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Evaluation of Governance Risk in Industry-University-Research Collaborative Innovation Project: Based on BP Neural Networks

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Abstract
Effective evaluation of project governance risks is of great significance to the successful implementation of industry-university-research collaborative innovation project. By introducing the idea of project governance into risk management in industry-university-research collaborative innovation project, this paper analyzes governance risk sources from four aspects, based on the project characteristics, which include the background of participators, organizational structure, project objectives and the relationship of the main participators from the view of project governance. The governance risks are categorized as structure risk, morality risk and behavior risk. The evaluation system of governance risk in Industry-University-Research collaborative innovation project is established. The BP neural network model is applied to assess risk and the MATLAB is used to process data according to the features of project governance risk and theory analysis. Finally, the model is checked by empirical test. This model solves the problem that the risks are difficult to quantify. Scientific nature of the feasibility of the evaluation is improved by the model. At the same time, not only the research field of project governance risk but also risk research of industry-university-research collaborative innovation project is extended.

Keywords: industry-university-research, collaborative innovation, project governance risk, risk origin, BP neural networks

1 Introduction

Collaborative innovation, as an effective way to promote the efficiency and capacity for independent innovation of organization, has become the mainstream model of current technology development and innovation[1]. It is the basic requirement and principal measures for sustainable development to implement innovation-driven development strategy, deepen the reform of the science management system so as to focus on the construction of a system of technological innovation under the guidance of market and enterprise through amalgamation of industry, education and research and establish an industry-university-research innovation mechanism. Factors that have significant influence on the performance of industry-university-research collaborative innovation projects are complex and lie in different aspects [2]. Conventional view maintains that involvement of such innovative elements as talents and technology exert great influence over the performance of innovation. As problems in the governance of industry-university-research collaborative innovation projects become increasingly prominent, the identification of project risks and the effectiveness of risk control have gradually evolved in the key factors that influence the operating efficiency and innovation performance of industry-university-research collaborative innovation project management.

Industry-university-research collaborative innovation projects have the distinctive features of long investment cycle, high technology spillover, numerous participators and high heterogeneity level of participators [3-6]. Research on the risk factors in management process and the influence caused by these factors on the projects is in greater harmony with the idea of project governance risk. The major differences of project governance risk and project risk in traditional sense lie in the following aspects: The former refers to risk evolved from uncertainties in participators and relationship of participators on project governance level; while the latter refers to risk evolved from the uncer6tainties in project life cycle and the nine major functional areas in

management process. At present, research on project governance risk in academic circle concentrate on Public-Private Partnership project [7,8]. No researcher has introduced project governance risk related research into the field of industry-university-research collaborative innovation project, a complicated project involving the combination of economy and technology and the integration of capital/market and operating management [9]. Therefore, research on industry-university-research collaborative innovation project is not only beneficial to the identification and control of risk, but also helps to promote the management level project governance risk and continuous and competitive cooperation of participators. Theoretically, the research expanded the application area of project governance risk and extended the research scope of industry-university-research collaborative innovation project.

2.Theoretical foundation

After Turner and Keegan introduced governance into the field of project, scholars' attention on project governance keep on increasing. However, as an emerging research field, scholars have not reached a consensus and still hold different views on the connotation of project governance. After in-depth reading and arrangement of collected literature, it is found that although the connotation of project governance is not unified and different focuses can be observed, the concept can be divided into two types: internal project governance and external project governance.

External project governance determines the content of project governance from the perspective of multiple projects and single participator. Klakegg Williams [10] first proposed the idea that there should be a uniform framework for project governance. This framework should be flexible enough to be able adapt itself to projects of various types, size and degree of complexity. Shiferaw Klakegg [11] also regard project governance as a decision-making framework for the guidance of project governance as a one way outside activity independent of particular project implemented by the project owner. Muller Anderson [12] further point out that governance structure should include every possible scenario so it can provide suggestion fro scenario out of the structure. Ali Mosavi& Eric Patrik [13,14] directly put forward the concept of portfolio management governance, maintaining that the problem to be settled by project governance is to ensure the realization of the project objectives and the implementation of enterprise strategy by coordinating the objectives of multiple projects undergoing within the organization simultaneously, ensuring the consistency of the various project objectives and enterprise strategy, choosing projects, planning and controlling every project with project correlation and potential cooperative effect in mind. This type of opinion defines project governance as coordinating the relationship of multiple projects within the organization and that between project and enterprise strategy, setting standards or rules in aspects of resource use, object conflict and project priorities and ensuring the implementation of these standards or rules [15]. Besides, according to the owner of different project, external project governance can be categorized into project governance on government level, project governance on enterprise level and project governance on project portfolio level.

Internal project governance refers to the connotation discussion about project governance made by scholars from the perspective of one project and multiple participators according the cross-organization character of project governance. Project governance in this perspective mainly aims to solve such problems as the roles and responsibilities of project stakeholders, inconsistency of objective needs and behavior coordination. The concept consists of project governance on program level and project governance on project level [16]. The prerequisite of this idea is that specific governance framework is needed for specific program. For example, Miller Hobbs [17] emphasized that "project governance must be suitable for the dynamics of program governance. Ritson Johansen [18] stated that program governance must be consistent with organization environment.

Collaborative innovation was put forward by Peter Gloor (a researcher at AlfredP. Sloan School of Management MIT). Its connotation is "Collective vision generated from network groups made up of self-motivated people. Common objectives realized by cooperation and exchanging thoughts, information and working condition." [19]. At this stage, collaborative innovation has become a grand new organizational pattern with comparatively high capacity for independent innovation. According to the operable approaches and influence of risk, risk in industry-university-research collaborative innovation project can be divided into introversion risk and extroversion risk. Introversion risk refers to risk caused by project itself or the participators' ideology, behavior and culture which mainly show as project management risk and benefit risk [20]. Extroversion risk arise from such factors as the market, technology and policy environment of the project, consisting of technology risk, market risk and policy risk. Some scholars are studying collaboration relationship risk, network structure risk and knowledge risk in industry-university-research collaborative innovation project. Meanwhile, related researchers have carried out some research on project governance risk [21-23].

To sum up, related researchers have begun their exploration of project risk and project governance risk in industry-university-research collaborative innovation project, and a theoretical foundation for the exploration of project governance risk in industry-university-research collaborative innovation project has been established. However, since industry-university-research collaborative innovation project is complex and peculiar, there is

always certain limitation to the study if risk faced by project is only identified and evaluated from the perspective of project management. In practice, subjective and objective factors make it hard to attain the expected results in the application of evaluation. As an alliance composed of participators of different nature with diversified objectives, industry-university-research collaborative innovation project is bound to see conflicts in participator selection, objective settlement, the determination of management model and benefit allocation among participators. In addition, limitation in the stable development of different participators make risk among project participators one of the major sources of risk in the management process of industry-university-research collaborative innovation project. Therefore, a system of governance risk evaluation is attempted to be established by identifying and exploring governance risk promptly at the concept, plan and implementation stages of industry-university-research collaborative innovation project. The study will not only be advantageous theoretical enrichment to the study of industry-university-research collaborative innovation project, but also useful reference for the management and control of governance risk in industry-university-research collaborative innovation project.

3.Connotation of governance risk in industry-university-research collaborative innovation project

As a complex project involved with multiple participators, industry-university-research collaborative innovation project is influenced and restricted by many subject and object factors [24]. Connotation and type of governance risk in industry-university-research collaborative innovation project is summarized from the perspective of project governance, so governance risk in industry-university-research collaborative innovation project can be precisely identified and the nature of the risk can be explored. A cutting point can also be provided for the study of the evaluation and control of governance risk in industry-university-research collaborative innovation project.

Industry-university-research collaborative innovation project is a complicated project composed of multiple participators [25]. It is a cooperation game of multiple involved participators which include diversified interest partners such as enterprise, university, research institute, government, bank and venture capital firm. Studying the risk caused by the interaction of participators form the perspective of project governance is the research purpose of project governance risk in industry-university-research collaborative innovation project. Project governance risk in industry-university-research collaborative innovation project, including the uncertainty of participators and the relationship of participators can arise at different stages of project life cycle: firstly, at project concept phase, risk lies in the selection and identification of participators; secondly, at plan stage, after participators been chosen, risk comes from different differences in organizational structure of participators and project governance structure chosen by participators; thirdly, at implementation and close-out phase, risk mainly stems from such factors as trust among participators, morality and behavior of participators. Instability and change of participators brings higher risk to project. All project governance risks are related to participators and their behavior, so the identification of participators and their behavior rule are closely related to project governance risk in industry-university-research collaborative innovation project. From the above, it can be concluded that project governance risk in industry-university-research collaborative innovation project refers to instability of participators and relationship among participators. Governance risk in this kind of project is categorized as Structure Risk, Morality Risk and Behavior Risk.

Structure Risk

Structure Risk is risk caused by difference in the structure of participators and the mismatch between project governance structure and the project involved. In the first place, project governance structure chosen based on the external environment of the project, the nature of the project and the relationship among participators, is of great importance to the smooth running of the project. In chaotic and high-risk environment, adopting alliance-like governance structure by giving trust to project manager can reduce project governance risk and achieve good project performance [22]. In comparatively stable and low-risk project, adopting centralized governance by exercising more control over project manager will be a superior governance way. In the second place, difference in participators' organizational structure result in different degree of integration of project participators. When the difference is small, participators have similar preference, high degree of project integration will be achieved and a relatively high degree of cooperation as well as a relatively low degree of innovation is indicated. When the difference is comparatively big, project integration becomes relatively low and a relatively low degree of cooperation and a relatively high degree of innovation is implied.

Morality Risk

Morality Risk refers to risk brought about by participators' effort to maximize self-benefit which usually end up in damaging other participators' benefit or the benefit of the project as a whole. This kind of risk mainly include crisis of confidence in participators, ambiguity and non-standard of contracts, the asymmetry of information, unclear property rights and profit distribution and relatively low level of contractual degree [26]. Industry-university-research collaborative innovation project is goal-oriented activity involved different participators which may bring about enormous obvious earnings and latent earnings. Security partnership and stable relationship should be established among participators so there are cooperation regulation and agreement to

follow. However, if one participator or some participators take advantage of vulnerabilities in the contract to pursue profit even by means contrary to legal ethics, business ethics and academic ethics by employing trickery, risk will be brought to participators and project. These deficiencies such as a gray zone in the process of contract making, deliberate omission of information to be communicated when communicating information, malicious devouring technological advances and research results innovation and unclear property right and interest rule and lack of trust in partners' professional skills, knowledge and capacity will cut down cooperation efficiency of participators and reduce investment from participators which may eventually result in the damage of project interest as whole [27].

Behavior Risk

Behavior risk is the risk brought about to project by inappropriate decision-making of one participator or some participators. Risk of this type mainly include fault in the identification and selection of participators, difference in participators' objectives, lack of understanding of participators, bad cooperation and poor collaboration [28,29]. To start with, at the concept stage, the selection of participators will bring risk to project. An appropriate partner can make the project a success and run turn the tide at critical moment. While an unmatched or inappropriate partner may lead a successful project to failure. At the second place, coherence of participators' objectives has great impact on participators' devotion and effort to the project. In the process of project implementation, how participators know each other and how well participators' technology and competencies match will lead to different performance and project progress.

4.Analysis of the risk origin of governance risk in industry-university-research collaborative innovation project

The formation of governance risk in industry-university-research collaborative innovation project is closely related to participators, who inject their own resources to the project. These participators become the risk origin of project governance risk when they win the project. The causes for the formation of project governance risk can be classified into the following aspects: difference in the background of participators, defectives in project organizational structure, uncertainty in project objectives and disharmonious relationship of participators.

Difference in the background of participators

Participators in industry-university-research collaborative innovation project include government, university, enterprise, research institute, bank and venture capital firm. Participators play different roles in the project and e4xert different influence on the project due to their different social responsibility, purpose, organizational objective and organization culture. Among them, university, enterprise and research institute are the center of collaborative innovation, while government play the role or coordination, stimulation and guidance by providing financial support and publishing and implementing policies and regulations, still other social institutions provide financial support and obtain corresponding profit [30]. University aim at promoting academic levels and cultivating talents. Abundant intellectual resources and focus on in-depth knowledge make university attach greater importance to academics rather than market interest which leads conditions of surplus in intellectual and lack of flexibility in market. Profit-making and interest-pursuing enterprises, the demanders and innovators of Industry-university-research collaborative innovation project are also the driving power of project need. The possession of resources including managerial elite, capital and market transformation enables enterprises to put more emphasis on obtaining profit rather than increasing academic level. Research institute, as the provider of intellectual in the project which has more prominent market characteristic as compared to university, is not only an important medium of cooperation between university and enterprise but also a demonstration of government's policy at macro-level. But research institute is less concentrated as compared to university, in lack of innovation in comparison with university and short of market transformation capacity in comparison with enterprise [31].

Defectives in project organizational structure

Project organizational structure include project governance structure, participators' organizational structure and organization culture, etc. Due to differences in organization culture in aspects such as social responsibility, social function and value proposition, conflicts of value, principle, behavior style and benefit will bring resistance to project progress. Moreover, in the background of ever-changing external information, the difference in participators' organizational structure in aspects of framework and project inner management environment and change in theses aspects may lead to obstacles in cooperation, difficulties in communication and information asymmetry [32]. The cooperation between participators is devastated and innovation performance and successful implementation will be influenced. Such factors as whether project organizational structure of participators cohere and how well project governance structure match the project are closely related to each other affect the ability of collaborative innovation and cooperation among participators.

Uncertainty in project objectives

Project is an object-oriented activity. The important corner stone of industry-university-research collaborative innovation project's smooth running is clarity of project objectives and the fact that all participators have consistent project objectives. The characteristics of industry-university-research collaborative innovation project,

such as a high degree of knowledge, high technology spillover, high integration, high innovation and high failure rate lead to relatively strong uncertainty in project objective itself. Meanwhile as to different participators in industry-university-research collaborative innovation project, their motivation to take part in the project comes from self-interest and increase in comprehensive ability. The driving force of university and research comes from academic prestige and academic value brought about by collaborative innovation activities. Their aim is to promote the professional level of related discipline and to cultivate high-quality talents, so little attention is paid to the market value and market transformation of innovation achievements. The driving force of enterprise derives from the market value of collaborative innovation fruit. The purpose of their involvement is to promote enterprises' creative ability, new product development capacities and competitive advantage, while less focus is kept on academic value. The driving force of government comes from the economic and social benefit brought about by project achievement. The driving force of bank and financial institution comes from obtaining the project benefit after the realization of the project's market value. Analyzed from the life cycle of industry-university-research collaborative innovation project, the difference between project objectives and the driving goals of every participator can bring difficulties to the determination of project implementation of project objectives at the concept stage. At implementation stage, with the progress of project achievement, one participator's behavior of reducing project investment or withdrawing from the project with its resources and technology after the accomplishment of its own objective will compromise the realization of the project's objective itself and different project objectives determined by different participators can all affect the final achievement of a project.

Disharmonious relationship between project participators

Difference in the participators of industry-university-research collaborative innovation project gives rise to problems of non-harmony in such aspects of coordination, mutual trust and effective communication at the stages of project planning and implementing [33]. In the project implementing process, collaboration and cooperation of participators is indispensable while staff members from different participators vary in background, capacity, character features and roles they play. As a result, a relatively low degree of familiarity of participators is likely to create a poverty of effective communication and mutual trust. Secondly, the cooperation of participators in industry-university-research collaborative innovation project and the realization of the overall objective is compromised by the fact that participators tend to put self-interest first in cooperation because of different interest source [34]. Disharmonious relationship leads to decrease in participators' trust and cooperation degree.

From the above analysis of risk origin, the following can be concluded: Multiple risk origin exist in the running process of industry-university-research collaborative innovation project. Regardless of the awareness of participators, project governance risk origin is closely related to the decision-making of participators and will undergo a process of constant changing and expressing with project development. In the process, project governance risk is characterized with participators' subjectivity which can be controlled by prediction and evaluation. Thereby, losses caused by governance risk in industry-university-research collaborative innovation project can be reduced.

5.Evaluation model for governance risk in industry-university-research collaborative innovation project

In every type of governance risk in industry-university-research collaborative innovation project, that is Structure Risk, Morality Risk and Behavior Risk, there are numerous and complex risk source and various tipping elements. So, the basis for evaluation and control is to establish an index system of project governance risk in industry-university-research collaborative innovation project. To set up a scientific and complete evaluation system of project governance risk in industry-university-research collaborative innovation project, the paper selected representative indexes and designed an evaluation system for governance risk in industry-university-research collaborative innovation project according to relative theory and analysis of governance risk in industry-university-research collaborative innovation project on the basis of related research home and abroad. First of all, function mechanism of various governance risk source is taken into account and the basic distinction and relation of governance risk source is clarified, so as to improve the accuracy and effectiveness of the index system. In the second place, to improve the simplicity and operability of risk evaluation, governance risk source is risk evaluation, governance risk source is decomposed and classified into relatively simple unit and measurable indexes are set up after risk identification by setting and determining major investigation points for governance risk source. After analysis, an index system of governance risk in industry-university-research collaborative innovation project including 3 grade I indexes and several grade II indexes is initially established and an evaluation model is built by using BP neural network.

5.1 Determination of evaluation index

Since preliminary evaluation indexes of governance risk in industry-university-research collaborative innovation project is drawn up, a measurable assess-able scientific and complete evaluation index system of governance risk

in industry-university-research collaborative innovation project is established. Ultimate indexes are finally determined by means of Delphi after document analysis as well as interviewing survey of typical participators in industry-university-research collaborative innovation project. As shown in table 1.

Table 1 Evaluation of governance risk in industry-university-research collaborative innovation project

Grade I Index	Grade II Index	Code
Structure Risk	*Matching degree of governance structure and project*	S_1
	Matching degree of participators' organizational structure	S_2
Morality Risk	*Completeness of contract*	M_1
	Degree of uncertainty in contract	M_2
	Interest allocation model	M_3
	Degree of information sharing	M_4
	Communication between staff members of participators	M_5
	Degree of trust between participators	M_6
Behavior Risk	*Consistency of participators' objectives*	B_1
	Coordinated degree of participators' management	B_2
	Familiarity of participators with each other	B_3
	Consistency of participators' technology capacity	B_4

5.2 Level of governance risk in industry-university-research collaborative innovation project

To make targeted predication and control of various risk, this paper divided governance risk into five levels, which are Level A, Level B, Level C, Level D and Level E according to the characteristics of governance risk in industry-university-research collaborative innovation project. A numeric value, ranging from 0-10, will be got when governance risk in industry-university-research collaborative innovation project is evaluated. The higher the value is, the less threat or influence governance risk exert on the project. The corresponding relationship is shown in table 2.

Table 2 Rating scale of project governance risk

Score	Description of the situation
Level A（8-10）	*Everything goes smoothly in the project. The governance network is stance and participators cooperate well.*
Level B（6-8）	*Project runs smoothly as a whole. Difficulties arise in cooperation between participators but are easy to overcome.*
Level C（4-6）	*Project develops at ordinary pace. Cooperation between participators can basically be achieved, but problems and conflicts keep arising.*
Level D（2-4）	*Project doesn't run smoothly. Negotiation and communication is needed for participators.*
Level E（0-2）	*Project almost comes to a stop. Participators have difficulty in cooperation and collaborated innovation cannot be achieved*

5.3 Evaluation of governance risk in industry-university-research collaborative innovation project

BP neural network is used to deal with nonlinear problems and has strong anti-interference ability. The network can be applied to solve problems with complicated internal relationship. Applications range from the discipline domain of image processing and automation technologies to prognostic classification. Great effects can be obtained in the evaluation of governance risk in industry-university-research collaborative innovation project [35]. The major criteria for the realization of the evaluation of governance risk in industry-university-research collaborative innovation project include risk factor, BP neural network structure and sample size. Therefore, in the designing process of BP neural network model for the evaluation of governance risk in industry-university-research collaborative innovation project, the following factors should be taken into consideration: number of layers and argumenting node of each layer, input data pre-processing method, expected error and network learning rate. The study distributed and collected 47 effective questionnaires from enterprise managerial personnel, experts and research personnel, government staff and venture capital expert by interviewing survey.

Building process of BP neural network:

Input layer node number. Input layer is a reception layer to receive external information.

According to this study, there 12 input layer nodes, that is, 12 grade II index factors of industry-university-research collaborative innovation project governance risk.

Output layer node number. Output layer node is the output result dimension. That is the final evaluation grade of governance risk in industry-university-research collaborative innovation project. There is 1 output layer

node.

Hidden layer. Common method used to determine the number of hidden layer in BP neural network and layer node is by means of repeated experiments. The number of hidden layer and node of each hidden layer is presupposed according to the experience of network designer and previous experience, and computer simulation and network function testing. After simulation, it is finally determined that the network model is a BP neural network model with two hidden layers. There are 10-layer nodes in the first hidden layer and 8 in the second.

Data processing and model building. As to data in input layer, all grade II indexes in this evaluation system are positive indicators. Questionnaire indexes are evaluated according to NPS scale, and unitary processing about index data is carried out according to questionnaire result. Data from the first 30 questionnaire is adopted for training by using BP neural network toolkit in Matlab software. Whether the model result converge to permissible range is checked by 100 000 training, repeated experiments and modifying the number of hidden layer and hidden layer node. The theoretical formula for BP neural network model is *y=f(wx+b)*. After the training, the rest 17 questionnaire is applied to the trained BP neural network model as a test sample, and a grade evaluation result of corresponding governance risk in industry-university-research collaborative innovation project is got. If the relative error of the evaluation result and the data result on the questionnaire is within 5%, it can be concluded that the BP neural network model has a certain reliability. Data sample from industry-university-research collaborative innovation project can be put into the model to evaluate the risk level of governance risk.

Programming with *matlab*, the code formula is expressed as below:

net=newff(minmax(data-train),[10,8,1]{'logsig','logsig','purelin'},'traingdx). BP algorithm with variable learning rate is adopted. Trainable BP neural network of two hidden layers with *newff* function is built. Hidden layer nodes are 10 and 8 respectively. *Traingdx* is momentum BP algorithm training function with variable learning rate. Function *logsig* is a log-S transfer function. The mathematical expression is $a=1/(1+e^{-n})$，*a=logsig(wx+b)*. The input value of the transfer function is between (-∞，∞), and the output value is 0-1. Function purelin is a linear transfer function and its mathematical expression is *a=n*，*a=pureline(wx+b)*

*net.trainparam.epochs=100 000:*maximum number of iterations of the trained network

*net.trainparam.lr=0.01:*network learning-ratio

*net.trainparam.goal=0.000 04:*setting training objectives

*net.trainparam.show=500:*Display frequency of training error variation curve. 1 display per 500 step

Training network model for the evaluation system is:

net=train(net,data_train,data_train_label);

applied network model is:

pre_test_label=sim(net,data_test)

Contrast of data test result is shown in table 3

Table 3 Contrast of the BP neural network test result

6	7	8	7	7	5	6	7	8
5.939	6.860	7.687	6.105	6.830	6.464	4.333	7.820	8.687

6	6	6	7	4	9	5	7
5.770	6.105	6.231	5.056	3.698	9.141	5.073	6.892

As can be known from figure 1, after 11368 times of iterations, the model's training error is ultimately reduced to 0.000 04 which indicates that the network model has a certain reliability. The evaluation model for governance risk in industry-university-research collaborative innovation project is preliminarily built:

net=train(net,data_train,data_train_label).

Figure 1 BP neural network training error variation curve

6. Analysis of a case study

To evaluate governance risk in industry-university-research collaborative innovation project in a more objective and scientific way, this study selected data from an industry-university-research collaborative innovation project on ocean acoustic information sensing and carried out empirical analysis. After actual study of the project, data collected is shown in table 4. Put the data into the formula:

pre_test_label=sim(net,data_test)

The final output value is 6.753, indicating that governance risk in this project is at Level B: Project runs smoothly. Difficulties arise in cooperation between participators. The result is in consistency with the actual project running situation.

table 4 governance risk empirical data of an industry-university-research collaborative innovation project on ocean acoustic information sensing

S_1	S_2	M_1	M_2	M_3	M_4	M_5	M_6	B_1	B_2	B_3	B_4
6	7	8	7	9	8	9	6	6	7	9	7

Meanwhile, as can be known from the collected data, uncertainty between participators in this project exerts a little influence on the project. Although hidden dangers still exist, the major source of governance risk in the project is the matching degree of governance structure and project plus consistency of participators' objectives.

In regards of project governance structure, unilateral governance led by university is adopted. Due to the fact that industry and research is on a relatively weak ground, the chosen industry-university-research collaborative innovation project accord with the research preference of the laboratory. However, uncertainty in the enterprise and government investment makes it important to build a structure relationship of equal common governance. Only a selection of research focus which is in accordance with the interest and preference of multiple participators can the project stimulate innovation behavior of different participators and maximize the overall project interest.

Participators in this project have different objectives. The difference is mainly manifested in the in-conformity of the objectives of university, government and enterprise. University put more emphasis on basic research and focus on the scientific discoveries, academic paper, vertical fund and fame that the project can bring to the laboratory. Government attaches greater importance to the application of the project in the aspect of coastal defense. In-conformity of objectives lead to disunity of the three party's study focus. Resources is not rationally utilized and the project progresses is comparatively slow and it becomes difficult to achieve collaborative innovation in the project. At this point, government should provide a certain amount of policy support and unify the objectives and focuses of different research and development participators the level of research and development as a coordinator, motivator and guide.

7. Conclusion

The paper extended the research of project governance risk to the field of industry-university-research collaborative innovation project. At the project governance level, connotation type and origin of governance risk in industry-university-research collaborative innovation project is systematically described based on the characteristics of this king of project. An index system of governance risk in industry-university-research

collaborative innovation project with 3 grade I indexes of Structural Risk, Morality Risk, Behavior Risk and 12 grade II indexes is built. Evaluation study on possible governance risk in industry-university-research collaborative innovation project is carried out by utilizing BP network model. Finally, the model is used for empirical research and the model is verified. In future studies, researchers can further adjust and improve the different evaluation indexes of governance frisk in industry-university-research collaborative innovation project. For example, different evaluation models for governance risk aiming at stages of the life cycles of the project can be proposed. Different evaluation models can also be proposed for industry-university-research collaborative innovation project of different pattern. As to the model itself, the network training accuracy can be improved by constant addition of sample data according to the characteristic of BP neural network. Meanwhile, easier and faster evaluation system or related software can be developed and adopted to realize real-time monitoring of governance risk and provide an early warning of governance risk. Future research will conduct research on governance risk assessment models for specific industries, and build evaluation systems and evaluation processes to make the application of the models more practical.

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