



Construction of an evaluation model for the operational efficiency of an energy enterprise organization

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Abstract. Various organisational effectiveness assessment models are often used to assess the effectiveness of organisations of different sizes and in different fields, and based on the results of the assessment, the organisation can be adjusted to improve the effectiveness of the organisation. The organisational effectiveness dashboard is a simple, intuitive and comprehensive evaluation model that can effectively track and evaluate the effectiveness of organisations. Based on the organisational characteristics and business composition of energy companies, we have constructed an organisational effectiveness dashboard assessment model consisting of four perspectives, eight primary evaluation dimensions and twenty secondary evaluation dimensions, with qualitative and quantitative indicators from multiple perspectives. The model can fully reflect the organisation's strategic intent, interdepartmental coordination and organisational effectiveness, especially for large and complex organisations, and has good applicability to energy organisations.

Keywords: energy companies; organizational effectiveness dashboard; organizational effectiveness assessment model

1 Introduction

Organisational effectiveness assessment refers to the application of organisational effectiveness assessment methods and models to assess the financial data indicators, value-driven indicators, operational data indicators and human resources data indicators of operational management, operational management, organisational and human resources management, and based on the data obtained from the assessment, monitor, assess and display the organisational effectiveness, conduct horizontal and vertical comparative analysis and correlation indicator matching. It also conducts horizontal and vertical comparative analysis and correlation indicator matching analysis to identify

problems and provide early warning, and acts as a barometer, medical checker and alarm for the organisation's operation.

Commonly used models for assessing organisational effectiveness include McKinsey 7S model, Tichy TPC framework, BurkeLitwin organisational performance and change model, organisational effectiveness dashboard model for large organisations; six box model, star model, stakeholder model for small organisations; goal model, resource base model, internal process model, organisational capability Young Triangle model for average sized organisations Model [1]. In this paper, we focus on as the research object of power and energy organizations. Due to the large size of power and energy organisations, the organisational environment is complex and it is difficult to assess organisational effectiveness. In addition, has the most common features in the selection of indicators for the organisational effectiveness dashboard model, which includes both the "rigid and flexible" dimensions of the McKinsey 7S model and the "internal and external" dimensions of the BL model, and the eight extended variables have many similarities with the dimensions of the Tichy TPC framework [2]. There are many similarities with the Tichy TPC framework. Therefore, the Organisational Effectiveness Dashboard model is the best choice for assessing organisational effectiveness in complex situations [3].

2 Organisational effectiveness dashboard

The organisational effectiveness dashboard model has four dimensions: internal, external, flexible and rigid; these are crossed over to form four secondary dimensions, namely implementation, adaptation, synergy and control; and then refined into eight variables, thus forming a complete "dimension-variable" overall assessment model, as shown in Figure 1 below.

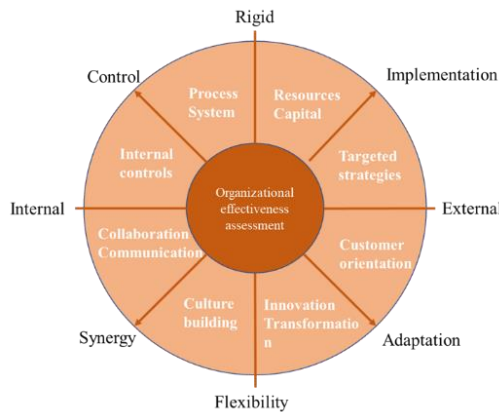


Fig. 1. Organizational effectiveness assessment dashboard

The Organizational Effectiveness Assessment Dashboard is as simple and intuitive as a driving dashboard and has three main functions when assessing organizational effectiveness [4]: monitoring function, diagnostic function and identification and analysis

function. The advantages of this method are its simplicity and intuitiveness, the ease of comparison of the organisation's operational effectiveness, the comprehensive nature of the assessment dimensions and the ability to intervene in a timely manner if problems are identified. The disadvantage is that the trade-offs between the eight sub-dimensions of the four aspects of the assessment dimensions need to be reasonably determined by the organisation, otherwise the key factors affecting organisational effectiveness may not be effectively controlled. The Organisational Effectiveness Assessment Dashboard applies to situations where the organisation conducts regular assessments of the internal and external environment and the organisation's performance in achieving its strategic objectives.

3 Organizational Operational Effectiveness Assessment Model Construction

In this paper, we use the organizational strategy of a power and energy company to build an indicator system using definition analysis, process analysis, bibliometric method, balanced scorecard and comprehensive analysis. Based on the organizational effectiveness dashboard assessment framework, we decompose and refine the organizational effectiveness assessment indicator model of a power and energy company.

3.1 External assessment perspective

Based on organisational strategy and organisational development requirements, there are two main elements of the assessment of the strategic dimension of objectives from an external assessment perspective: on the one hand, the achievement of the organisation's annual objectives and the situation of the relevant performance appraisal indicators at all levels of the company, and mainly the assessment of the performance appraisal situation, which refers to the application of various scientific qualitative and quantitative methods to the work undertaken by each employee in the enterprise to The actual results and their contribution or value to the enterprise are assessed and evaluated. The second aspect is the organisation's strategy implementation, which focuses on the assessment of strategy execution, which refers to the translation of the intended strategy defined in the strategy formulation phase into concrete organisational actions to ensure that the strategy achieves its intended goals [5]. Also from an external evaluation perspective, the customer orientation dimension of includes two elements: on the one hand, the satisfaction of government needs. The other is customer service, which includes not only service to existing customers but also to potential customers. Based on the summary analysis of the two assessment elements, the external perspective assessment indicators for the assessment of organisational effectiveness of power and energy enterprises are shown in Table 1. The indicators include both quantitative and qualitative indicators, with quantitative indicators being the main focus.

Table 1. External perspectives on the organizational effectiveness of electricity energy Assessment indicators

Level 1 assessment dimensions	Secondary assessment dimensions	Secondary Assessment Indicators	Type of indicator	Remarks
Targeted strategies	Efficiency benefits	Labour cost input-output ratio	Quantitative	Reflects overall institutional efficiency
		Gearing ratio	Quantitative	Reflects the ability of the business to service its debt
		Business Needs Satisfaction Rate	Quantitative	Reflecting business ecology
		Business Development Satisfaction Rate	Quantitative	
		Job demand satisfaction rate	Quantitative	
		Social responsibility response rate	Quantitative	Reflecting social responsibility
		Customer Service Response Rate	Quantitative	Reflecting the transformation of the grid
		Organizational model forward-looking	Qualitative	
		Labour efficiency	Quantitative	Reflecting economic benefits
		Work efficiency	Quantitative	
		Emerging business promotion	Quantitative	
		Timely completion rate of work orders	Quantitative	
		Achievement of the time limit for property expansion	Quantitative	
		Human Resource Index	Quantitative	
		Operating energy meters per capita	Quantitative	
		Number of business households per capita	Quantitative	
		Financial input	Quantitative	
		Scientific and technical inputs and outputs	Quantitative	
		Human Performance Indicators	Quantitative	
		Generating public opinion events	Quantitative	Reflecting social benefits
		Errors in power conservation	Quantitative	Reflecting management effectiveness
		Electricity supply office overheads	Quantitative	
		Unit asset operation and maintenance costs	Quantitative	
Business Environment Effectiveness	Quantitative			

		Recovery rate	Quantitative	Reflects overall business performance
		Project plan completion rate	Quantitative	
		Retirement rate of construction surplus materials	Quantitative	
		Level of management of major decisions	Quantitative	
	Performance assessment	Indicator Ranking	Quantitative	
		Indicator Performance	Quantitative	
		Performance assessment for heads of enterprises	Quantitative	
	Ranking of the unit's performance appraisal	Quantitative		
Strategy implementation	Strategic Coherence	Qualitative	Reflecting strategic anchoring	
Customer orientation	Customer Service	Emergency Management Index	Quantitative	Reflecting the effectiveness of distribution network work
		Low voltage access to electricity index	Quantitative	
		Customer service satisfaction rate	Quantitative	Reflecting the effectiveness of customer service efforts
		Quality service levels	Quantitative	Reflecting the services
		Complaint control	Quantitative	
	Government demand	Corporate Emergency Management System	Qualitative	Reflecting emergency services

3.2 Internal assessment perspective

In the internal control dimension of the internal assessment perspective, the assessment elements of the institutional effectiveness of power and energy enterprises are divided into the institutional system, safety production and legal compliance according to the internal processes and key elements involved in the operation of the organisation. Firstly, the institutional system is the general term for the rules and guidelines that employees commonly follow in the production and operation activities of the enterprise, and is the institutional basis on which the enterprise survives, the code of conduct for the enterprise's employees and the institutional guarantee for the enterprise's operation activities. Secondly, safety production refers not only to the personal safety of the production staff of the power and energy class organisations, but also to the operational safety of power supply equipment, lines and power stations. Finally, legal compliance means that the enterprise operation, management system, staff and project arrangements meet the requirements of relevant laws, regulations and rules. In the communication and collaboration dimension, divides the assessment elements of the communication and collaboration dimension of the organisation into the assessment of processes

and collaboration at all levels [6]. Firstly, business process refers to a series of activities that are performed by different people to achieve a specific value goal. A reasonable and standardised business process is the core of the organisation's operation and is a key factor in the competition of modern enterprises. Secondly, collaborative response refers to the coordination and cooperation of responsibilities and work between departments and individuals in the process of work implementation and goal achievement. Based on the summary and analysis of the two assessment elements, the internal perspective assessment indexes for the assessment of organisational effectiveness of power and energy enterprises were decomposed and formed as shown in Table 2. The number of quantitative and qualitative indicators is relatively average.

Table 2. Indicators for assessing the effectiveness of the electricity energy organisation from an internal perspective

Level 1 assessment dimensions	Secondary assessment dimensions	Secondary Assessment Indicators	Type of indicator	Remarks
Internal controls	Institutional system	System standard system management	Qualitative	Reflects the normality and effectiveness of the system
	Safe production	Number of line trips	Quantitative	Reflects reliability of electricity supply
		Fault outage rate of distribution substation	Quantitative	
		Level of reliability of electricity supply	Quantitative	
		Combined collection success rate	Quantitative	
		Number of responsible security incidents	Quantitative	Reflects the level of safety control
	Safe production	Quantitative		
	Legal compliance	Legal compliance management for major decisions	Quantitative	Reflecting the implementation of relevant decisions
		Operational Anti-Violation Index	Qualitative	Reflecting legal compliance management
		Legal compliance review rate for major decisions	Quantitative	
		Business management standardization rate	Quantitative	
		Number of disciplinary offences	Quantitative	
		Number of out-of-level petitions	Quantitative	
Evaluation of anti-infringement work	Quantitative			
Communication Synergy	Business Processes	Process integrity	Qualitative	Reflecting workflow, communication
		Smoothness of communication	Qualitative	
		Business Process Integrity	Qualitative	Reflective workflow (external)
	Collaborative response	Business Synergy	Quantitative	Reflecting work synergies

		Synergy and efficiency	Qualitative	
		Horizontal synergies	Qualitative	Reflects the synergistic effectiveness of the system
		Horizontal synergy efficiency	Qualitative	Reflecting operational synergies (internally)
		Vertical synergy efficiency	Qualitative	
		Internal synergy efficiency	Qualitative	
		External synergy efficiency	Qualitative	

3.3 Rigid assessment perspective

The organisational structure dimension in the rigid assessment perspective is assessed in terms of rational organisation, clarity of division of labour and management level. Firstly, both the rational organisation and the clear division of labour are based on the internal logic of management and business development. Each department and position in a power and energy company is responsible for different functions to maintain the company's operation and business development. Each department and position needs to be set up in a reasonable manner in order to avoid duplication of functions and other problems and to regulate the system of division of responsibilities. Secondly, the assessment of the operational effectiveness of the organisation focuses on the standardisation of the set-up of the hierarchy, the clarity of the scope of functions and rights of the management level, and the proportion of leading managers. In the talent team dimension, assesses three elements according to different aspects of the talent team: Skill talent cultivation refers to the process of educating and training skilled personnel to meet the needs of enterprise development and strategic objectives; Incentive mechanism refers to a specific method and management system in the organisational system. A reasonable and effective incentive mechanism that meets the strategic needs of the organisational development and is conducive to motivating employees to work. Optimization of workforce structure is the process of staffing optimizing and adjusting to the needs of organizational development to maximize its effectiveness. Based on the summary analysis of the two assessment elements, the rigid perspective assessment indicators of Power and Energy are shown in Table 3.

Table 3. Indicators for assessing the effectiveness of electricity energy organisations from a rigid perspective

Level 1 assessment dimensions	Secondary assessment dimensions	Secondary Assessment Indicators	Type of indicator	Remarks
Organizational structure	Institutional soundness	Rational functional positioning	Qualitative	Reflecting the positioning and setting of institutions and positions
		Reasonableness of the internal structure	Qualitative	
		Rationalization of job creation	Qualitative	

		Institutional streamlining rate	Quantitative	Reflecting institutional set-up
		Institutional norms	Quantitative	
		Organizational set-up and process operation	Qualitative	
	Clear division of labour	Clarity of responsibility	Quantitative	Reflecting institutional, job responsibilities
		Clarity of the duty screen	Qualitative	
		Clarity of responsibilities of internal bodies	Qualitative	
		Job clarity	Qualitative	
		Division of responsibilities	Qualitative	
	Hierarchy streamlining	Range of management	Quantitative	Reflecting management levels
	Talent pool	Skills development	Access Construction Index	Quantitative
Staff carrying capacity			Qualitative	Reflecting the match between talent and business development
Quality of personnel			Qualitative	
Talent equivalent density			Quantitative	
Percentage of multi-skilled and highly skilled personnel			Quantitative	
Incentive building		Performance Results Application Index	Quantitative	Reflects a combination of performance and incentive transformation
Optimisation of the team structure		Proportion of staff in integration positions	Quantitative	Reflecting the human dimension of integration
		Transmission capacity per capita	Quantitative	
		Staffing	Quantitative	Reflects the effective revitalisation of internal human resources
		Staff mobility ratio	Quantitative	

3.4 Flexibility assessment perspective

The innovation dimension of change in the flexible assessment perspective focuses on two elements: implementation of reforms and innovation in technology management. The assessment of the implementation of reforms in power and energy organisations focuses on the implementation of the relevant reforms and the results achieved. Technical management innovation refers to the market value of management innovations and technological achievements. In the culture building dimension, Firstly, leadership refers to the ability to make full use of human and objective conditions within the jurisdiction to achieve goals at minimal cost and improve the efficiency of the whole team, leadership is inseparable from organisational development. Secondly, team co-

hesion is a reflection of a mutual relationship between individuals in the team and individuals, and between individuals and teams, or a reflection of the degree of satisfaction. Finally, cultural identity refers to a feeling of group cultural identification, a feeling that individuals are influenced by the group culture [7]. Based on the summary and analysis of the two assessment elements, the flexible perspective assessment indicators for the assessment of organisational effectiveness in power and energy companies are shown in Table 4.

Table 4. Indicators for assessing the effectiveness of power energy organisations from a flexible perspective

Level I assessment dimensions	Secondary assessment dimensions	Secondary Assessment Indicators	Type of indicator	Remarks	
Innovation for change	Technology management innovation	Innovation Honours Points	Quantitative	Reflects the ability to innovate in technology management	
		Management innovation and scientific and technological achievements	Qualitative		
Culture building	Leadership	Classes running	Qualitative	Reflecting the management of the leadership team	
		Democratic assessment of the leadership team	Quantitative		
	Team cohesion	Party Building Leadership Index	Qualitative	Reflecting team cohesion building	
		Team Building	Qualitative		
	Cultural Identity	Selection and employment	Selection and employment	Quantitative	Reflecting management effectiveness
			Satisfaction rate of democratic assessment	Qualitative	Reflects corporate cultural identity
			Corporate culture building	Qualitative	Reflecting the spread of corporate culture

4 Conclusion

We have constructed a set of eight dimensions based on the organisational effectiveness dashboard model, which includes the four perspectives described above. The secondary indicators included in the model can fully reflect the eight dimensions of organisational effectiveness, and by combining the eight dimensions, the final result can fully reflect the strategic intent of the organisation, as well as accurately reflect the coordination between departments and the operational efficiency of the whole organisation. The assessment of organisational effectiveness is particularly effective for larger and more complex enterprises, and is therefore also excellent for energy companies.

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