



Symposium on Natural and Applied Sciences

Hosted Online from London, United Kingdom

Date: 5th September, 2026

Website: <https://econferencia.com>

INDICATOR SYSTEM AND METHODOLOGY FOR ASSESSING THE ECONOMIC POTENTIAL OF SERVICE ENTERPRISES

Xayrullayev Shaxram Yunus o'g'li

Doctoral Researcher,

Samarkand State University named after Sharof Rashidov

shaxramx681@gmail.com

ORCID: 0009-0008-8516-5774

Abstract

The article develops a methodology for the integral assessment of the economic potential of service enterprises. A comparative analysis of existing approaches identifies three limitations: the principal asset not appearing in accounting records, the failure to distinguish potential from its degree of utilisation, and the allowance of mutual compensation between indicators. A system of 20 indicators in four blocks is proposed: five indicators in the material and technical block, six in the labour block, five in the financial block, and four in the intangible block. Indicators are normalised by the min-max method over the interval $[0.1; 1.0]$, weights are determined objectively by the entropy method, and the integral index is calculated as the geometric mean of block indices. An eight-stage algorithm and a five-level scale are substantiated, and a two-dimensional matrix separating the level of potential from the efficiency of its utilisation is proposed.

Keywords: Economic potential, integral assessment, indicator system, entropy method, geometric mean, normalisation, service enterprise, potential utilisation.



Symposium on Natural and Applied Sciences

Hosted Online from London, United Kingdom

Date: 5th September, 2026

Website: <https://econferencia.com>

INTRODUCTION

The transition from the task of managing economic potential to its practical implementation first raises the problem of measurement. The familiar proposition that what cannot be managed cannot be measured also works in the opposite direction here: what cannot be measured cannot be managed. Measures aimed at increasing potential may be planned, but their effectiveness can only be assessed when the initial and final states are quantitatively recorded.

This task is particularly complex in the services sector. The potential of an industrial enterprise is largely expressed through production capacity and is therefore relatively easy to measure. In a service enterprise, however, the principal resources - employees' qualifications, the customer base and organisational processes - are intangible and are not reflected in the balance sheet. A second difficulty is conceptual. In the literature, potential is often assessed through achieved results: the more revenue an enterprise earns, the higher its potential is assumed to be. This approach contains a logical error because potential represents an opportunity, whereas the result represents the realised part of that opportunity. The gap between the two reflects the quality of management and should therefore be measured separately.

LITERATURE REVIEW

Within the resource-based approach, J. Barney formulated four criteria for resources capable of generating sustainable advantage: value, rarity, difficulty of imitation and lack of substitutes. In a service enterprise, the resources that most fully satisfy these criteria are accumulated team experience and organisational processes.

C. Prahalad and G. Hamel introduced the concept of core competence and shifted the unit of assessment from an individual resource to a combination of resources.



Symposium on Natural and Applied Sciences

Hosted Online from London, United Kingdom

Date: 5th September, 2026

Website: <https://econferencia.com>

For the present study, the importance of this approach lies in the requirement to regard potential not as a simple sum of resources but as the degree of their mutual compatibility.

In human capital theory, G. Becker substantiated expenditure on education and skills as investment. His distinction between general and specific human capital is taken into account when selecting indicators for the labour block of the assessment system.

In the literature on multi-criteria integral assessment, the procedures for normalisation and weighting remain central methodological issues. The entropy method derives weights from the data themselves and reduces subjectivity. With regard to aggregation, international practice increasingly favours the geometric mean; the Human Development Index methodology was revised in 2010 partly for this reason.

The literature review shows that general assessment methods are well developed, but a methodology that evaluates the economic potential of a service enterprise while taking account of its intangible nature and relying on an accessible reporting base has not yet been sufficiently developed.

RESEARCH METHODOLOGY

Five criteria were applied in selecting indicators: substantive validity; data availability; comparability through expression in relative form; absence of redundancy; and resistance to manipulation. Absolute indicators such as the number of employees, the value of fixed assets and sales volume were excluded because they depend strongly on enterprise size and do not express relative potential.

The division into blocks follows the resource structure of potential: material and technical, labour, financial and intangible blocks. The separate intangible block



Symposium on Natural and Applied Sciences

Hosted Online from London, United Kingdom

Date: 5th September, 2026

Website: <https://econferencia.com>

reflects the specific nature of the services sector, where the customer base and reputation may be no less important than tangible assets.

Indicators are normalised by the min-max method. Instead of the standard [0; 1] interval, a shifted interval is used:

$$x'(ij) = 0.1 + 0.9 \times (x(ij) - \min x(j)) / (\max x(j) - \min x(j))$$

The adjustment is required because the geometric mean is used at the aggregation stage. Under standard normalisation, the object with the lowest value would receive zero, causing its integral index to become zero regardless of the values of the other indicators. This would be a computational artefact rather than a reflection of the enterprise's actual state.

For disincentive indicators, such as staff turnover and the cost level, the inverse formula is applied. Indicator weights are determined by the entropy method:

$$e(j) = - (1 / \ln n) \times \sum p(ij) \times \ln p(ij); \quad w(j) = (1 - e(j)) / \sum (1 - e(j))$$

The integral index is calculated as the geometric mean of the four block indices. This choice is substantively justified because potential requires balance among resources and a critically weak block should not be fully compensated for by strong results in other blocks.

$$I(\text{potential}) = \sqrt[4]{(I(\text{material}) \times I(\text{labour}) \times I(\text{financial}) \times I(\text{intangible}))}$$

ANALYSIS AND RESULTS

A comparative analysis of the existing approaches to assessing economic potential is presented in Table 1.



Symposium on Natural and Applied Sciences

Hosted Online from London, United Kingdom

Date: 5th September, 2026

Website: <https://econferencia.com>

Table 1. Comparative analysis of approaches to assessing economic potential

Approach	Unit of assessment	Data source	Limitation in the services sector
Resource-cost approach	Value expression of resources	Balance sheet	Intangible resources are not reflected in the balance sheet
Outcome-based approach	Achieved revenue and profit	Financial statements	Potential and the degree of its utilisation are not distinguished
Expert approach	Qualitative assessments	Survey	Low reproducibility and high subjectivity
Comparative approach	Position relative to competitors	Market research	Service markets are local and narrow; the comparison base is limited
Proposed methodology	Four blocks, 20 indicators	Enterprise reports and HR data	Part of the data requires internal reporting

The most serious limitation is revealed by the outcome-based approach. Assessing potential through achieved revenue mixes two different concepts: high revenue may indicate not only a large potential but also a high degree of utilisation of existing potential.

This distinction is decisive for management. If an enterprise has high potential but weak results, the problem lies primarily in management rather than in the resource base and can often be corrected relatively quickly. If the potential itself is low, the resource base must first be developed, which is a substantially longer process.



Symposium on Natural and Applied Sciences

Hosted Online from London, United Kingdom

Date: 5th September, 2026

Website: <https://econferencia.com>

The resource-cost approach is constrained by the sector's specific features. A service enterprise's balance sheet may mainly show leased premises and computer equipment, while the team, customer base and organisational experience that constitute much of its real value do not appear in financial statements.

The expert approach is flexible enough to include intangible resources, but its results depend on the composition of the expert group. Different experts may assign different assessments to the same enterprise, reducing reproducibility and limiting comparison over time.

The comparative approach is widely used in industrial sectors but is more restricted in services because markets are often local and narrow. A hairdresser or repair workshop operates within a limited local area and may have only a small number of genuinely comparable competitors.

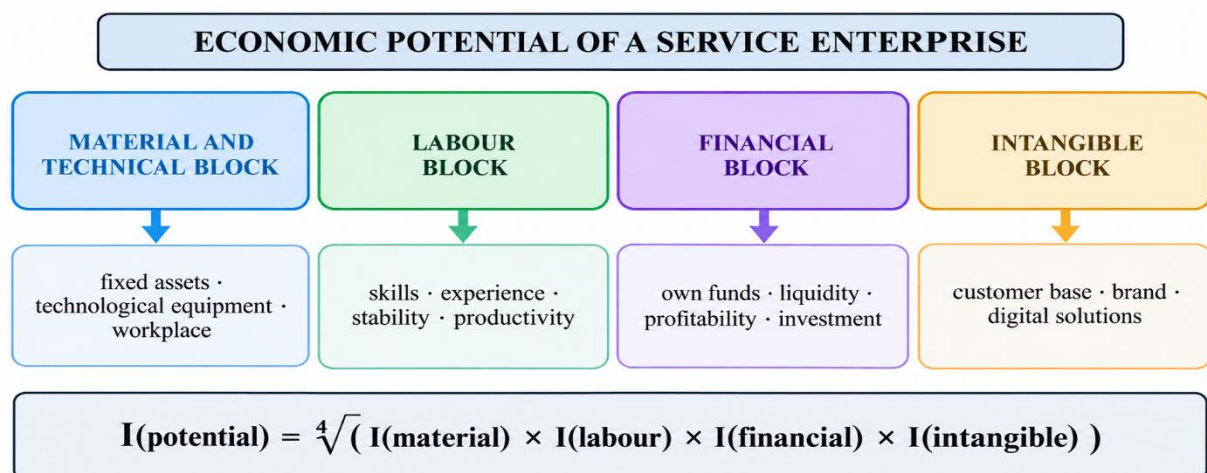


Figure 1. Structure of economic-potential blocks and the integral index.



Symposium on Natural and Applied Sciences

Hosted Online from London, United Kingdom

Date: 5th September, 2026

Website: <https://econferencia.com>

The distribution of indicators among the blocks is not arbitrary. The labour block contains the largest number of indicators because labour resources are decisive in services and must be measured through several dimensions, including qualifications, experience, stability and productivity.

The separate intangible block is a distinguishing feature of the methodology. Traditional assessment systems often omit the customer base and reputation because these resources are absent from financial statements. Yet they are among the most difficult resources to reproduce and are therefore important sources of sustainable advantage.

The practical implication of using the geometric mean can be illustrated by an enterprise with block indices of 0.80, 0.75, 0.70 and 0.15. The arithmetic mean equals 0.600, whereas the geometric mean is 0.455. The difference correctly signals the critical weakness of the intangible block.

The four blocks are parallel rather than sequential and describe different dimensions of potential. The material and technical block provides service capacity, the labour block determines quality, the financial block ensures stability, and the intangible block supports demand. Each condition is necessary, but none is sufficient on its own.

Table 2. System of indicators for assessing economic potential

Indicator	Unit	Type
MATERIAL AND TECHNICAL BLOCK		
1. Fixed-asset renewal ratio	coefficient	stimulant
2. Degree of fixed-asset depreciation	%	disincentive
3. Fixed-asset productivity (service volume per UZS of fixed assets)	UZS	stimulant



Symposium on Natural and Applied Sciences

Hosted Online from London, United Kingdom

Date: 5th September, 2026

Website: <https://econferencia.com>

4. Value of technical equipment per employee	UZS million	stimulant
5. Capacity utilisation rate	%	stimulant
LABOUR BLOCK		
6. Share of employees with higher education	%	stimulant
7. Share of employees who completed professional development	%	stimulant
8. Average length of employee service	years	stimulant
9. Staff turnover ratio	coefficient	disincentive
10. Service volume per employee	UZS million	stimulant
11. Share of expenditure on professional development	%	stimulant
FINANCIAL BLOCK		
12. Service profitability	%	stimulant
13. Current liquidity ratio	coefficient	stimulant
14. Financial independence ratio	coefficient	stimulant
15. Working-capital turnover	times	stimulant
16. Cost level per UZS 1 of services	UZS	disincentive
INTANGIBLE BLOCK		
17. Share of regular customers	%	stimulant
18. Average duration of cooperation with customers	years	stimulant
19. Degree of use of digital solutions	score (0-3)	stimulant
20. Availability of a quality-management system	score (0-3)	stimulant



Symposium on Natural and Applied Sciences

Hosted Online from London, United Kingdom

Date: 5th September, 2026

Website: <https://econferencia.com>

Three of the twenty indicators are disincentives. Each is located in a different block and represents a channel through which potential may deteriorate: depreciation of fixed assets, loss of personnel and growth in costs.

The staff-turnover ratio is especially important in the services sector. In many sectors it is treated mainly as a social indicator, whereas in services it also has direct economic meaning because when an employee leaves, accumulated customer relationships and practical experience may leave with that employee.

The duration of cooperation with customers measures customer satisfaction indirectly but in a documentable form. Survey-based satisfaction measures are substantively valuable but are difficult to verify independently and are open to manipulation; cooperation duration can be established from contracts and customer records.

Market share, absolute sales volume and the number of employees were deliberately excluded. Service markets are often too local and narrow for market share to provide a robust comparison, while the other two indicators primarily describe enterprise size rather than relative potential.



Symposium on Natural and Applied Sciences

Hosted Online from London, United Kingdom

Date: 5th September, 2026

Website: <https://econferencia.com>

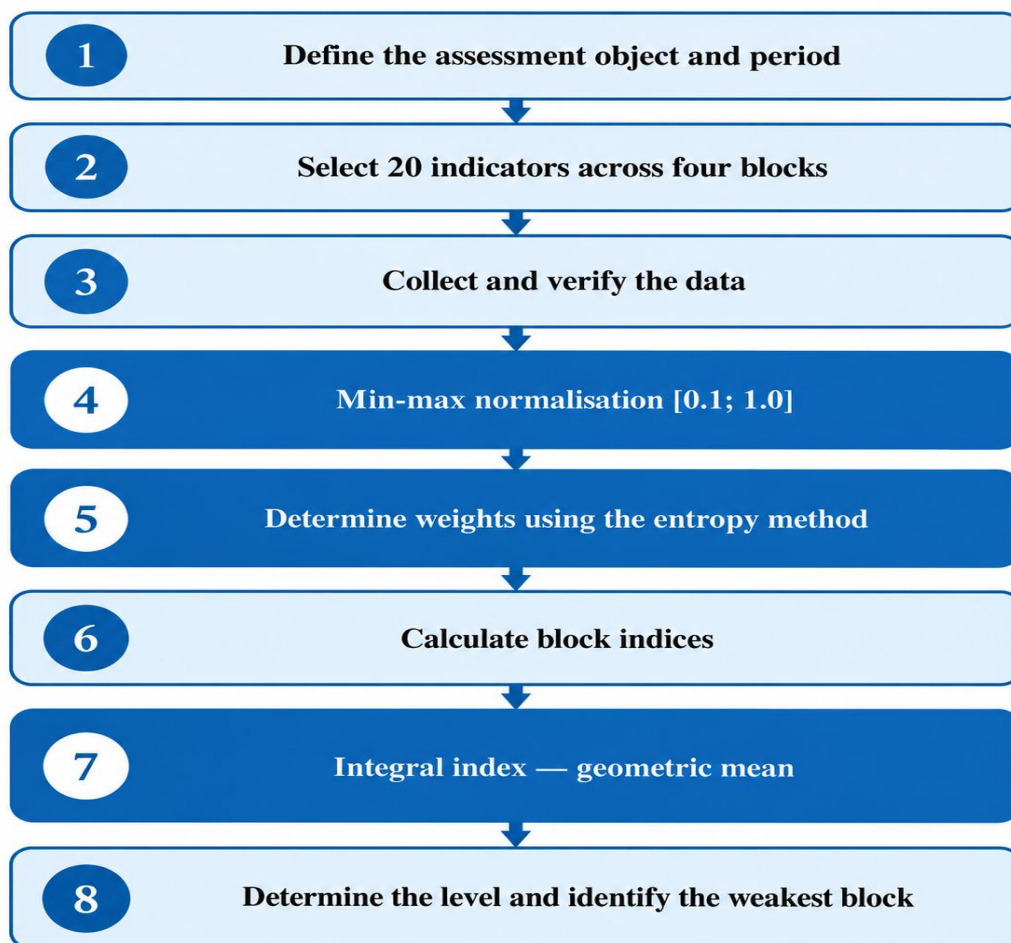


Figure 2. Algorithm for the integral assessment of economic potential.

The distinctive stages of the algorithm are the shifted normalisation interval, entropy-based weighting and aggregation by the geometric mean. The final stage is managerial interpretation: the integral index provides a rating, but identifying the weakest block shows where resources and corrective measures should be directed.



Symposium on Natural and Applied Sciences

Hosted Online from London, United Kingdom

Date: 5th September, 2026

Website: <https://econferencia.com>

Redundancy was also considered when selecting indicators. The initial list contained about thirty measures, but highly correlated or inverse measures were removed. For example, fixed-asset productivity and capital intensity are reciprocal indicators, so only one of them was retained.

Approximately half of the indicators can be obtained from financial statements, about one third from HR records, and the remainder from contracts and technical documentation. The methodology therefore presupposes that the enterprise maintains a basic internal accounting and information system.

Table 3. Matrix of the level of potential and the efficiency of its utilisation

Situation	Potential	Utilisation	Nature of the problem	Priority measure
I. Balanced development	High	High	No critical problem	Maintain the achieved level
II. Management problem	High	Low	Resources exist but are not used efficiently	Redesign management processes
III. Resource constraint	Low	High	Available resources are fully utilised	Invest in expanding potential
IV. Systemic crisis	Low	Low	Both resources and management are weak	Reconsider the business model

The matrix represents the principal methodological contribution of the proposed approach. Situations II and III may receive similar overall scores, but they are opposite from a management perspective. In the second case, the enterprise possesses resources but does not organise them effectively; in the third, management may be relatively effective but further growth is constrained by the resource base.



Symposium on Natural and Applied Sciences

Hosted Online from London, United Kingdom

Date: 5th September, 2026

Website: <https://econferencia.com>

The two-dimensional interpretation therefore prevents the integral index from being treated as a self-sufficient final diagnosis. It converts assessment into a basis for differentiated management decisions.

CONCLUSIONS AND RECOMMENDATIONS

First, assessing the economic potential of a service enterprise requires a distinction between potential and the degree of its utilisation. Treating achieved revenue or profit as potential obscures management problems and may lead to incorrect decisions.

Second, the proposed methodology combines twenty relative indicators in four blocks: material and technical, labour, financial and intangible. The intangible block reflects the specific nature of services and incorporates resources that are not shown in accounting records.

Third, shifted min-max normalisation prevents zero values from mechanically eliminating the integral index, entropy weighting reduces subjectivity, and the geometric mean limits excessive compensation between strong and weak blocks. Fourth, the assessment should end not merely with a ranking but with identification of the weakest block and the corresponding management response. The proposed potential-utilisation matrix differentiates balanced development, a management problem, a resource constraint and a systemic crisis.

Fifth, the methodology can be applied in service enterprises that maintain financial, personnel, contractual and technical records. Its practical value lies in linking measurement directly to resource-allocation and management decisions.



Symposium on Natural and Applied Sciences

Hosted Online from London, United Kingdom

Date: 5th September, 2026

Website: <https://econferencia.com>

REFERENCES

1. Barney J. Firm Resources and Sustained Competitive Advantage. *Journal of Management*, 1991, 17(1), 99-120.
2. Prahalad C.K., Hamel G. The Core Competence of the Corporation. *Harvard Business Review*, 1990.
3. Becker G.S. *Human Capital: A Theoretical and Empirical Analysis, with Special Reference to Education*. 3rd ed. Chicago: University of Chicago Press, 1993.
4. UNDP. *Human Development Report 2010*. New York: United Nations Development Programme, 2010.
5. Source material and calculations of the author.