

Original Research Article

## **Risk prevention and control and response mechanism of competitive procurement of equipment in the new era**

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**Abstract:** With the continuous progress in the field of equipment procurement, competitive procurement has become a key means to improve transparency and efficiency. However, it faces various challenges in the implementation process, including uncertainties in the procurement process and hidden dangers in the management of review experts. Through a comprehensive analysis of the current equipment procurement risk management, this study focuses on the relationship between the management of review experts, expert portraits and potential procurement risks, and puts forward corresponding risk prevention and control mechanisms and countermeasures, aiming at providing scientific support and practical guidance for future equipment procurement.

**Keywords:** equipment competitive procurement; Risk management; Review expert management; Portraits of experts; Procurement risk

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### **1. Introduction**

As an important way of modern equipment procurement, the core of competitive equipment procurement is to achieve the purpose of procurement by means of open and fair competition mechanism. However, the competitive procurement process will encounter various difficulties, including the identification and management of procurement risks. This study focuses on the importance of risk management in equipment competitive procurement, focuses on the analysis and review of the relationship between expert management and procurement risk, and puts forward effective risk prevention and control strategies.

### **2. Definition and Characteristics of Competitive Procurement of Equipment**

Competitive procurement of equipment refers to selecting the best one among multiple suppliers to meet the equipment needs through open, fair and just competition. In order to attract potential suppliers to participate in the bidding, the purchaser usually issues a bidding announcement, sets the evaluation criteria, and organizes the evaluation committee. Select the best winning bidder through comprehensive consideration of the supplier's quotation, technical strength, quality assurance and after-sales service. The characteristics of competitive procurement of equipment are manifested in openness and transparency, and the occurrence of corruption in back-room transactions is eliminated. Through the competition mechanism among multiple suppliers, suppliers are encouraged to optimize their product quotation, quality and service performance. The evaluation criteria and process require a high degree of professionalism and scientificity, and the experts involved in the evaluation must have sufficient professional knowledge and technical ability to comprehensively evaluate the supplier's technology and solutions. At the same time, competitive procurement also has the characteristics of systematization and standardization, from demand to contract execution, each link needs to follow strict norms and procedures to ensure the orderly conduct of procurement activities.

### **3. Review Expert Management and Procurement Risk**

The key risks in the management of review experts focus on the fairness of expert selection, conflict of interest, transparency of the review process and credibility of the review results. There may be injustices in the selection of experts, including shady dealings or favoring personal relationships, that undermine the professionalism and impartiality of the expert team. Conflict of interest poses a prominent risk that an expert may be bribed, pressured or otherwise unduly influenced by a supplier, thereby affecting his or her judgment and impartiality. The lack of transparency of the review mechanism constitutes an important risk point, and the lack of openness and supervision of the review process is easy to cause doubts and disputes and damage the credibility of the review results. The credibility of the evaluation results, due to the uneven professional level, judgment and responsibility of the experts, the evaluation results may deviate from the fairness and accuracy, which poses a challenge to the scientific and rational procurement decisions.

### **4. The Relationship Between Expert Portraits and Procurement Risks**

The research on the correlation of expert portrait procurement risk mainly focuses on the use of expert portrait to identify and predict the possible risks in the review process, so as to reduce the probability of procurement risk. Through the detailed analysis of the professional background, experience and historical behavior of the review experts, the performance and decision-making preferences of the experts in various scenarios are revealed, and the factors that may interfere with the fairness and accuracy of the review are found out. Some experts may have strong expertise in a particular field, but may not be familiar with other fields. Understanding this can lead to better decisions in the selection and assignment of experts, ensuring that experts do not review areas that are unfamiliar to them, thereby reducing the possibility of erroneous reviews.

Expert portraits can reveal the potential interest relationship between experts and suppliers, and by examining the experts' previous evaluation history and social relations, possible conflicts of interest can be predicted, and corresponding measures can be taken in advance to prevent the emergence of unfair phenomena. Through a comprehensive analysis of expert portrait data, the autonomy and impartiality of experts in the review process can be assessed, and potential risk points can be identified, including risk factors that may affect decision-making due to external pressure or illegal intervention, so as to strengthen the supervision and management of the review process. The research on the correlation between expert portraits and procurement risks significantly improves the accuracy of risk identification and prevention, provides an important basis for the construction of a more scientific, transparent and efficient evaluation mechanism, and ensures the fairness and scientificity of equipment bidding and procurement.

## **5. Empirical Research**

### **5.1. Research Design and Methods**

In order to verify the actual effectiveness of the risk prevention and control mechanism of competitive equipment procurement, this study designed a detailed empirical study, taking a large defense equipment procurement project as an example to conduct in-depth discussion. This study adopts a variety of data collection methods, including documents such as bidding documents, review records, contract texts, and performance reports of procurement projects, as well as in-depth interviews and questionnaire surveys with project related personnel (including procurement management personnel, review experts, and supplier representatives). The

purpose of data collection is to obtain comprehensive and specific information for in-depth analysis.

Establish analytical framework and methods. The method of quantitative and qualitative analysis is adopted. In the quantitative analysis, statistical analysis tools are used to process the collected data, explore the frequency of various risks and their impact degree, and evaluate the practicability of risk control measures.

In terms of qualitative analysis, through interviews and questionnaires, the participants' risk awareness and problems in practice are understood, and the in-depth analysis is carried out with examples. In the demand confirmation stage, through the in-depth study of the market and technology, the specific technical requirements and performance indicators of the equipment were clarified and detailed bidding documents were prepared. The bid evaluation criteria and weights are listed in detail in the bidding documents to ensure the scientific and fair evaluation process. In the bidding and evaluation stage, a group of experienced and professional experts are selected, and their resumes and past evaluation behaviors are analyzed by expert portrait technology to ensure the independence and impartiality of the evaluation experts. During the review process, all bidding schemes were comprehensively evaluated with the help of big data analysis and intelligent evaluation tools, and possible technical risks and supplier inadequacies were successfully identified. In the stage of contract signing and execution supervision, by optimizing the contract terms and building a strict supervision mechanism, the smooth progress of the contract is guaranteed. Through a comprehensive analysis of the whole process of the project, the effectiveness of the current risk prevention and control mechanism was comprehensively evaluated, and the key risk points in the project and the limitations of existing prevention and control measures were identified.

## **5.2. Data Source and Sample Selection**

In this empirical study, data sources and sample selection are crucial to ensure the representativeness and scientificity of the research results. Project documentation. Such documents cover project bidding documents, review records, contract texts, project documents and other materials, which record all aspects of the procurement process and decision-making information in detail, and can provide comprehensive background and operational details. Through a comprehensive analysis of these documents, we can reveal the potential risk points in the procurement process and the actual effect of prevention and control measures. Interview and questionnaire survey.

In the sample selection, the research team takes a large defense equipment procurement project as an example for in-depth analysis. The project covers a number of high-tech equipment, and the large budget scale is widely representative. Through careful analysis of the project, the effect of the current risk prevention and control mechanism in the implementation process can be comprehensively evaluated, core risk points can be identified and suggestions for optimization can be put forward. Select representative defense equipment procurement projects and ensure that the projects are representative in terms of technical difficulty, investment scale, and market effect.

## **5.3. Empirical Analysis of Expert Management and Procurement Risks**

In the empirical analysis of expert management and procurement risk, this study takes a large defense equipment procurement project as a case to deeply analyze the management mechanism of expert review and its impact on procurement risk, aiming to reveal the key issues and improvement strategies of expert review management. Through the construction of expert portraits, it is found that the professional background, review experience and previous review records of the review experts have a significant impact on the fairness and sci-

entific nature of the review process.

The project carefully selected a group of judges with deep experience and outstanding professional ability, and made an in-depth analysis of their personal background and previous review behavior with the help of expert portrait technology, in order to ensure the independence and fairness of the review experts. There are still some problems in the implementation process. For example, although the expert portrait technology enhances the scientific selection of experts, some experts may still be subjected to external pressure or have conflicts of interest during the evaluation process, which may affect the fairness of the evaluation. Transparency and oversight of the review process are critical to managing procurement risks.

**Conclusion:** The risk prevention, control and response mechanism of competitive equipment procurement in the new era is the core element to ensure the transparency, fairness and efficiency of the procurement process. Through in-depth analysis of the existing risk management and control system, this paper identifies and deeply discusses the relationship between expert management, expert portrait and procurement risk, and puts forward a series of risk prevention and control mechanisms and strategy suggestions. Through empirical analysis, the above prevention and control mechanism has shown a high degree of effectiveness in the implementation process, providing a scientific basis and practical guidance for future equipment procurement.

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