional relationship satisfaction has a positive effect on SIS functions by stakeholders. ✓ H19: Functional relationship satisfaction has a positive effect on FOK of SIS by stakeholders. ✓ H20: Functional relationship satisfaction has a positive effect on institutional environment of SIS by stakeholders. ✓
	Emotional-social benefits	**SH8:** Emotional-social relationship satisfaction has a positive effect on SIS by stakeholders. ✓	H21: Emotional-social relationship satisfaction has a positive effect on functions of SIS by stakeholders. ✓ H22: Emotional-social relationship satisfaction has a positive effect on FOK of SIS by stakeholders. ✓ H23: Emotional-social relationship satisfaction has a positive effect on institutional environment of SIS by stakeholders. ✓
Q4: The role of other factors: What is the effect of other factors in SV on sectoral or transnational system? ✓	Common goals of stakeholders	**SH9:** Goal congruence has a positive effect on cooperation quality.✓	H24: Goal congruence has a positive effect on forming learning routine by stakeholders. × H25: Goal congruence has a positive effect on special relationship investment made by stakeholders. × H26: Goal congruence has a positive effect on full presence of resources by stakeholders. ✓
	Common cooperation of stakeholders	**SH10:** Cooperation competence has a positive effect on cooperation quality.✓	H27: Cooperation competence has a positive effect on forming learning routine by stakeholders. × H28: Cooperation competence has a positive effect on special relationship investment made by stakeholders. ✓ H29: Cooperation competence has a positive effect on full presence of resources by stakeholders. ×
		SH11: Cooperation resources has a positive effect on cooperation quality. ×	H30: Cooperation recourses has a positive effect on forming learning routine by stakeholders. × H31: Cooperation resources has a positive effect on special relationship investment made by stakeholders. × H32: Cooperation resources has a positive effect on full presence of resources by stakeholders. ×

III. METHODOLOGY

The methodology of this research has been stated in details in the first article.

IV. DATA ANALYSIS

Measurement model and structural model of research constructs (Continuation of result review)

1. Standardized estimation of the first model parameters in the second stage of construct

In this stage items that do not have proper load factor are deleted. Reliability and validity have appropriate and desirable values. The values of coefficient of determination (R2) have been shown in table 8, Goodness of fit (GOF) with 0/3006 shows medium-to-high desirability. In table 9, related results to significance level of model variables in the second stage of construct are shown.

Table 8: Reliability and Validity of Parameters in the first model of the second stage of construct

	C.alpha	R2	AVE
RNQ	0/667	0	0/204
RCQ	0/713	0	0/243
RRST	0	0	0/339
ROF	0/411	0	0/327
AC	0	0/297	0/216
FOK	0	0/305	0/301
IE	0	0/397	0/318

Table 9: Measurement model and structural model in the first model in the second stage of construct

Model/ step		Variable	Symbol	Estimation	Standard deviation	t-statistics	P-value	sub Hypotheses	Confirmation/ kind of effect
First Model – Second stage	Significance of AC variables (Activities or Functions)		y-intercept	0.0000	0.580	0.0000	1.0000		
		The role of network quality	RNQ	-0.0686	0.0707	-0.9700	0.3330	**SH1** (H 3,5,7)	×
		The role of cooperation quality	RCQ	-0.0963	0.0671	-1.4300	0.1530	**SH4** (H 10,12,15)	×
		The role of relationship satisfaction	RRST	-0.1220	0.0668	-1.8200	0.0695	×	×
		The role of other factors	ROF	-0.3880	0.0771	-5.0300	0.0000	×	×
	Significance of FOK variables (cooperation/ flow of knowledge)		y-intercept	0.0000	0.0577	0.0000	1.0000		
		The role of network quality	RNQ	0.0425	0.0703	0.6040	0.5460	**SH2** (H 1,4,6,8)	×
		The role of cooperation quality	RCQ	0.2760	0.0668	4.1300	0.0001	**SH5** H 13,16	+ /✓
		The role of relationship satisfaction	RRST	0.2920	0.0664	4.4000	0.0000	×	×
		The role of other factors	ROF	0.1330	0.0767	1.7400	0.0835	×	×
	Significance of IE variable (Institutional Environment)		y-intercept	0.0000	0.0537	0.0000	1.0000		
		The role of network quality	RNQ	0.0306	0.0654	0.4670	0.6410	**SH3** (H 2,9)	×
		The role of cooperation quality	RCQ	0.1780	0.0622	2.8600	0.0046	**SH6** (H 11,14,17)	+ /✓
		The role of relationship satisfaction	RRST	0.3280	0.0618	5.3100	0.0000	×	×
		The role of other factors	ROF	0.2850	0.0714	3.9900	0.0001	×	×

2. Standardized estimation of the second model parameters in the second stage of construct

Studying items results after deleting undesirable variables show that validity and reliability have appropriate and desirable values. The values of coefficients of determination (R2) have been shown in table 10. Goodness of Fit (GOF) with 0/3393 shows medium-to-high desirability. Table 11 shows the related results to significance level of model variables in the second stage of construct.

Table 10: Reliability and validity of parameters in the second model of the second stage of construct

	C.alpha	R2	AVE
RNQ	0/000	0	0/549
RCQ	0/000	0	0/413
RRST	0/000	0/413	0/208

Table 11: Measurement model and structural model in the second model of the second stage of construct

Model/ step		Variable	Symbol	Estimation	Standard deviation	t-statistics	P-value	sub Hypotheses	Confirmation/ kind of effect
Second model- second stage	Significance of SIS variable (sectoral innovation system)		y-intercept	0.0000	0.0528	0.0000	1.0000		
		Functional benefits	FB	-0/4480	0.0562	-7.9700	0.0000	**SH7** (H 18,19,20)	- /✓
		Emotional-social benefits	ESB	-0.3310	0.0562	-5.9000	0.0000	**SH8** (H 21,22,23)	- /✓

3. Standardized estimation of the third model parameters in the second stage of construct

At first undesirable items are deleted. Reliability and validity values are appropriate and desirable. The values of coefficients of determination (R2) have been displayed in table 12. Goodness of fit (GOF) with 0/3482 shows medium-to-high desirability. In table 13, related results to significance level of model variables in the second stage of construct are displayed.

Table 12: Reliability and validity of parameters in the third model in the second stage of construct

	C.alpha	R2	AVE
GC	0/596	0	0/708
CPC	0/400	0	0/419
CPR	0/000	0	0/489
RCQ	0/713	0/32	0/261

Table 13: Measurement model and structural model in the third model in the second stage of construct

Model/ step		Variable	Symbol	Estimation	Standard deviation	t-statistics	P-value	sub Hypotheses	Confirmation/ kind of effect
Third model-Second stage	Significance of RCQ variables (cooperation quality)		y-intercept	0.0000	0.0569	0.0000	1.0000		
		Goal congruence	GC	0.2850	0.0697	4.0900	0.001	**SH9** (H 24,25,26)	+ /✓
		Cooperation competency	CPC	0.3340	0.0691	4.8400	0.0000	**SH10** (H 27,28,29)	+ /✓
		Cooperation resources	CPR	-0.0619	0.0585	-1.0600	0.2910	**SH11** (H 30,31,32)	×

Measurement model and structural model (The main goals of research)

Standardized estimation of general model parameters

At first, items that do not have appropriate load factor are deleted. Analyzing results after deleting variables shows that validity and reliability of each construct have desirable values, the values of coefficient of determination (R2)in table 14 shows what percentage of dependent variable changes are explained by independent variables. GOF with 0/3654 have strong desirability. In table 15, the related results of significance level of general model variables are displayed. Their effects on SIS variable should be measured.

Table 14: Reliability and validity of parameters in general model

	C.alpha	R2	AVE
RNQ	0/630	0	0/261
RCQ	0/713	0	0/239
RRST	0/000	0	0/336
ROF	0/411	0	0/326
SIS	0/000	0/543	0/179

Table 15: Significance level of SIS variable (Sectoral innovation system) in general modeling

Model / step		Variable	Symbol	Estimation	Standard deviation	t-statistics	P-value	Main questions	Confirmation / kind of effect
General model	Significance of SIS variable (sectoral innovation system)		y-intercept	0.0000	0.0467	0.0000	1.0000		
		The role of network quality	RNQ	0.0100	0.0576	0.1740	0.8620	Q1	×
		The role of cooperation quality	RCQ	0.2460	0.0545	4.5100	0.0000	Q2	+ /✓
		The role of relationship satisfaction	RRST	0.3460	0.0539	6.4200	0.0000	Q3	+ /✓
		The role of other factors	ROF	0.3670	0.0621	5.9100	0.0000	Q4	+ /✓

Model of structural equations with PLS approach

After doing confirmatory factor analysis and studying model test criteria with PLS approach a general model of research questions and hypotheses have been displayed in figure 3. (**Green: confirmed hypotheses, positive significance; Blue: confirmed hypotheses, negative significance; Gray: rejected hypotheses**)

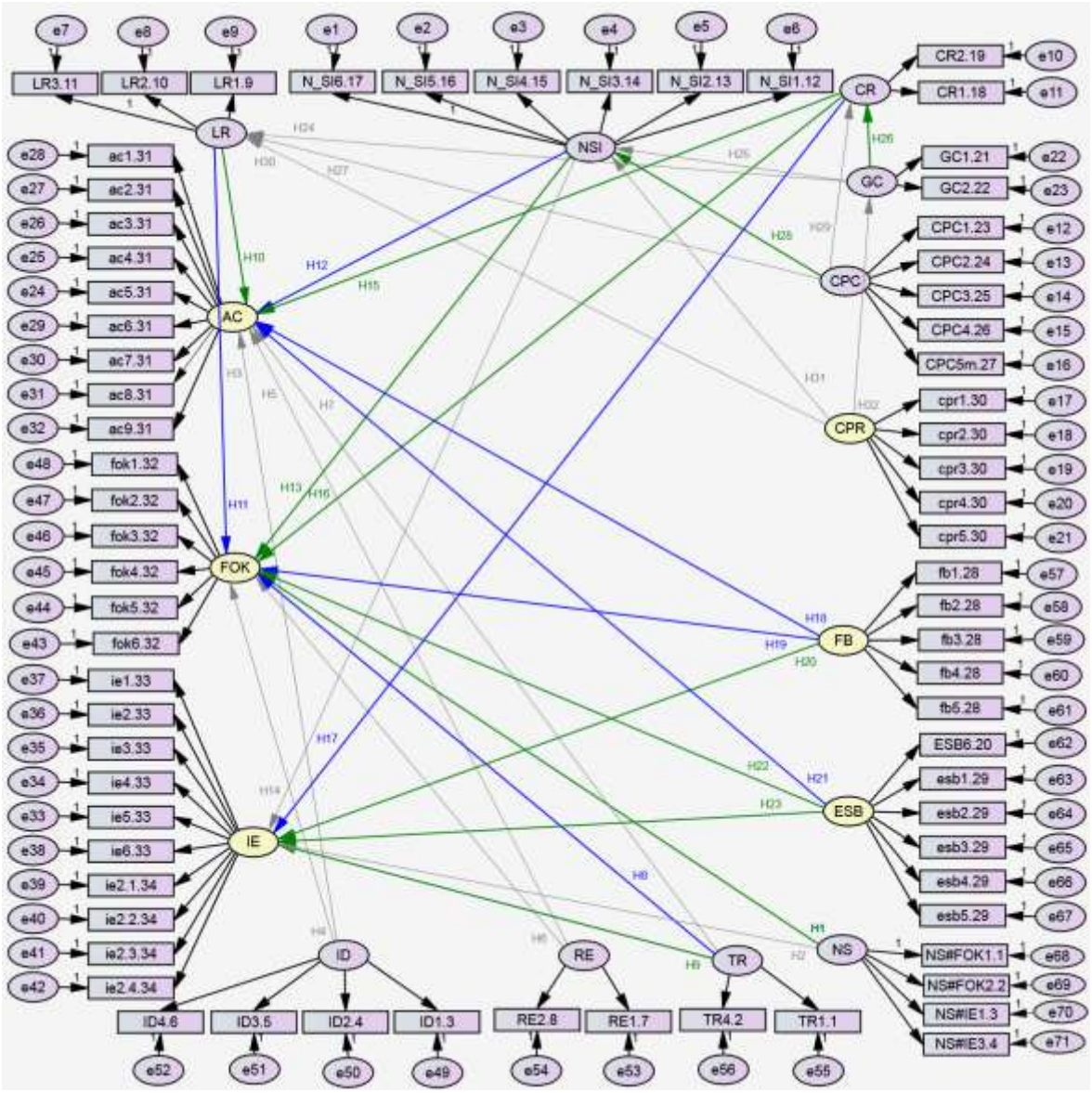

Figure 3: Structural model of confirmed hypotheses with PLS approach

V. CONCLUSION AND IMPLICATIONS

To study the results and measuring research constructs

Based on the results and analysis of the hypotheses made in the first article, we continue to study hypotheses in the second stage and the main questions of the research and to study the Research Overview:

2. Hypotheses results with PLS model approach, in the second stage of constructs

A summary of obtained results of PLS model in the second stage of research constructs with software R:

SH5: Does cooperation quality have a positive and significant effect on flow of knowledge in SIS by stakeholders? : this hypothesis was confirmed based on table 9, this hypothesis confirms that stakeholders necessarily follow main model and pass staged in the order of the model. Two presented hypotheses that studied this relation have been confirmed thus it can be said with certainty and by analyzing in software R, this sub hypothesis is confirmed and has a positive effect.

SH6: Does cooperation quality have a positive and significant effect on institutional environment of sectoral innovation system by stakeholders?: this hypothesis was confirmed based on table 9, this hypothesis confirms that stakeholders necessarily follow main model and pass stages in the order of the model. Three hypotheses have been presented to study this relationship, two of them were confirmed and one of them was rejected. According to results and analyzing by software R it can be said that this sub hypothesis is confirmed and has a positive effect.

SH7:Does functional relationship satisfaction has a positive and significant effect on SIS by stakeholders? this hypothesis has been confirmed based on table 11, this hypothesis confirms that stakeholders necessarily follow

main model and pass stages in the order of the model. Three hypotheses were presented to study this relationship, all three hypotheses have been confirmed thus by analyzing with software R it can be said that this sub hypothesis is confirmed and has a negative effect.

SH8:Does emotional-social relationship satisfaction have a positive and significant effect on SIS by stakeholders? : this hypothesis has been confirmed based on table 11, this hypothesis confirms that stakeholders follow main model necessarily and pass stages in the order of the model. For studying this relationship, three hypotheses were presented that they have been confirmed with certainty. This sub hypothesis is confirmed and has a negative effect.

SH9: Does goal congruence have a positive and significant effect on cooperation quality?: this hypothesis has been confirmed based on table 13, this hypothesis confirms that stakeholders follow the main model and pass stages in the order of the model. Three hypotheses have presented to study this relationship, one of them was confirmed and two of them were rejected . According to results and analyzing of software R it can be said that this sub hypothesis is confirmed and has a positive effect.

SH10: Does cooperation competency have a positive and significant effect on cooperation quality?: this hypothesis has been confirmed based on table 13, this hypothesis confirms that stakeholders follow the main model and pass the stages in the order of the model. Three hypotheses were presented to study this relationship, one of them was confirmed and other two hypotheses were rejected. According to results and software R analysis it can be said that this sub hypothesis is confirmed and has a positive effect.

3. To answer to four main research questions with PLS model approach

According to final model that obtained by studying presented hypotheses (to study communications based on data and obtained analysis) and deleting rejected hypotheses, main research questions with PLS model approach with software R are considered.

Q1: Does stakeholders value via network quality have a positive and significant effect on SIS: this question was not confirmed based on table 15, it confirms that stakeholders do not follow main model and do not pass stages in the order of the model. Three sub questions were presented they were not confirmed, thus this question has not been confirmed. as it hasn't confirmed in software R.

Q2: Does stakeholders value via cooperation quality have a positive and significant effect on SIS: this question has been confirmed based on table 15, this question confirms that stakeholders follow the main model and pass stages in the order of model. Three sub questions were presented for this section, two of them were confirmed and one of them was rejected by analyzing software R, this question is confirmed and has positive effect.

Q3: Does stakeholders value via relationship satisfaction have positive and significant effect on SIS: this question has been confirmed based on table 15, this confirms that stakeholders follow the main model and pass stages in the order of model. Two sub questions were presented both of them were confirmed thus it can be said with certainty that this question is confirmed and has positive effect as it has confirmed in software R.

Q4: Do other factors that have roles in stakeholders value have a positive and significant effect on SIS? : this question has been confirmed based on table 15 . This question confirms that stakeholders follow the main model and pass stages in the order of model. Three sub questions were presented to study this relationship, two of them were confirmed and one of them was rejected thus this question was confirmed and has a positive effect by analyzing software R.

Research Overview

Based on obtained results in four questions, it can be said that presented model that was presented by Bachinger, is confirmed in this study with mediator variables (RCQ) indirectly. Thus, any improvement in SV constituent constructs condition due to constructs of RRST, RCQ,RNQ will affect on SV in SIS because of weak constructs in RNQ this effect in this industry shows new social capital that is forming in the role of network quality in sectoral innovation system. Videogame industry is a novel industry in Iran. Despite being a novel industry constructs of ROF,RRST and RCQ have the most effect on SIS respectively. These levels are well-confirmed in this study.

Implications for future researches

1. Doing researches and studying “the role of network quality” as one of the most important criterion of social capital in stakeholders value. That has been determined based on this research findings and studying this subject that “ Can implementation of this study have positive and considerable effects on determined constructs during different and certain time intervals or not?
2. To do and test this model and hypotheses in different industries for studying current relations between SV and SIS constructs and to present a more complete and a final model.
3. To develop expansion of population especially among active managers and stakeholders of this industry that are working in institutions and companies. For gaining more accurate findings stakeholders activists or research section need to have finance to do study.
4. Extensive research on features of goal population based on demographic statistics in this study to design and implement harmonized plans with SV and SIS.
5. To use methods and other methodologies such as artificial intelligence and compare them with this study results.
6. To test final model of this study with stakeholders with high involvement level and to compare results.
7. To use this study results in SV domain and to test model in this section.

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