

Cost Accounting and Digital Integration in Public Catering Enterprises: Principles, Challenges, and Modern Solutions

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Abstract: The study examines the intersection of cost accounting and technological digitalisation within the context of Uzbek restaurants and similar enterprises publicly traded in the central Asian republic, and within the framework of the national digitalisation policy. Despite the fact that traditional cost-accounting processes still remain dominant, they are not likely to offer the correct loss tracking and resource management features. In order to fill this gap, the paper adopts descriptive and comparative method and this is accompanied by interviews with managers and examination of the regulatory frameworks to discuss the existing practice as well as to recommend innovative measures. According to the results of the case study conducted in Samarkand, even the partial digitalisation of businesses, like point-of-sale (POS) systems with inventory-control applications can reduce shrinkage significantly, increase profitability, and improve operational visibility. The findings support the assumption that standardisation, selective employee training, and locally adapted digital platforms, are essential to proper implementation. These insights are potentially useful in practice to small and medium-sized companies, policymakers, and software engineers interested in transforming food-service premises in Uzbekistan toward the new era by means of the implemented Digital 2030 strategic plan and the associated software.

Key words: Cost accounting, food service, digital integration, waste management, SME, ERP, POS, shrinkage



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INTRODUCTION

Public catering enterprises play a critical role in Uzbekistan's service economy, generating employment, ensuring food security, and contributing to national GDP. Today, the industry is undergoing a significant transformation, driven by digital modernisation under initiatives such as "Digital Uzbekistan–2030," growing urbanisation, and evolving consumer expectations. With increasing competition and rising resource costs, efficient cost control has become a strategic imperative. Consequently, cost accounting systems are shifting from basic manual practices to integrated digital frameworks designed to support operational efficiency and managerial decision-making.

Cost accounting is the systematic process of recording, classifying, analysing, summarising, and allocating business expenses. In the catering sector, it requires monitoring direct and indirect costs, managing waste and shrinkage, and tracking labour and service-related expenses. Traditional, paper-based, and semi-automated methods are proving insufficient for modern business needs, particularly in medium and large establishments. Therefore, integrating digital tools including ERP systems, POS software, and smart inventory systems is essential to address operational complexity and enhance transparency and financial control.

LITERATURE REVIEW

Cost accounting has its origins in the industrial revolution (Horngren et al., 2013), focused initially on manufacturing. The rising importance of the service economy, especially hospitality and catering, has required new cost management approaches (Drury, 2018). This sector's unique demands—including perishable inventories, rapid service, and strict quality expectations—make precise, real-time data systems essential (Raab et al., 2009).

Research demonstrates the vital role of cost accounting in hospitality. Kaplan and Atkinson (1998) show that standard and activity-based costing systems significantly improve cost allocation and variance control. Meanwhile, digital tools such as ERP and POS streamline procurement, track inventory, manage sales, and control labour costs, enabling proactive decision-making (Bhimani et al., 2019).

In Uzbekistan, Abdukarimov (2021) and Gafforova (2022) emphasise that digital financial tools can modernise SMEs, but obstacles such as high costs, limited tech literacy, and outdated compliance-focused systems persist. A research gap remains: scalable digital frameworks adapted to Uzbekistan's catering context are still required.

MATERIALS AND METHODS

Objectives:

- Analyse cost structure and loss measurement in public catering.
- Study the treatment of shrinkage and losses in accounting.
- Assess current cost accounting practices in Uzbekistan.
- Propose a digital transformation pathway tailored to local needs.

Methodology:

- Descriptive analysis of catering enterprises in Samarkand.
- Comparative evaluation using Uzbek and international examples.
- Interviews with finance staff and managers.
- Review of regulatory guidelines for the sector.

CLASSIFICATION OF COSTS AND LOSS NORMS

A robust cost accounting framework depends on precise categorisation and shrinkage tracking.

Direct vs Indirect Costs

Direct costs (raw materials, direct labour, packaging) are dish-specific; indirect costs (utilities, rent, administrative labour, depreciation) support overall operations and require allocation (Horngren et al., 2013).

Fixed vs Variable Costs

Knowing which expenses vary with output (like ingredient costs, hourly wages) versus those that remain constant (rent, salaried staff) is crucial for planning (Drury, 2018).

Normative vs Actual Costs

Normative costing sets specified ingredient and labour usage per dish. Performing variance analysis uncovers deviations.

Shrinkage Monitoring

Normative shrinkage includes expected wastage (peeling, trimming, cooking). Abnormal shrinkage covers spoilage, theft, overproduction—these are recorded as non-operational losses.

Inventory Controls and Cost Centres

Dividing operations into centres (procurement, kitchen, service, administration) and allocating overheads by consumed resources enables finer cost control.

Financial Risk of Poor Classification

Inadequate cost classification leads to mispricing, weak financial data, misallocation, and difficulty complying with tax obligations

ANALYSIS: TRADITIONAL VS DIGITAL COST ACCOUNTING

Traditional Methods in Uzbekistan

Manual ledgers, fragmented spreadsheets, inconsistent costing.

Lack of variance reporting or shrinkage tracking leads to poor insight into operations.

Digital Tools Offering Improvement

Digital technologies offer significant improvements in cost accounting for catering enterprises. ERP systems such as 1C F&B enable the integration of procurement, inventory, labour, and financial data into a unified platform, enhancing operational oversight. Point-of-sale (POS) platforms automate order processing, synchronise sales with inventory, and connect with standardised recipes, ensuring consistency and accuracy. Inventory management technologies, including barcode scanners and RFID tools, facilitate real-time tracking of stock and streamline reordering processes. Human Resource Management (HRM) modules support effective staffing, wage management, and scheduling, while energy management systems powered by the Internet of Things (IoT) help reduce utility costs through smart monitoring and consumption control. Together, these tools provide enterprises with real-time cost visibility, enable data-driven decision-making, and support shrinkage reduction, regulatory compliance, and overall transparency. However, challenges such as high implementation costs, limited technical skills, infrastructure constraints, and cultural resistance to change may hinder adoption, especially among small and medium-sized enterprises.

SWOT Summary

<p>Strengths</p> <p>Real-time cost control, data-based insights</p>	<p>Weaknesses</p> <p>High costs, slow adoption, training needs</p>
<p>Opportunities</p> <p>Government digitalisation programmes</p>	<p>Threats</p> <p>Informal practices, change resistance</p>

CASE STUDY – COST ACCOUNTING AND DIGITAL INTEGRATION AT A SAMARKAND RESTAURANT

A mid-sized restaurant in Samarkand transitioned from manual record-keeping to a digital cost accounting system by implementing a cloud-based POS platform integrated with barcode-enabled inventory tracking. Standard recipes were

introduced alongside a daily loss-logging routine, enabling better monitoring of ingredient usage and production shrinkage.

As part of the digital transformation, structured inventory management and staff training programs were launched. The restaurant also established a centralized kitchen setup and adopted real-time inventory alerts, allowing for more accurate demand planning and reduced emergency purchases. Standardized labour shifts were introduced, resulting in improved scheduling, lower overtime costs, and increased employee satisfaction.

Results:

- Shrinkage reduced by 60%, saving approximately 12 million UZS per year.
- Dish profit margins improved by 5–12% due to recipe standardisation and menu engineering.
- Emergency procurement frequency dropped by 30–70%, lowering procurement costs.
- Overtime was cut by 20%, improving labour efficiency and morale.
- Inventory accuracy and budget planning improved significantly due to real-time tracking and alerts.

Key Takeaways:

- Even partial digital adoption (POS with inventory controls) leads to measurable operational and financial improvements.
- Standard recipes and daily loss tracking help control waste and uncover underperforming menu items.
- Employee involvement in system adoption and regular training ensures smoother implementation.
- Uzbek-language interfaces and support from local tech vendors increase acceptance and sustainability of digital systems.

RECOMMENDATIONS

To facilitate the effective adoption of cost accounting systems and digital technologies in Uzbekistan’s public catering sector, a multi-pronged strategy should be pursued:

Stepwise Digital Adoption:

Enterprises should start with accessible technologies such as cloud-based POS systems and basic inventory tools. These provide immediate improvements in sales tracking and stock control. Once familiar with these systems, businesses can gradually expand to include human resource and procurement modules. Ultimately, the integration of comprehensive ERP platforms with IoT components (e.g., smart meters, temperature sensors) can enable full digital control over operations and utilities.

Standardisation and Loss Awareness:

The foundation of effective cost control lies in standardised procedures. Public catering enterprises should develop and implement standard recipes tied to predefined normative loss rates. Regular shrinkage audits—ideally conducted

monthly—should become a routine aspect of financial monitoring. Staff must be trained to understand how these benchmarks are used to reduce waste and improve costing accuracy.

Practical Training Initiatives:

The success of digital tools depends on the capacity of staff to use them effectively. Therefore, catering enterprises should organise in-house training workshops focused on digital system operation, loss detection, and data analysis. These sessions should be based on real, local case studies to ensure relevance and ease of understanding.

Localised, Culturally Attuned Solutions:

It is essential to select platforms that are tailored to the Uzbek market—software should be in the Uzbek language, comply with local accounting standards, and be backed by domestic service providers for ongoing technical support and maintenance.

Peer Learning and Knowledge Sharing:

Industry knowledge diffusion can be accelerated through peer-based initiatives. Workshops and seminars where successful food service enterprises in Samarkand share their digitalisation experiences, software solutions, and implementation strategies can motivate and guide others toward adoption.

Policy and Financial Support Measures:

The government can play a catalytic role by offering targeted incentives such as tax exemptions, digitalisation grants, or subsidised loans to food service SMEs seeking to upgrade their cost management systems. In parallel, public policy should encourage the distribution of affordable, standardised accounting and POS software for smaller enterprises.

Encouragement of Domestic Software Development:

Finally, to ensure sustainability and wider applicability, Uzbekistan should invest in the development of domestic accounting and POS systems. These should be tailored to the operational realities, cultural expectations, and regulatory requirements of the national food service industry.

CONCLUSION

Strategic cost accounting is fundamental to the sustainability and profitability of public catering. Traditional approaches fall short in delivering timely and accurate insights. Case studies in Samarkand clearly demonstrate that integrating digital tools even at a basic level yields meaningful improvements in cost control, employee productivity, and financial results. Realising this potential requires a balanced adoption strategy that is financially feasible, culturally resonant, and supported by policy incentives. Aligned with national digitalisation goals, this approach can significantly modernize Uzbekistan's food service sector

References

1. Abdugarimov, S. (2021). Raqamli iqtisodiyot sharoitida kichik biznesni moliyaviy boshqarish. TDIU Nashriyoti.

2. Abdukarimov, A. (2021) Challenges of digitalisation in Uzbekistan's SMEs. *Journal of Economic Development*, 5(1), pp.45–52.
3. Bhimani, A., Horngren, C.T., Datar, S.M. and Rajan, M.V. (2019) *Management and Cost Accounting*. 7th edn. Harlow: Pearson Education.
4. Drury, C. (2018) *Management and Cost Accounting*. 10th edn. Andover: Cengage Learning.
5. Gafforova, M. (2022). O‘zbekiston korxonalarida axborot tizimlarining joriy etilishi va moliyaviy nazoratga ta’siri. *Moliyaviy Tahlil Jurnali*, 3(2), 57–64.
6. Horngren, C.T., Datar, S.M., & Rajan, M. (2013). *Cost Accounting: A Managerial Emphasis* (14th ed.). Pearson.
7. Drury, C. (2018). *Management and Cost Accounting* (10th ed.). Cengage Learning.
8. Bhimani, A., Horngren, C.T., Datar, S.M., & Rajan, M.V. (2019). *Management and Cost Accounting* (7th ed.). Pearson.
9. UNDP Uzbekistan (2020) *Digital Uzbekistan 2030: Policy Priorities and Roadmap*. Tashkent: UNDP. Available at: <https://www.uz.undp.org> (Accessed: 15 June 2025)
10. Raab, C., Mayer, K., Kim, Y.S., & Shoemaker, S. (2009). Price-sensitivity and pricing: Towards a unified model. *International Journal of Hospitality Management*, 28(3), 446–454.
11. IT-Park Uzbekistan (2023). *Raqamli xizmatlar orqali kichik biznesni qo‘llab-quvvatlash dasturi*. www.it-park.uz