

Study of Value for Petroleum Construction Project Investment Evaluation Consultation

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Investment evaluation consultation has been making a progress in domestic petroleum industry. Currently, the researchers of petroleum economy are encountering with crucial challenges that how to understand and study investment evaluation consultation, how to exert its advantage in consulting field.

1. statistical analysis for investment evaluation consultation

In the recent years, we reached the following conclusions (in table 1) from statistical analysis to hundreds of product capability construction projects and system engineering projects from follow-up investigation and evaluation later and comparison consulting result with actual status.

Table 1 Risk distribution of project investment result and evaluating conclusion.

Evaluate result	Project investment actual condition		
	High risk	Middle risk	Low risk
High risk	65	10	2
Middle risk	30	80	8
Low risk	5	10	90

2. Investigation of investment decision

In order to study the value of investment decision consultation, it is selected a proposed product capability project in w-block of oil filed.

(1) Decide an earning matrix of investment decision consultation.

As far as the w-block product capability project concerned, the potential risk is not known before make a detailed analysis to it. According to statistics, the project distribute its risk probabilities of high, middle and low risk as 30%, 50% and 20% respectively. The matrix is consequently formed by the risk distribution (high, middle or low risk) and action plan (if it is consulted) as below.

Table 2 The matrix of project evaluation consultation

Action Plan		Natural condition		
		Low risk (20%)	Middle risk (50%)	High risk (30%)
Anticipant earning	A1 (consulted)	120	170	240
	A2 (unconsulted)	0	0	0

(2) Decision-making rule

Does the evaluation of w-block project need to be consulted? Based on Bayes's rules, it will depend on product between the anticipant earning of selected action plan its probability. The formulary is :

$$F(A_i) \times G(A_i, R_j) \dots \dots \dots (1)$$

In application of the formulary, the anticipant earning will be zero if you don't perform consultation for investment decision.

(3) Determining the value of investment assessment consultation.

To the proposed w-block project, if you decide to make consultation then how to measure the value of investment assessment consultation? For the purpose of determine this value the calculation will be carried out in the following steps.

Determining afterward test probability

Based on statistical analysis for investment evaluation consultation (table one), the afterward rest probability is getting as table 3 .

Table 3 *Afterward test probability.*

P(R)	P(Rr/xj)	P(Rr/xj)P(Rj)	P(xr)	P(Rj/xr)
	r1r2r3			r1r2r3
	0.20.50.3			
X1	.90.10.05	.180.050.015	.245	.7347.2041.0612
X2	.08.80.30	.016.400.090	.506	.0316.7905.1779
X3	.02.01.65	.004.050.195	.249	.0161.2008.7831

Determining anticipant earning of assessment consultation .

Formulary of anticipant earning:

$$E\{ A^* (x_k/x_k) \} P(x_k)..... (2)$$

3. Conclusion and analysis of the calculation

(1) Conclusion of the calculation

Thought analysis by comparing with recent years' consultation results, the calculations are made respectively on three types of projects with different risks. The results are as follows .

Table 4 *Calculation result of consultation cost ratio*

Type of Project	Capital Investment (0,000 yuan)		Cost Ratio %	Ratio Weighted Average %
Operating project	Rh	5000-6000	2.87	2.27
	Rm	6500-9000	1.81	
	Rl	5000-7600	2.99	
System engineering Project	Rh	3000-6000	2.17	3.28
	Rm	2300-3700	3.53	
	Rl	1000-3000	4.33	

(2) Result analysis and explanation

The following conditions are assumed for the calculation of table 4.

① The consultation cost Cs is calculated on 10% of the variance between using consultation and not using consultation.

② The rate of measure in conclusion table 4 is the ratio make investment for Cs with corresponding type project to high limits; Ratio add right average is to worth according to corresponding probability distribution to add right.

Add right ratio in conclusion table 4, can respond basically, project investment evaluation consulting collect fees proportion.

4. Thought and guidance

Through measuring, the reasonable consulting scope in certain investment interval to develop petroleum construction project investment decision consultation have limited, when project x_p investment decision consultation should be carried out for construction projects analyzed from the economic angle of quantification .

The method above prove that investment evaluation consultation in petroleum construction project is scientific.