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IMPROVING THE CRITERIA FOR ASSESSING THE DIGITAL MATURITY OF SMALL BUSINESSES IN UZBEKISTAN

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Abstract

This article provides a scholarly examination of the improvement of criteria for assessing the digital development of small businesses in Uzbekistan. International digital maturity models are comparatively analyzed, and the principal limitations of their direct application to small businesses are identified. The improved UzSME-DDI is based on the behavioral indicators of its core module, a sector-specific supplementary module, distinct aspects of the regional digital environment, and levels of evidence reliability. The approach is shown to focus on diagnostics and the development of a clear enterprise-specific development roadmap rather than on ranking.

Keywords: Small business, digital maturity, UzSME-DDI, composite index, indicator, assessment criterion, digital transformation.

Introduction

The digital development of small businesses encompasses such key aspects as defining goals and responsibilities within an enterprise, automating internal processes, managing customer relationships, using data in decision-making, developing employee skills, and ensuring cybersecurity. Consequently, neither technological capabilities nor statistical indicators alone can adequately represent an enterprise's digital state. The introduction of digital technologies across the sectors of Uzbekistan's economy is a priority; accordingly, a national assessment



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instrument is required to manage this task at the small-business level, determine the stage of digitalization, identify problems, and indicate where the necessary support should be directed. The study aims to improve a model suitable for assessing the digital maturity of small businesses through criteria that are simple, fair, verifiable, and comparable over time.

Literature Review and Research Methodology. Frameworks designed to assess digital development include composite indices at the macro, meso, and micro levels. Macro-level frameworks systematically measure digital infrastructure, skills, governance, innovation, and outcomes and aggregate their indicators into a single value. However, because their unit of analysis is the state or the economy, these indices do not reveal the nature of day-to-day practices within an individual small enterprise [2]. Meso-level corporate digital maturity models help distinguish between the availability of technology and its integration into strategy and business processes [3, 4]. These models are useful for assessing leadership, organizational culture, integration, and stages of transformation. Micro-level models comprise theories explaining technology adoption and organizational change; TAM and UTAUT show that technology adoption depends on perceived usefulness, perceived ease of use, social influence, and facilitating conditions [5, 6]. Dynamic capabilities theory explains an enterprise's ability to sense new opportunities, seize them, and reconfigure its processes [7]. Drawing on these approaches, investment in technology can yield sustainable results only when it is aligned with changes in the business model and organizational capabilities. Accordingly, we conclude that UzSME-DDI should derive its systems architecture from international indices, its staged diagnostics from maturity models, and its logic of utilization and performance from theoretical approaches. The study is conceptual and methodological in nature and



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employs comparative analysis, content analysis, a systems approach, and methods of composite index construction.

Main Section. Developing scientifically grounded criteria for assessing the digital development of small businesses in Uzbekistan is an important undertaking. In international practice, the number and scope of perspectives and conceptual solutions aimed at developing micro-level criteria for assessing digitalization processes are increasing. Indeed, against the backdrop of evolving digital market conditions in recent years, traditional businesses in major economic centers have been observed to face bankruptcy. In particular, over the past five years, reports concerning small-business closures and the contraction of large retail complexes in the United States, the United Kingdom, China, and Germany have been accompanied by scholarly studies seeking to explain the underlying causes of these developments. Consequently, the urgent advancement of national digitalization and the digital transformation of entrepreneurs has become a matter of paramount importance. Entrepreneurs must recognize that, without digitalization, they have no viable future prospects and must therefore consciously undertake this digital transformation themselves. Another important aspect of the issue is that developing a digitalization assessment system in a form comprehensible to all constitutes a major responsibility of the academic community.

The UzSME-DDI module proposed in this study is an assessment module designed to fill this gap and objectively evaluate the progress of digitalization among small businesses. Five key requirements were established for indicator selection: substantive relevance, comprehensibility for entrepreneurs, applicability across different sectors, verifiability of responses through evidence, and low data-collection costs. Each indicator is evaluated not in binary terms as



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'present or absent,' but on a 0-4 behaviorally anchored scale reflecting the level of development of the practice. A score of 0 indicates that the process is absent; 1 indicates ad hoc use dependent on particular individuals; 2 indicates partial implementation; 3 indicates systematic application; and 4 indicates the integration of systems and the regular measurement of outcomes. The indicator score is converted to a 0-100 scale using the following formula:

$$S_{ij} = (x_{ij} / 4) \times 100$$

where x_{ij} denotes the score, ranging from 0 to 4, assigned to indicator j within dimension i . The dimension score is calculated as the mean of its constituent indicators, while the final index is calculated as the weighted sum of the dimensions. During the pilot phase, equal weighting represents a transparent and readily understandable baseline approach. AHP-based or other expert-derived weights should be applied only after the composition of the expert panel, consistency measures, and sensitivity analysis results have been fully disclosed [2].

Refined Assessment Criteria

Table 1. Refined Structure of the UzSME-DDI Core Module.

Dimension	Four Key Indicators
Digital Strategy and Governance	Objectives; responsible person; budget and plan; KPIs and monitoring
Core Digital Infrastructure	Devices; software; cloud services; technical support
Internal Business Processes	Accounting and e-documents; inventory/procurement; core operations; HR
Digital Sales, Marketing, and Payments	Online sales; marketing; CRM; electronic payments and invoicing
Data and Analytics	Structured data storage; data quality; reporting; use in decision-making
Digital Skills and Organizational Capability	Basic digital literacy; role-specific skills; training; IT support
Cybersecurity and Business Continuity	Access control; data backup; updates; incident response



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The proposed core module retains seven dimensions and 28 indicators applicable to all enterprises, while aligning their content with the actual management processes of small businesses. Indicators such as programming, employee certification, a proprietary mobile application, AI, IoT, R&D, or digital exports are not included as mandatory components of the overall score. Instead, they are assessed through separate sector-specific modules designed for enterprises operating in manufacturing, IT, agriculture, tourism, or export-oriented activities. This approach prevents a local hair salon or small cafe from automatically receiving a low score merely because it does not use advanced technologies.

The quality of internet connectivity, mobile network coverage, logistics, and the availability of IT services in a region should likewise not be incorporated into an enterprise's internal score. These conditions are assessed separately as a 'regional digital environment' profile. This enables the government to distinguish between an enterprise that is not ready for digitalization and one whose development is constrained by external infrastructure. Penalizing an enterprise for factors beyond its control undermines the fairness of the assessment.

Questions address the results of technology use rather than technology names. For example, instead of asking, 'Do you have a mobile app?', respondents are asked, 'Are orders regularly received through digital channels, and are the results measured?' Likewise, 'Do you use social media marketing?' examines inquiries, conversion rates, repeat purchases, and customer acquisition costs, not merely advertising activity. Thus, an unused website or an app created only for appearance cannot artificially raise the score.

A response of 'not applicable' is treated as neither a zero score nor missing data. For example, a digital export question should not be posed to a local service enterprise that does not export. The relevant indicator is excluded from the calculation, and the weights of the remaining criteria are renormalized. Response



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reliability is recorded separately: Level A - verified by an information system or official data; Level B - verified by a document, report, or system screenshot; Level C - based solely on the respondent's statement.

The overall score should not conceal critical weaknesses. Minimum thresholds are therefore set for critical indicators such as cybersecurity, data backup, and access control. If the cybersecurity dimension scores below 20, the enterprise is not classified as 'mature,' regardless of its overall score. The five-stage ranges of 0-20, 21-40, 41-60, 61-80, and 81-100 form an initial interpretive framework and must be recalibrated using pilot data; a change from 40 to 41 points should not be treated as a sharp qualitative difference.

Discussion

The principal advantage of the refined model lies in its transition from asking 'Which technologies are available?' to asking 'How systematically is the technology used, and what outcomes does it produce?' Separating the core module, sector-specific modules, and the regional environment enables fairer comparisons among different enterprises, while the 0-4 scale facilitates consistent longitudinal assessment of the same enterprise. Nevertheless, the model does not automatically resolve every methodological challenge. Respondent self-inflation, inter-rater variation, the calibration of sector-specific modules, and the selection of indicator weights all require separate testing. Therefore, the module should initially be applied as a diagnostic instrument rather than as a ranking or certification mechanism.

Conclusion

The UzSME-DDI can establish a common and readily understandable framework for measuring the digital development of small businesses in Uzbekistan. To



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achieve this, the criteria must avoid imposing identical technological requirements on all enterprises, distinguish processes under an enterprise's control from external regional conditions, and assess responses through verifiable behavioral descriptors. The proposed seven-dimensional core index, sector-specific supplementary module, regional digital environment profile, and A-B-C evidence levels enhance the fairness and practical value of the model. Its primary purpose is not to create a punitive ranking of enterprises, but to identify areas of weakness and indicate the most essential next step in their digitalization.

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