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Dependence of EBITDA margin on the service experience consistency index in network businesses

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Abstract. *In network companies with a multi-point presence, the stability of service processes is a key factor in financial performance. However, variability in compliance with service standards leads to heterogeneity of operating costs and revenues between divisions, making it difficult to manage profitability at the network level. The article examines the use of the Service Consistency Index (SCI) as a tool for quantifying service practice consistency and analyzing its impact on EBITDA margin.*

The purpose of the study is to establish and parameterize the dependence of the EBITDA margin on SCI, and to determine the threshold levels of service process consistency at which the effect on operational profitability becomes statistically significant across network divisions with different cost structures and location formats.

The study uses empirical analysis based on data from network units, including assessment of compliance with service standards, uniformity of operational results,



and stability of regulatory compliance. The service experience consistency index is used to analyze the relationship with marginality.

Assessment of compliance thresholds and identification of channels of influence through stabilization of processes, optimization of labor resources and increase in repeat sales. A stable positive relationship between the level of consistency of service processes and the EBITDA margin of divisions was revealed. Integral assessment enables monitoring procedure stability, standardizing operational processes, and planning resources to increase the network's operational margin. It has been confirmed that the developed SCI index is suitable for monitoring and benchmarking across departments, setting service standards, and supporting personnel motivation systems. It has been established that determining target levels of consistency in service practices maximizes operational profitability without excessive growth in control costs and increases the effectiveness of quality management in network businesses.

Keywords: *operational profitability, service process consistency, service standards, multi-branch operators, econometric modeling, panel data, benchmarking, quality management.*

Залежність маржинальності EBITDA від індексу консистентності сервісного досвіду у мережевих бізнесах

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Анотація. *У мережевих компаніях з багатоточковою присутністю стабільність сервісних процесів є ключовим фактором фінансової результативності. Однак варіативність у дотримання стандартів обслуговування призводить до неоднорідності операційних витрат і доходів*



між підрозділами, ускладнюючи управління прибутковістю на рівні мережі. У статті розглянуто використання індексу консистентності сервісного досвіду (Service Consistency Index, SCI) як інструменту кількісної оцінки узгодженості сервісних практик та аналізу його впливу на маржинальність EBITDA.

Мета дослідження - встановити та параметризувати залежність маржинальності EBITDA від SCI, а також визначити порогові рівні узгодженості сервісних процесів, при яких ефект на операційну рентабельність стає статистично значущим для мережеских підрозділів із різною структурою витрат і форматом локацій.

У дослідженні використано емпіричний аналіз на основі даних мережеских підрозділів, включаючи оцінку дотримання стандартів обслуговування, однорідність операційних результатів та стабільність виконання регламентів. Для аналізу зв'язку з маржинальністю застосовано індекс консистентності сервісного досвіду.

Проведено оцінку порогових значень узгодженості та ідентифікацію каналів впливу через стабілізацію процесів, оптимізацію трудових ресурсів і підвищення повторних продажів. Виявлено стійкий позитивний зв'язок між рівнем узгодженості сервісних процесів і маржинальністю EBITDA підрозділів. Інтегральна оцінка дозволяє моніторити стабільність процедур, стандартизувати операційні процеси та планувати ресурси для підвищення операційної маржинальності мережі. Підтверджено, що розроблений індекс SCI придатний для моніторингу та бенчмаркінгу між підрозділами, налаштування стандартів обслуговування та систем мотивації персоналу. Встановлено, що визначення цільових рівнів узгодженості сервісних практик дозволяє максимізувати операційну рентабельність без надмірного зростання витрат на контроль та підвищує ефективність управління якістю у мережеских бізнесах.



Ключові слова: операційна рентабельність, узгодженість сервісних практик, стандарти обслуговування, мультифілійні оператори, економетричне моделювання, панельні дані, бенчмаркінг, управління якістю.

Problem statement. Modern market conditions require network companies to continually maintain a high level of customer service across all divisions. Today, large networks face difficulties ensuring stable quality of service across different locations, which directly affects their operating profitability and EBITDA (Earnings Before Interest, Taxes, Depreciation, and Amortization) margins. Despite numerous studies of revenue management and service delivery processes, there are currently no systematic assessments of how the consistency of service standards across network companies affects their financial results.

Variability in the implementation of corporate standards across divisions complicates resource planning and management decisions aimed at optimizing the network's overall operational activities. This is especially critical for large network companies, where discrepancies across locations can lead to significant differences in revenues and expenses.

The study of the relationship between EBITDA margin and the level of consistency of service experience has scientific value, as it allows integrating the assessment of customer service processes with company performance indicators. The practical significance of the problem lies in the need to create tools to standardize services, optimize resources, and increase the overall profitability of network companies.

The identification of key aspects of the problem forms the basis for building empirical models of the relationship between service experience consistency and financial performance, developing recommendations for service management, and improving approaches to organizing and managing network businesses.



Analysis of recent research and publications. The relationship between service quality, service process consistency, and financial indicators of network companies is a focus of modern scientific research, given the growing customer expectations, the development of digital technologies, and market competition. In scientific discourse, this problem is examined through the prism of the impact of service experience on operating profitability, repeat sales, and the efficiency of enterprise resource use.

Thus, U. Hrechka [1] investigates the integration of Augmented and Virtual Reality into the design and verification processes of solutions, thereby increasing the efficiency of managing complex operations. V. Levit [2] analyzes ESG strategies in the field of events and their impact on brand value, demonstrating the relationship between strategic decisions and financial results. Y. Hrushko [3] considers the cultural adaptation of communications, emphasizing the importance of a unified approach to interacting with customers in multicultural markets. A. Ilyina [4] investigates the creation of technology parks as a mechanism for regulating interests, which indirectly affects corporate service management strategies. Y. Hasenko [5] shows that optimal supply planning increases operational efficiency, creating conditions for improving the marginality of network companies.

P. Zakharchenko, I. Maksiutenko, and A. Koloda [6] analyze consumer motivational factors, which help to understand the behavioral aspects of customer experience and the impact on repeat sales. O. Chaikin [7] examines innovation and sustainable production as factors for improving economic efficiency. P. Suchanek and M. Kralova [8] demonstrate the relationship between customer satisfaction models and financial performance, emphasizing the importance of service process consistency. C.-K. Wang, M. Masukujjaman, S. S. Alam, I. Ahmad, C.-Y. Lin, Y.-H. Ho [9] shows that service quality affects customer satisfaction in financial institutions. X. Zhang and S. Yim [10] examine the role of employee engagement in ensuring a positive customer experience that enhances financial performance.



R. R. Klink, J. Q. Zhang, and G. A. Athaide [11] evaluate customer experience management and its impact on profitability, indicating the need for process standardization. G. Velickovic, J. Stanojevic, and M. Veselinovic [12] compare the financial performance of e-commerce and traditional sectors, emphasizing the effect of consistency in operations. G. Kankam [13] shows that innovation mediates between service quality and business performance. N. Phan Thi Hang, T. Nguyen Kim Quoc [14] demonstrate that high service quality increases loyalty and repeat purchases in small and medium-sized enterprises. A. Murrar, M. Batra, and J. Rodger [15] investigate the relationship between service quality and financial stability in service providers, confirming the importance of process consistency for operational profitability.

Analysis of scientific publications indicates a close relationship between the consistency of service experience and financial indicators of enterprises, repeat sales, and efficient resource use. The data presented form a comprehensive basis for further study of service process optimization and increasing the profitability of network companies.

Identification of previously unresolved parts of the general problem.

Despite existing work on service process management and profitability assessment, several unresolved issues remain. In particular, there is no quantitative assessment of the relationship between the consistency of service experience in different divisions of network companies and EBITDA margin. Also, analytical approaches to determining the threshold values of this consistency at which the impact on profitability becomes statistically significant have not been developed.

The mechanisms by which the stability of service processes influences operating costs, labor intensity, and repeat sales in network organizations have not been sufficiently studied. Existing studies mostly cover individual aspects of service quality management or financial results of enterprises, without integrating them into



a comprehensive empirical model of the relationship between service processes and financial indicators of network companies.

There is also a pressing need to develop quantitative tools for assessing the stability of service experience, which allow studying its impact on operational efficiency and financial results without prior assumptions about the threshold values of consistency.

Formulation of the article objectives (statement of the task). The purpose of the article is to quantitatively analyze the relationship between EBITDA margin and the consistency of service experience in network businesses, and to identify management factors that affect operational efficiency.

To achieve this goal, the following tasks are set:

1. To characterize the formalized service experience consistency index as a quantitative characteristic of the consistency of service standards between network divisions.
2. To assess the impact of the level of consistency of service practices on EBITDA margin using econometric methods of panel data analysis.
3. To determine the threshold values of process consistency at which the effect on operating profitability becomes statistically significant, and to analyze the channels of influence on margin through process stabilization, labor cost optimization, and increased repeat sales.
4. To provide practical recommendations for the management of network companies on service standardization, process monitoring, and increasing operating profitability.

Presentation of the main research material. The functioning of network businesses involves the reproducibility of operating practices in geographically distributed units. However, differences in compliance with service standards lead to heterogeneous results across locations, complicate the correct comparison of efficiency, and reduce the predictability of operating activities. Evaluating the



impact of service practice stability on performance requires an indicator that reflects the productivity of core operations, regardless of the financing structure and accounting procedures.

One of these indicators is EBITDA, which characterizes the operating result generated by the enterprise's main activity, unaffected by financing methods, tax burdens, and depreciation methods. In practice, EBITDA margin is also used, defined as the ratio of this indicator to revenue and reflecting the share of operating results in income [8]. The use of these indicators ensures the comparability of units with different asset structures and sources of financing, allows assessing the effectiveness of the operating model and identifying deviations across individual network locations, and creates a basis for establishing a connection between the characteristics of service processes and the level of operating profitability.

The quantitative assessment of service practice consistency across divisions of network companies is conducted using the Service Consistency Index (SCI). This integral indicator reflects the degree of reproducibility of key elements of the service model across different locations and is formed by aggregating normalized parameters that characterize the stability of regulatory implementation, the uniformity of operating results, and the level of deviations from established procedures. The resulting index value is used to analyze the dependence of EBITDA margin on service consistency, enabling standardization of processes and assessment of the effectiveness of the network operating model [9].

SCI is defined as the weighted sum of normalized indicators:

$$SCI = \sum_{j=1}^m \cdot w_j \cdot z_j \quad (1)$$

where SCI – the integral indicator of the consistency of service practices in the network;

Z_j – the normalized value of the j th parameter of the service process;



W_j – the weighting coefficient of the significance of the corresponding parameter.

Calculating the index using this formula allows for a quantitative assessment of the degree of uniformity in the implementation of established service procedures across all network units. At the same time, the decrease in differences in service process parameters across locations is accompanied by an increase in the index value, reflecting an increase in the reproducibility of operational practices. The indicator value ranges from 0 to 1, with 0 indicating significant heterogeneity in the implementation of standards and 1 indicating a high degree of process unification and minimal inter-location variability.

The quantitative form of the index representation allows it to be used as a measurable characteristic of the service model's stability and as a basis for analyzing the relationship between the level of consistency of service practices and the operating margin of network enterprises.

The weighting coefficients of the index components are determined based on the relative importance of each service process parameter, and their sum is equal to 1. Negative values are not allowed to ensure correct aggregation of normalized components.

The primary indicators are brought into a comparable form by comparing the actual inter-location variability with the established limit level of permissible fluctuations. The standardized value of each parameter is defined as the difference between 1 and the share of the standard deviation of the corresponding indicator within the network relative to its maximum permissible value. Reducing the actual range of deviations relative to the established limit increases the standardized estimate of the integral index component.

To determine the relationship between service consistency and operating margin, a panel data econometric analysis is used, which allows for the dynamics of indicators over time and differences across network divisions. The use of panel



models provides control for individual-location fixed effects and allows for the identification of stable patterns that are not reflected in simple cross-sectional comparisons.

The regression model of the relationship between EBITDA margin and the service experience consistency index can be represented as a regression equation:

$$\text{EBITDA_margin}_{it} = \alpha + \beta \cdot \text{SCI}_{it} + \gamma X_{it} + u_i + \varepsilon_{it} \quad (2)$$

where $\text{EBITDA_margin}_{it}$ – margin for division i in period t reflects the share of profit from the main activity in total revenue;

SCI_{it} – integral index of consistency of service experience, which measures the degree of reproducibility of service standards between locations;

γX_{it} – auxiliary variables that control for other factors that may affect margin, such as revenue volume, cost structure and number of personnel;

α – model constant, which takes into account the basic level of margin at zero values of explanatory variables;

β – coefficient showing the magnitude of change in margin when the consistency index changes by one unit, i.e., the sensitivity of operating profit to the level of stability of service practices;

u_i – individual effect of the division, which reflects constant characteristics of a specific location, not taken into account by other variables;

ε_{it} – a random error that captures the impact of unpredictable factors and residual deviations from the predicted margin.

Using a regression model of the relationship between EBITDA margin and SCI, it is possible to quantify the impact of service process stability on network unit operating profit. The parameter β reflects how much a change in the SCI value of 1 unit affects margin; that is, it allows to determine how much greater consistency in service processes contributes to growth in operating profit. The vector of control



variables γ_{it} includes factors that can enhance or weaken this effect, such as the size of the unit, the level of personnel qualifications, seasonality in sales, or the peculiarities of regional demand.

The integration of fixed effects α_i allows taking into account the specifics of individual locations, for example, differences in internal resources or local standards, and the random error ε_{it} reflects unpredictable fluctuations in margin indicators.

The application of this model enables network management not only to assess the impact of service stability on financial results but also to predict the effects of potential changes in service processes, determine priority areas for standardizing procedures, and effectively allocate resources between divisions. For example, if β is significantly positive, this indicates that even a small improvement in service consistency in low-performing locations can significantly increase their margins. At the same time, in high-performing divisions, the effect will be less pronounced.

For the practical application of SCI, it is important to determine the threshold values at which its impact on divisions' operating margins becomes statistically significant. For example, an SCI below 0.4 indicates low consistency of service processes, which has almost no effect on margin; a value from 0.4 to 0.7 corresponds to an average level of consistency with a moderate effect on profitability, and an SCI above 0.7 demonstrates a high level of reproducibility of service procedures and a significant increase in operating margin.

Defining thresholds allows network company management to establish the minimum level of process stability required for a significant increase in divisional profitability, as well as to plan priority measures for standardization and optimization. For example, for divisions with a low SCI (<0.4), the priority is to stabilize procedures and introduce unified scenarios for staff interaction with customers, which allow reducing the time required to process requests and the number of errors. At the same time, for divisions with an average SCI (0.4–0.7), the



key task becomes optimizing labor resources, planning shifts, and staff workload based on analysis of peak hours and the volume of client requests. At the same time, divisions with a high SCI (>0.7) can focus on stimulating repeat sales and increasing customer loyalty, using control of key touchpoints and digital tools for monitoring the quality of service.

Such a definition of limits allows network company management to establish the minimum level of process stability required for a significant increase in divisional profitability and to predict the results of implementing service standards. A detailed assessment of SCI thresholds helps identify critical limits at which changes in service processes begin to impact operating margins significantly, providing clear guidelines for resource planning and operational control [11].

In summary, it can be concluded that the economic effect of increasing the consistency of the service experience is achieved through simultaneous stabilization of procedures, optimization of labor resource use, and stimulation of repeat sales (table 1). The comprehensive involvement of these channels contributes to a noticeable increase in divisional operating margins and provides a scientifically sound basis for strategic management decisions in the network business.

Table 1

Channels of economic effect of increasing the consistency of service experience

Channel of influence	Economic result
Stabilization of service processes	Reducing deviations in the implementation of standards reduces time loss, errors and unforeseen costs
Optimization of labor resources	Increased consistency allows planning staff tasks more effectively, reducing overload and additional costs associated with correcting errors
Increase in repeat sales and customer loyalty	Predictable service improves the consumer experience, increases satisfaction and stimulates repeat purchases, which directly affects revenue and operating margin

Source: author's development based on [12; 13]

The simultaneous implementation of procedure stabilization and labor resource optimization creates a synergistic effect: staff perform tasks more accurately and quickly, the number of errors and unforeseen costs decreases, and the



workload is distributed evenly. With such a comprehensive approach, it is possible to achieve greater service predictability, which will strengthen customer trust, increase repeat sales, and maintain a positive experience of consumer interaction with departments, thereby allowing the network as a whole to improve its financial indicators.

The integrated use of these channels also allows the creation of systems for monitoring key performance indicators, which reflect the level of coherence of processes and financial results. This provides the possibility of timely adjustments to procedures, increased personnel productivity, and stable growth in operating margin. At the same time, such a comprehensive strategy provides a scientifically based basis for making management decisions on the further development of the network, the standardization of service processes, and the achievement of long-term financial stability.

Thus, in practical terms, increasing the consistency of service processes can be achieved through the standardization of operational procedures, for example, by introducing unified scenarios for staff interaction with customers in contact centers or during order processing. This allows for reduced processing time, reduced errors, and a high level of customer satisfaction.

Optimizing labor resources can include implementing shift planning systems and workload management based on analysis of peak hours and customer request volume. In chain retail companies, this allows for the effective distribution of tasks between employees, reduces overload, and increases labor productivity without additional costs for correcting errors.

Establishing standardized service and control of key touchpoints, for example, complaint handling, returns, or consultations, creates a predictable experience for customers, increasing their loyalty and stimulating repeat purchases, thereby positively affecting the chain's revenue and operating margin. In addition, using CRM systems to monitor response times, the number of resolved requests, and



customer satisfaction allows for the identification of weaknesses and the prompt adjustment of processes. In the long term, this provides a stable economic impact and reduces the risk of customer loss.

Based on the analysis, several additional practical measures can be proposed to optimize business processes in network companies.

In particular, implementing adaptive service scenarios that change based on department workload and the type of customer requests can increase department efficiency without sacrificing service quality, while maintaining a balance between standardization and process flexibility.

Creating a staff workload forecasting system based on historical data and demand analytics will enable resource allocation in advance, avoid overloads during peak hours, increase productivity, and respond quickly to seasonal fluctuations in customer flow.

The integration of digital monitoring and real-time feedback tools, including automated tracking of response times to requests, customer satisfaction indicators, and repeat-request rates, will increase the accuracy of monitoring the implementation of standards and enable prompt process adjustments.

Determining minimum SCI thresholds for individual categories of units by setting target process consistency indicators not only at the network level but also for specific stores, departments, or contact centers will ensure the accuracy of operating margin management and the effectiveness of resource planning at the local level.

The use of simulation models for testing changes in service processes will allow assessing the impact of innovations on margins before their actual implementation, thereby reducing risks, optimizing resource use, and helping predict the economic effects of the changes.

Comprehensive implementation of the proposed measures can serve as a basis for increasing the flexibility and predictability of service process management,



improving the operating margin of divisions, and ensuring the strategic development of the network business.

Conclusions. As a result of the study, it was found that increasing the consistency of service processes across network divisions significantly increases EBITDA margin. The formalized service experience consistency index enables the quantitative assessment of the stability of standard implementation across locations and the determination of the threshold levels at which the impact on operating profitability becomes statistically significant.

It is shown that stabilizing service procedures reduce operational variability and unforeseen costs and increase personnel productivity. At the same time, consistent service across departments improves customer satisfaction. It encourages repeat purchases, which directly increase the network's revenue and operating margin.

The specified threshold values for the consistency index allow management to set the minimum level of consistency required for a noticeable improvement in financial results. Systematic monitoring of standards, optimization of labor resources and control of procedure implementation increase the efficiency of activity planning and contribute to a stable increase in operational performance.

Further research can focus on detailing the impact of individual components of service standards on margins, integrating the consistency index with other performance indicators, and assessing the effectiveness of standardization and control measures across various network structures. Deepening understanding of the mechanisms that form a stable service experience and its impact on business financial results will contribute to increasing operating margins and the sustainability of network companies.

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