

Original Article

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Designing an activity-based costing model for the Urban Jobs and Agricultural Products Organization of Mashhad Municipality

Mohammad Hossein Vadiei¹, Simin Poursasan^{2*}, Mohammad Mehdi Qomian³, Jamshid Qomdoost⁴

1. Associate Professor, Department of Accounting, Ferdowsi University of Mashhad, Mashhad, Iran
2. Ph.D. Student, Department of Accounting, Ferdowsi University of Mashhad, Mashhad, Iran
3. Ph.D. in Management, University of Tehran; Deputy Director, General Directorate of Assembly Affairs and Internal Audit, Mashhad Municipality, Mashhad, Iran
4. M.Sc. in Industrial Engineering; Head of the Directorate of Assembly Affairs, Mashhad Municipality, Mashhad, Iran

Abstract

One of the fundamental requirements for managerial decision-making, cost control, and enhancing financial transparency is the accurate calculation of service costs. Due to the diversity of services and the varying nature of activities across permanent, temporary, and mobile markets, the Urban Jobs and Agricultural Products Organization of Mashhad Municipality has a complex cost structure, for which traditional costing systems often can not provide accurate and reliable cost information. Therefore, this study was conducted to design an activity-based costing (ABC) model for this organization. Research data were collected through the review of financial documents and reports, semi-structured interviews with managers and process owners, and financial information for the fiscal year 2025. The organization's activities were identified and classified into 13 main activities and 22 support activities. Resource costs were then allocated to activities using appropriate cost drivers, and the costs of support activities were first allocated to one another using the reciprocal allocation method and subsequently assigned to the main activities. Finally, service costs were calculated based on the activity consumption level, and an activity-based costing model was developed. The findings showed that the proposed model provides a more realistic estimation of service costs by allocating indirect costs more accurately. Furthermore, a comparison of two selected temporary markets and two selected permanent markets revealed that the traditional costing method results in distorted cost estimates due to the uniform allocation of costs, whereas the activity-based costing model allocates costs according to the actual consumption of activities and provides more accurate information for managerial decision-making.

Keywords

Activity-based costing (ABC)
financial transparency
Urban Jobs and Agricultural
Products Organization of Mash-
had Municipality

* Corresponding Author: simin.poursasan@mail.um.ac.ir

1. Introduction

Given the critical role of information in financial decision-making, traditional cost and management accounting systems can no longer meet managers' information needs. On the one hand, the use of traditional costing methods leads to errors, duplicated work, reduced financial transparency, and weak managerial analysis. On the other hand, the lack of integration among financial modules reduces the accuracy of cost calculations and limits timely and effective decision-making. Under such circumstances, designing and implementing a system capable of accurately identifying costs and correctly calculating service costs seems essential. In the late 1960s and early 1970s, several accounting scholars, such as Solomons and Staubus, highlighted the relationship between activities and costs. However, serious attention from academic and professional communities to this subject emerged mainly during the 1980s. This growing interest resulted from three major developments: Fundamental changes in the business and technological environment, changes in companies' management philosophy, and the efforts of scholars such as Kaplan and Norton to explain the shortcomings of traditional costing systems (Namazi, 1998). Following these developments, the activity-based costing (ABC) system was introduced. Unlike traditional costing systems, this modern costing approach identifies and allocates costs based on activities rather than focusing solely on production volume. As a result, it is regarded as one of the most significant innovations in management accounting in the twenty-first century (Grondskis and Sapkauskiene, 2012). Following the implementation of an ABC system, managerial decision-making becomes easier, and direct and variable costs can be identified more easily. Furthermore, organizations obtain more accurate data, enabling management to manage costs more effectively (Ganorkar et al, 2018; Javid et al., 2016; Omar and Hasan, 2020).

This study employs the ABC system to identify and analyze costs and activities in the Urban Jobs and Agricultural Products Organization of Mashhad Municipality. This organization is affiliated with Mashhad Municipality and was established to provide an appropriate framework for organizing urban occupations, managing distribution networks of essential goods and agricultural products, developing urban markets, and improving the system for the supply and distribution of goods and services throughout the city. Given the diversity and wide

range of services provided, the different nature of its activities (permanent, temporary, and mobile), the large number of cost centers, and the broad range of stakeholders, the organization faces considerable challenges in accurately determining service costs and managing expenditures. Despite the widespread application of the ABC system, relatively few studies have focused on its design and implementation in municipality-affiliated organizations. Therefore, this research attempts to design and implement an ABC model for calculating the cost of services in the Urban Jobs and Agricultural Products Organization of Mashhad Municipality. The scope of the study covers all the organization's main and support activities that contribute to the provision of services related to urban job organization, urban commodity markets, urban advertising spaces, and the organization's other operational responsibilities. The outcomes of the research include the identification of activities and cost drivers, the development of an ABC model, and the calculation of service costs for the Urban Jobs and Agricultural Products Organization of Mashhad Municipality.

It is expected that the findings will improve the accuracy of service cost calculations and contribute to better managerial decision-making, enhanced financial transparency, and more efficient use of organizational resources. The remainder of this paper is organized as follows. First, the theoretical foundations and the relevant literature are reviewed. Next, the research methodology is presented, followed by the research findings, the model implementation results, and the concluding recommendations.

2. Research background

In today's competitive business environment, costing systems must provide managers with accurate and reliable information to support sound and effective decision-making without compromising the quality of products and services (Ganorkar et al., 2020; Hardan and Shatnawi, 2013; Zamrud and Abu, 2020). In the absence of an accurate costing system, managers fail to make informed decisions regarding revenues, costs, and the effective management of organizational resources (Berisha, 2017). These limitations become even more significant in service and non-profit organizations, particularly those characterized by diverse activities and complex operational processes (Hofmann and McSwain, 2013; Stouthuysen et al., 2014; Varila et al., 2007). Activity-based costing (ABC) was introduced in the 1980s as a response to the

shortcomings of traditional costing systems (Cooper and Kaplan, 1998; Kaplan and Atkinson, 1989). This system is based on the premise that products differ in their level of complexity and consume organizational activities to varying degrees (Siguenza-Guzman et al., 2013). Consequently, ABC provides a more realistic basis for cost allocation than traditional costing systems (Mortaji et al., 2013; Allain and Laurin, 2018). However, empirical evidence indicates that implementing an ABC system is associated with several challenges. The most significant of these include difficulties in collecting and processing cost data, the complexity of identifying and measuring cost drivers (Gosselin, 2006; Kaplan and Anderson, 2004; Carli et al., 2014), and the high costs of implementation (Herath et al., 2010). Furthermore, behavioral and organizational factors are also recognized as major barriers to the successful implementation of this system (Maha Faisal, 2020). Overall, these challenges suggest that the successful implementation of an ABC system is not merely a technical issue but a multidimensional process involving technical, organizational, and behavioral aspects. In this regard, top management support, employee participation, adequate training, and adapting the model to the specific characteristics of each organization are considered critical success factors (Uyar and Kuzey, 2016; Al-Dhubaibi, 2021).

Previous studies have shown that applying ABC in service organizations, through the identification of core and support activities and the selection of appropriate cost drivers, enables more accurate cost allocation and a more realistic estimation of service costs (Vadiei and Azari, 2014). Likewise, evidence from studies conducted on companies listed on the Iranian Stock Exchange indicates that the implementation of an ABC system is both feasible and effective in improving the quality of managerial decision-making and enhancing organizational profitability (Jamali and Kamalpour, 2021).

Furthermore, recent studies have demonstrated that the development of more advanced ABC models, including fuzzy logic-based approaches, improves the accuracy of cost estimation under conditions of complexity and uncertainty and provides significantly different results from those obtained using traditional costing models (Rivandi and Mehrazin, 2025).

Based on the theoretical foundations and the reviewed literature, we can conclude that previous studies have primarily focused on the advantages, feasibility, and application of ABC in manufacturing industries and

commercial enterprises, while relatively little attention has been paid to its application in service organizations, particularly those operating in urban management. Therefore, the principal research gap is the lack of a practical, context-specific framework for identifying activities, determining appropriate cost drivers, and calculating service costs within municipal service organizations, despite the extensive evidence supporting the effectiveness of the ABC model. This gap highlights the need for the present study, which develops and implements an ABC model in the Urban Jobs and Agricultural Products Organization of Mashhad Municipality.

3. Methodology

This study is applied research in terms of its objective and adopts a descriptive-analytical case study approach. The research was conducted in the Urban Jobs and Agricultural Products Organization of Mashhad Municipality. To identify the organization's activities, its organizational structure, job descriptions, operational processes, and related documents were first reviewed. Subsequently, semi-structured interviews were conducted with managers, deputy managers, department heads, and process owners to identify the activities performed within each organizational unit. The interview participants consisted of managers and experts selected through purposive sampling because of their direct familiarity with the organization's operational and support processes. After collecting the required information for developing the service costing model for the fiscal year 2025 (1404), a preliminary list of activities was prepared and reviewed during several expert meetings attended by managers and officials from the relevant organizational units. At this stage, similar activities were consolidated, unrelated activities were eliminated, and the final classification of activities was completed. Finally, a consensus was reached regarding the structure of activities, sub-services, and cost objects.

Resource and activity drivers were identified based on the cause-and-effect relationships among resources, activities, and services, with the assistance of experts from the organization. The primary criterion for selecting these drivers was their ability to accurately reflect the actual pattern of resource consumption by activities and the consumption of activities by services. The data required for calculating the drivers were obtained from financial records, operational

performance data, and other operational information of the organization.

The overall process of the ABC method is illustrated in Figure 1. As shown in the figure, the system assumes that activities consume resources, while products and services are generated through performing these activities. Furthermore, achieving organizational objectives and program outcomes requires producing

and delivering a variety of products and services. The relationships among the three levels of resources, activities, and products (goods and services) are established through specific cost drivers. These drivers are used to assign resource costs to activities, allocate support activities to main activities, and assign the costs of the main activities to products and services.

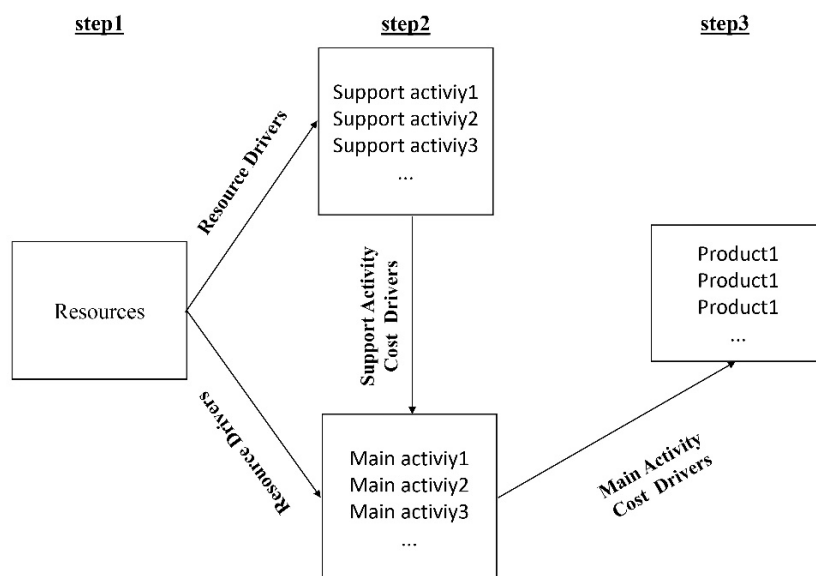


Figure 1. Steps for implementing the activity-based costing (ABC) system

3.1. Activity-based costing process for developing and explaining the service costing model

Operational (main) activities are the activities performed by each organizational unit that are directly related to its primary roles and responsibilities and lead to the creation of its final outputs or services. Support activities, on the other hand, are not directly involved in producing the final outputs or services of an organizational unit; rather, they provide support for the main activities and other activities within the same or other organizational units. Activities are measurable, and the resources required to perform them are financed through budgetary appropriations. These resources include human resources, water and electricity, fuel, materials and supplies, vehicles, computers, buildings, and other organizational resources consumed during a fiscal year. The consumption of these resources gives rise to costs. Resource costs are assigned to activities using resource drivers. Subsequently, the costs of support activities are allocated to the main activities within each organizational unit as overhead costs through support activity drivers. Finally, the costs of the organization's

main and support activities are assigned to the final outputs, products, or services of each organizational unit. Based on the above explanations, the implementation of an ABC system involves the following steps:

1. Identification of organizational units
2. Collection and classification of cost information
3. Identification of internal support activities, external support activities, and main activities of organizational units
4. Determination of the cost allocation bases for assigning costs to activities and collection of the related operational data
5. Assignment of personnel to activities
6. Allocation of costs to activities based on the established allocation bases
7. Identification of the products and services of organizational units
8. Determination of the allocation bases for assigning the costs of each unit's internal support activities to its other activities and collection of the related operational data
9. Allocation of the costs of internal support activities

- to other activities within each organizational unit
10. Identification of cost drivers for the main activities and collection of the related operational data
 11. Calculation of the cost of the main products and services before allocating the cost shares received from other supporting units
 12. Determination of the allocation bases for assigning the costs of external support activities to the receiving units and collection of the related operational data
 13. Determination of each activity's share of the services provided by external support units (headquarters units)
 14. Allocation of the costs of external support activities (headquarters units) to the activities of each organizational unit
 15. Calculation of the cost of products and services after allocating the costs of external support activities (headquarters units)
 16. Determination of the quantitative units of products and collection of the related operational data
 17. Calculation of the cost per unit of product after allocating all relevant cost shares

products and services, resource costs are first assigned to activities to determine the costs of the main and support activities, using three methods. The first method is direct cost allocation. Costs that can be clearly and unambiguously attributed to a specific activity are assigned directly to that activity. Under this method, there is no need to use resource driver data, as the costs are assigned directly to the relevant activity based on the accounting records. The second method involves cost allocation using resource drivers. Costs that are shared among several activities and cannot be directly assigned are allocated according to appropriate resource drivers and in proportion to the level of resource consumption by each activity. The third method is the allocation of untraceable costs. These are costs that cannot be directly assigned to a specific activity, and for which the level of resource consumption by each activity cannot be accurately measured through resource drivers. Such costs are allocated among the relevant activities using appropriate allocation bases. This method is primarily applied to the allocation of administrative service costs and other support costs. After the cost allocation, the costs of the main and support activities are calculated. The main and support activities of the organization are presented in Table 1.

4. Findings

4.1. Allocation of resource costs to activities

Given the requirements for calculating the cost of

Table 1. Classification of main and support activities

Internal support activities	Main activities
Management	Display of cultural and seasonal messages
Legal affairs	Management and supervision of urban service kiosks (ice, newspaper, postal, Razavi bread, etc.)
Security affairs	Management and supervision of the automobile market
Public relations	Management and supervision of day, night, and Friday markets (mobile markets)
Human resources	Management and supervision of fruit and vegetable markets and general food markets
Secretariat and office administration	Management and supervision of the organization of nuisance workshops
General affairs	Supervision and issuance of permits for the installation and operation of commercial signboards
Accounting	Management and supervision of construction projects
Budget and finance	Supervision and issuance of permits for the installation and operation of advertising billboards
Procurement and supply affairs	Regulation of commercial use of sidewalks
Planning	Organization of daily wage workers and skilled workers
Staff training	Supply of essential goods and food commodities

Internal support activities	Main activities
Statistics	
Information technology (IT)	
Transportation	
Warehouse management	
Quality management system (QMS)	
Employee welfare	Research and development activities
Contract administration	
Revenue collection	
Buildings and facilities management	
Administrative building security	

4.2. Determination of resource driver values

Resource drivers are measures used to allocate resource costs to activities and reflect the extent to which each activity consumes the organization's resources. To determine the values of the resource drivers, all organizational positions were first identified. As shown in Appendix Table A, the Urban Jobs and Agricultural Products Organization of Mashhad Municipality employs 175 personnel. By reviewing job descriptions, conducting semi-structured interviews with managers and process owners, and assessing the level of participation of each organizational position in the organization's activities, the percentage share of

each position in the main and support activities was determined. For example, as presented in Appendix Table B, 13 organizational positions participate in the activity of displaying cultural and seasonal messages. The share of each position was determined according to its level of involvement in performing the activity and was then aggregated. As a result, 5.1 of the organization's total human resources was allocated to this activity. The same procedure was applied to all organizational activities, and ultimately, the share of each activity in the organization's human resources was determined. The results of this stage are presented in Tables 2 and 3.

Table 2. Share of main activities

Main activities	Contract worker	Permanent employee	Temporary employee	Permanent worker	Outsourced personnel (contract management)	Seconded employee	Vol-ume-based contract personnel	Human resource cost share
Display of cultural and seasonal messages	0	1.2	1.3	1.7	0.9	0	0	5.1
Management and supervision of urban service kiosks (ice, newspaper, postal, Razavi bread, etc.)	0	1.2	1.5	0	1	0	0	3.7
Management and supervision of the automobile market	0	0	0.2	0	0	0	0.4	0.6
Management and supervision of day, night, and Friday markets (mobile markets)	1	0	3.2	1	2	0	15.4	22.6
Management and supervision of fruit and vegetable markets and general food markets	0	0.2	2.5	7	0	0	0	9.7
Management and supervision of the organization of nuisance workshops	0	1	2.1	0	0	0	0	3.1
Supervision and issuance of permits for the installation and operation of commercial signboards	0	1	1.6	1.6	0	0	0	4.2
Management and supervision of construction projects	0	0.25	2.6	0	2.3	0	0	5.15
Supervision and issuance of permits for the installation and operation of advertising billboards	0	0.3	2.5	1.3	0	0	0	4.1

Main activities	Contract worker	Permanent employee	Temporary employee	Permanent worker	Outsourced personnel (contract management)	Seconded employee	Volume-based contract personnel	Human resource cost share
Regulation of commercial use of sidewalks	0	0	1.1	0	3	12	0.2	16.3
Organization of daily wage workers and skilled workers	0	0	0.9	0	0	0	0	0.9
Supply of essential goods and food commodities	0	0.7	0.5	0.5	0.5	0	0	2.2
Research and development activities	0	0	1.5	0	0	0	0	1.5

Table 3. Share of support activities

Support activities	Contract worker	Permanent employee	Temporary employee	Permanent worker	Outsourced personnel (contract management)	Seconded employee	Volume-based contract personnel	Human resource cost share
Management	0.4	0.5	1.2	0	0	0	0	2.1
Legal affairs	0	2	0	0	0	0	0	2
Security affairs	0	0	0	0	0	2	0	2
Public relations	0	0.5	0	0.1	0.4	0	0	1
Human resources	0	0.5	0	0.5	0.3	0	0	1.25
Secretariat and office administration	0	1.5	4	0.5	0.2	0	1	7.2
General affairs	0	0	0	3	0	0	7	10
Accounting	0.3	0	4.7	0	2	0	0	7
Budget and finance	0.3	0.75	1.2	1	0.2	0	0	3.45
Procurement and supply affairs	0	0	0.1	0	1	0	0	1.1
Planning	0	1.1	0.6	0	0	0	0	1.7
Staff training	0	0.15	0.4	0	1.2	0	0	1.75
Statistics	0	0.5	2.4	0.8	0	0	0	3.7
Information technology (IT)	0	0.05	1	0	1	0	0	2.05
Transportation	0	0	0	0	0.2	0	29	29.2
Warehouse management	0	0	0	0	0	0	1	1
Quality management system (QMS)	0	0.1	0.5	0	0	0	0	0.6
Employee welfare	0	0	1	0	0.25	0	0	1.25
Contract administration	0	0.25	3	0	0.1	0	0	3.35

Support activities	Contract worker	Permanent employee	Temporary employee	Permanent worker	Outsourced personnel (contract management)	Seconded employee	Volume-based contract personnel	Human resource cost share
Revenue collection	0	1	1	0	1	0	1	4
Buildings and facilities management	0	0.25	0.4	1	1.5	0	0	3.2
Administrative building security	0	0	0	7	0	0	0	7

4.3. Allocation of identifiable costs to the relevant activities

At this stage, the share of each activity in the total amount of each cost account was determined. In cases where the activity cost could be identified through accounting records, cost centers, or contract values, they were allocated directly to the relevant activities. In other cases, the cost share of each activity was determined according to the extent or percentage of consumption of the related resource and then allocated accordingly. Since the Municipality applies the cash basis of accounting, and in this method certain costs are not paid during the current fiscal year and are carried forward to the following year as unfunded liabilities, for the purpose of calculating the cost of services, these costs were identified and incorporated into the service cost calculations.

4.4. Allocation of intra-organizational support activities to other activities

After allocating resource costs to the main and support activities, the support activities' costs were allocated to the remaining activities using appropriate activity drivers. In this study, the reciprocal allocation method (also referred to as the mathematical method) was employed for this purpose. Under this method, the reciprocal relationships among the support activities, as well as their relationships with the main activities, were first identified. Subsequently, the costs of the

support activities were allocated to the other activities based on the selected allocation drivers. To allocate the costs of support activities, an appropriate driver was selected for each support activity based on the nature of the services provided. For example, vehicle operating hours were used as the allocation driver for transportation services, labor hours for activities such as management, planning, and staff training, and the number of inventory items handled for warehouse operations. Accordingly, the extent to which the main and support activities utilized the services of each support unit was measured and recorded as an allocation matrix. Appendix Table C presents the allocation bases used for distributing the support activities' costs.

The calculations related to the reciprocal allocation of support activities and cost allocation were performed using the Almas software. Almas is a specialized software package developed for performance-based budgeting and activity-based costing (ABC), with the capability to model the reciprocal relationships among activities, allocate support costs, and calculate the cost of services. Using the allocation matrix and applying the reciprocal allocation method, the software first determines the final costs of the support activities by taking into account the reciprocal services exchanged among them. It then allocates these final costs to the main activities based on the relevant activity drivers. The results of this stage are presented in Table 4.

Table 4. Allocation of support activity costs to main activities

Main activities	Amount (irr)
Display of cultural and seasonal messages	65,116,509,2255
Management and supervision of urban service kiosks (ice, newspaper, postal, Razavi bread, etc.)	49,561,890,416
Management and supervision of the automobile market	99,611,807,299
Management and supervision of day, night, and Friday markets (mobile markets)	250,286,022,618

Main activities	Amount (irr)
Management and supervision of fruit and vegetable markets and general food markets	336,257,441,854
Management and supervision of the organization of nuisance workshops	72,549,191,232
Supervision and issuance of permits for the installation and operation of commercial signboards	186,950,093,248
Management and supervision of construction projects	78,668,078,895
Supervision and issuance of permits for the installation and operation of advertising billboards	80,740,414,348
Regulation of commercial use of sidewalks	3,659,509,009
Organization of daily wage workers and skilled workers	201,413,429,154
Supply of essential goods and food commodities	3,082,097,771
Research and development activities	2,388,280,615
Total	1,430,284,765,714

4.5. Determination of main activity driver values

Since providing certain services requires simultaneous execution of multiple activities, the sub-service level was defined in this study as an intermediate link between activities and the final cost objects to facilitate the logical accumulation of costs. Within this structure, the activities' costs, after their initial allocation, are accumulated at the sub-service level,

which serves as an intermediate cost center. This approach allows for allocating the accumulated costs of the sub-services to the final cost objects according to their operational characteristics by using appropriate performance indicators. Table 5 shows the allocation bases used to assign sub-service costs to the final cost objects according to the activity-based costing (ABC) model.

Table 5. Bases for allocating sub-service costs to final cost objects

Sub-service	Amount (IRR)	Cost allocation basis
Temporary markets	100,877,232,556	Activity share based on market area
Permanent markets	238,462,307,069	Activity share based on market area
Day markets, night markets, and other mobile markets	349,897,829,917	Activity share based on market area
Service kiosks	49,561,890,416	Weighted index of the number of booths and kiosks
Commercial signboards	80,740,414,348	Composite index of the number and area of signboards
Management and supervision of the organization of nuisance workshops	72,549,191,232	Direct allocation
Supervision and issuance of permits for the installation and operation of commercial signboards	186,950,093,248	Direct allocation
Organization of daily wage workers and skilled workers	201,413,429,154	Number of daily labor stands
Development of commercial and service complexes	7,866,807,653	Direct allocation
Maintenance and equipping of administrative facilities and essential equipment	3,933,403,850	Direct allocation
Development of general food markets	15,733,615,306	Direct allocation
Innovative and creative projects	3,933,403,827	Direct allocation
Maintenance and upgrading of information display facilities	15,733,615,306	Direct allocation
Maintenance and upgrading of general food markets	23,600,422,960	Direct allocation
Studies and design of executive projects (preparation of phases 0, 1, and 2, and complementary studies)	7,866,807,653	Direct allocation
Total		1,359,120,464,495

The difference between the total cost of the main activities and the total cost of the sub-services is attributable to the fact that some of the main activities are administrative, governance-related, or indirect support activities and, therefore, were not fully assigned to measurable sub-services during the allocation process. In multi-level ABC models, this is a normal outcome and reflects the existence of general activities that cannot be directly assigned within the organization's cost structure. To allocate the costs of the sub-services to the final cost objects, and according to the allocation bases presented in Table 8, the final cost objects associated with each sub-service were identified. Accordingly, 20 cost objects were defined for temporary markets, 27 for permanent markets, 25 for day markets and other similar markets, two for service kiosks, and 11 cost objects for the sub-service of organizing daily wage workers and skilled workers. The final results on the cost objects corresponding to these sub-services are presented in Appendix Table 9. In this study, certain sub-services, such as public food market provision, innovative and creative projects, and similar sub-services, also function as final cost objects because of the direct nature of these activities and the absence of any meaningful lower level of classification. Although these items are presented as sub-services in the output generated by the Almas software, they are regarded as final cost objects within

the costing model because no intermediate level exists for further aggregation or disaggregation. Accordingly, in these cases, the sub-service and the final cost object are considered identical, and no hierarchical distinction exists between them. Therefore, these items are classified as independent cost objects equivalent to sub-services, in which the cost allocation process is performed directly without passing through an intermediate sub-service level. This feature demonstrates the flexibility of the proposed costing model, which simultaneously supports two cost allocation paths: An indirect path (through sub-services) and a direct path (without an intermediate level). As a result, the model provides comprehensive coverage of all organizational cost objects.

4.6. Comparison of activity-based costing with the traditional costing method

In this study, temporary markets were defined as a sub-service, and 20 individual markets were identified as the corresponding final cost objects. To compare the results of the ABC system with those obtained using the traditional costing method, the costs of Saremi 30 Market, the largest temporary market, and Piroozi Market, the smallest temporary market, are presented in Table 6.

Table 6. Comparison of service costs calculated using activity-based costing and the traditional costing method (temporary markets)

Cost object	Cost calculated using activity-based costing (IRR)	Cost calculated using the traditional costing method (IRR)
Saremi 30 Market	27,080,857,070	5,043,861,628
Piroozi Market	956,773,752	5,043,861,628

Similarly, for the permanent markets, 27 cost objects were identified. The costs of Hedayat Store, the largest

permanent market, and Zanbaq Store, the smallest permanent market, are presented in Table 7.

Table 7. Comparison of costs calculated using activity-based costing and the traditional costing method(permanent markets)

Cost object	Cost calculated using activity-based costing (IRR)	Cost calculated using the traditional costing method (IRR)
Hedayat Market	27,309,026,506	8,831,937,299
Zanbaq Market	1,657,646,671	8,831,937,299

In the traditional costing method, costs associated with the temporary market sub-service are allocated solely based on the number of markets, resulting in an equal share of the total cost assigned to each market. In contrast, under the ABC system, costs are allocated

to the final cost objects according to the actual consumption of activities using appropriate cost drivers, including the operating area of each market. The results presented in Tables 10 and 11 indicate that the traditional costing method allocates costs

uniformly across all markets and, therefore, fails to reflect differences in resource consumption and activity levels. Consequently, the costs of Piroozi Market and Zanbaq Store are overestimated under the traditional method, whereas the costs of Saremi 30 Market and Hedayat Store are underestimated. These findings demonstrate that the ABC system, by considering the actual consumption of activities, provides more accurate and realistic cost information and offers a more appropriate basis for managerial decision-making.

5. Conclusion and suggestions

The results of the study showed that the transition from the traditional costing system to the Activity-Based Costing (ABC) model is not merely a computational change; rather, it requires a fundamental revision of the way costs are identified, classified, and allocated within the organization under study. In traditional costing systems, support and supervisory costs are generally allocated among cost centers based on broad allocation bases using a uniform allocation approach. In contrast, the model developed in this study defines the sub-service level as an intermediate layer and a cost accumulation center, thereby establishing a systematic, transparent, and traceable relationship among consumed resources, organizational activities, and final services. Within this framework, the sub-service level serves as an activity cost accumulation center, providing a logical, structured mechanism for aggregating activity costs before allocating them to the final cost objects.

Furthermore, a comparison of two selected markets, namely the Saremi 30 Market, as the largest temporary market, and the Piroozi Market, as the smallest temporary market, revealed that under the traditional costing method, the uniform allocation of costs resulted in the underestimation of costs in larger markets and the overestimation of costs in smaller markets. In contrast, under the ABC system, costs were allocated based on the actual consumption of activities using appropriate cost drivers, resulting in a more accurate and realistic estimation of service costs.

These findings indicate that, compared with the traditional costing method, the ABC model provides more accurate, detailed, and useful information for managerial decision-making.

The main innovation of this research is the design and implementation of an Activity-Based Costing (ABC) model within a municipality-affiliated service organization and the development of a cost allocation chain from resources to activities, from activities to sub-services, and ultimately to the final cost objects. Unlike the vast previous studies, which have mainly focused on manufacturing organizations or commercial enterprises, this research provides an operational, localized framework for calculating the services' costs in urban management.

Considering the executive and strategic recommendations, it is advised that the organization's managers use the calculated service costs to review the service tariff structure and gradually move toward the implementation of an ABC system to ensure a fairer allocation of costs among service operators and users. Additionally, implementing a system for recording and monitoring operational data through managerial dashboards is a prerequisite for transitioning from static accounting systems to dynamic financial and managerial analysis. In addition, revising outsourcing contracts and replacing lump-sum contracts with activity-based contracts can improve cost efficiency in outsourced operations.

Finally, concerning future research, it is recommended that researchers employ more advanced models, such as time-driven activity-based costing (TDABC), to provide a more accurate analysis of unused capacity in administrative units. Furthermore, considering the supportive and social nature of urban organizations, integrating sustainability criteria and social costs into costing models, as well as applying multi-criteria decision-making techniques such as the analytic hierarchy process (AHP) to weight cost drivers under conditions of uncertainty, can contribute to improving the accuracy, comprehensiveness, and efficiency of costing models in urban management.

Appendix

Table A. Organizational positions in the Urban Jobs and Agricultural Products Organization of Mashhad Municipality

Organizational position title	Number of personnel	Organizational position title	Number of personnel	Organizational position title	Number of Personnel	Organizational Position Title	Number of Personnel
Revenue Accounting Specialist	1	Executive Staff (Security Guard)	7	Supply Centers Operations Specialist	1	Administrative and Welfare Officer	1
Market Revenue Accounting Specialist	2	Procurement Officer	1	Storekeeper	1	Planning Officer	1
Payroll Specialist	1	Project Evaluation Specialist	1	Day Labor Station Supervisor	12	Public Spaces and Sidewalk Operations Officer	1
Employee Welfare Specialist	1	Credit and Account Reconciliation Specialist	1	Inspection Officer	1	Procurement and Contracts Officer	1
Public Relations Specialist	2	Property Management Specialist	1	Asset Custodian	1	Legal Affairs Officer	1
Market Organization Specialist	1	Administrative Affairs Specialist	1	Security Officer	1	Revenue Affairs Officer	1
Formal Business Organization Specialist (Nuisance and Polluting Businesses)	1	Trade Affairs Specialist	1	Service Staff	1	Formal Business Organization Officer	1
Planning and Development Specialist	2	Legal Affairs Specialist	1	Head of the Environmental Advertising and Trade Affairs Department	1	Information Technology (IT) Officer	1
Economics Specialist	1	Contracts Specialist	1	Head of the Formal Business Organization Department (Nuisance and Polluting Businesses)	1	Financial Affairs Officer	1
Civil Engineering Specialist	1	Financial and Tax Affairs Specialist	1	Head of the Partnership and Investment Department	1	Commercial Affairs Officer	1
Information Technology (IT) Specialist	1	Statistics and Performance Evaluation Specialist	1	Head of the Planning and Development Division	1	Secretariat Officer	1
Home-Based Business Specialist	1	Records and Archives Specialist	1	Head of the Maintenance and Repairs Department	1	Public Relations Officer	1
Research and Studies Specialist	1	Planning Specialist	1	Head of the Financial Affairs Department	1	Mobile Markets Organization Officer	1
Pricing Specialist	1	Planning and Budget Specialist	1	Head of the Commercial Affairs Department	1	Article 20 Commission Affairs Officer	1
Sidewalk Utilization Supervision Specialist	2	Environmental Health Specialist	1	Head of the Supply Centers Operations Department	1	Partnership Affairs Officer	1
Permit Issuance Supervision Specialist	2	Crisis Prevention, Health and Safety Specialist	1	Head of the Informal Business Organization Department	1	Markets and Stores Supervision Officer	1
Regional Supervision Specialist	2	Follow-up Specialist	1	Executive Staff (Facilities)	1	Maintenance and Repairs Officer	1
Senior Supervision Specialist	1	Special Follow-up Specialist	1	Executive Staff (Services)	8	Executive Assistant to the Deputy for Operations	1
Senior Mobile Markets Supervision Specialist	1	Land Use Signage Specialist	1	Executive Staff (Administrative Specialist)	1	Deputy for Resource Development and Management	1
Senior Regional Supervision Specialist	1	Electrical Facilities Specialist	1	Executive Staff (Trade Advertising Specialist)	4	Deputy for Economic Affairs and Partnerships	1

Organizational position title	Number of personnel	Organizational position title	Number of personnel	Organizational position title	Number of Personnel	Organizational Position Title	Number of Personnel
Organizational Development and Transformation Specialist	1	Environmental Advertising Specialist	1	Executive Staff (Mobile Market Supervisor)	2	Deputy for Operations	1
Coordination and Follow-up Specialist	2	Registration Specialist	1	Executive Staff (Market Supervisor)	7	Deputy for Business and Trade Organization	1
Chief Executive Officer (CEO), Organization for Urban Jobs and Agricultural Products, Mashhad Municipality	1	Contract Accounting Specialist	1	Market Supervisor	15	Vehicle Operator	29
Total				175			

Table B. Share of each organizational position in main and support activities

Organizational position title	Employment type	Activity type	Activity share	Organizational position title	Employment type	Activity type	Activity share
Public Relations Specialist	Outsourced personnel	Display of cultural and seasonal messages	0.4	Executive Staff (Market Supervisor)	Permanent worker	Display of cultural and seasonal messages	0.5
Public Relations Specialist	Permanent worker	Display of cultural and seasonal messages	0.9	Deputy for Operations	Permanent employee	Management and supervision of urban service kiosks (ice, newspaper, postal, Razavi bread, etc.)	0.2
Public Relations Officer	Permanent employee	Display of cultural and seasonal messages	0.4	Head of the Supply Centers Operations Department	Temporary employee		0.5
Deputy for Economic Affairs and Partnerships	Permanent employee	Display of cultural and seasonal messages	0.1	Public Spaces and Sidewalk Operations Officer	Temporary employee		1
Coordination and Follow-up Specialist	Temporary employee	Display of cultural and seasonal messages	0.1	Sidewalk Utilization Supervision Specialist	Permanent employee		1
Head of the Partnership and Investment Department	Temporary employee	Display of cultural and seasonal messages	0.2	Sidewalk Utilization Supervision Specialist	Outsourced personnel (contract management)		1
Environmental Advertising Specialist	Temporary employee	Display of cultural and seasonal messages	0.5	Deputy for Business and Trade Organization	Temporary employee	Management and supervision of the automobile market	0.2
Trade Advertising Specialist	Permanent worker	Display of cultural and seasonal messages	0.2	Coordination and Follow-up Specialist	Volume-based contract personnel	Management and supervision of the automobile market	0.4
Trade Advertising Specialist	Permanent worker	Display of cultural and seasonal messages	0.1	Deputy for Business and Trade Organization	Temporary employee	Management and supervision of day, night, and Friday markets (mobile markets)	0.2
Deputy for Operations	Permanent employee	Display of cultural and seasonal messages	0.2	Coordination and Follow-up Specialist	Volume-based contract personnel	Management and supervision of day, night, and Friday markets (mobile markets)	0.4
Head of the Commercial Affairs Department	Permanent employee	Display of cultural and seasonal messages	0.5	Head of the Informal Business Organization Department	Contract worker	Management and supervision of day, night, and Friday markets (mobile markets)	1
Commercial Affairs Officer	Temporary employee	Display of cultural and seasonal messages	0.5	Permit Issuance Supervision Specialist	Temporary employee	Management and supervision of day, night, and Friday markets (mobile markets)	1
Pricing Specialist	Outsourced personnel	Display of cultural and seasonal messages	0.5	Home-Based Business Specialist	Temporary employee	Management and supervision of day, night, and Friday markets (mobile markets)	1

Organizational position title	Employment type	Activity type	Activity share	Organizational position title	Employment type	Activity type	Activity share
Market Supervisor	Permanent worker	Management and supervision of day, night, and Friday markets (mobile markets)	1	Market Supervisor	Volume-based contract personnel	Management and supervision of day, night, and Friday markets (mobile markets)	1
Senior Mobile Markets Supervision Specialist	Temporary employee		1	Market Supervisor	Volume-based contract personnel		1
Mobile Markets Organization Officer	Outsourced personnel (contract management)		1	Market Supervisor	Volume-based contract personnel		1
Market Organization Specialist	Outsourced personnel (contract management)		1	Market Supervisor	Volume-based contract personnel		1
Market Supervisor	Volume-based contract personnel		1	Market Supervisor	Volume-based contract personnel		1
Market Supervisor	Volume-based contract personnel		1	Market Supervisor	Volume-based contract personnel		1
Market Supervisor	Volume-based contract personnel		1	Deputy for Operations	Permanent employee		0.2
Market Supervisor	Volume-based contract personnel		1	Head of the Supply Centers Operations Department	Temporary employee		0.5
Market Supervisor	Volume-based contract personnel		1	Markets and Stores Supervision Officer	Temporary employee		1
Market Supervisor	Volume-based contract personnel		1	Senior Regional Supervision Specialist	Temporary employee		1
Market Supervisor	Volume-based contract personnel		1	Supply Centers Operations Specialist	Permanent worker		1
Market Supervisor	Volume-based contract personnel		1	Executive Staff (Market Supervisor)	Permanent worker		1
Market Supervisor	Volume-based contract personnel		1	Executive Staff (Market Supervisor)	Permanent worker		1
Executive Staff (Market Supervisor)	Permanent worker	Management and supervision of fruit and vegetable markets and general food markets	1	Partnership Affairs Officer	Permanent employee	Supervision and issuance of permits for the installation and operation of commercial signboards	0.8
Executive Staff (Market Supervisor)	Permanent worker		1	Maintenance and Repairs Officer	Outsourced personnel	Management and supervision of construction projects	0.5
Executive Staff (Market Supervisor)	Permanent worker		1	Civil Engineering Specialist	Outsourced personnel		0.6
Executive Staff (Market Supervisor)	Permanent worker		1	Electrical Facilities Specialist	Outsourced personnel		0.6
Deputy for Business and Trade Organization	Temporary employee	Management and supervision of the organization of nuisance workshops	0.1	Planning and Development Specialist	Outsourced personnel		0.6

Organizational position title	Employment type	Activity type	Activity share	Organizational position title	Employment type	Activity type	Activity share
Formal Business Organization Officer	Temporary employee	Management and supervision of the organization of nuisance workshops	1	Head of the Maintenance and Repairs Department	Permanent employee	Management and supervision of construction projects	0.25
Environmental Health Specialist	Temporary employee		1	Planning and Development Specialist	Temporary employee		0.6
Article 20 Commission Affairs Officer	Permanent employee		1	Head of the Formal Business Organization Department (Nuisance and Polluting Businesses)	Temporary employee		1
Deputy for Economic Affairs and Partnerships	Permanent employee	Supervision and issuance of permits for the installation and operation of commercial signboards	0.2	Trade Affairs Specialist	Temporary employee	Supervision and issuance of permits for the installation and operation of advertising billboards	1
Coordination and Follow-up Specialist	Temporary employee		0.2	Public Relations Officer	Permanent employee		0.1
Head of the Environmental Advertising and Trade Affairs Department	Temporary employee		0.6	Deputy for Economic Affairs and Partnerships	Permanent employee		0.2
Land Use Signage Specialist	Temporary employee		0.8	Coordination and Follow-up Specialist	Temporary employee		0.2
Trade Advertising Specialist	Permanent worker		0.8	Head of the Partnership and Investment Department	Temporary employee		0.4
Trade Advertising Specialist	Permanent worker		0.8	Project Evaluation Specialist	Temporary employee		0.8
Environmental Advertising Specialist	Temporary employee		0.3	Day Labor Station Supervisor	Seconded employee	Regulation of commercial use of sidewalks	1
Regional Supervision Specialist	Temporary employee	Supervision and issuance of permits for the installation and operation of advertising billboards	0.8	Day Labor Station Supervisor	Seconded employee		1
Trade Advertising Specialist	Permanent worker		0.6	Day Labor Station Supervisor	Seconded employee		1
Trade Advertising Specialist	Permanent worker		0.7	Day Labor Station Supervisor	Seconded employee		1
Deputy for Business and Trade Organization	Temporary employee	Regulation of commercial use of sidewalks	0.1	Day Labor Station Supervisor	Seconded employee		1
Coordination and Follow-up Specialist	Volume-based contract personnel		0.2	Day Labor Station Supervisor	Seconded employee		1
Formal Business Organization Specialist	Temporary employee		1	Crisis Prevention, Health and Safety Specialist	Temporary employee	Support for the activities of public institutions and civil society organizations	0.7

Organizational position title	Employment type	Activity type	Activity share	Organizational position title	Employment type	Activity type	Activity share
Senior Supervision Specialist	Outsourced personnel	Regulation of commercial use of sidewalks	1	Deputy for Business and Trade Organization	Temporary employee	Support for the activities of public institutions and civil society organizations	0.2
Permit Issuance Supervision Specialist	Outsourced personnel		1	Deputy for Operations	Permanent employee	Supply of essential goods and food commodities	0.2
Regional Supervision Specialist	Outsourced personnel		1	Head of the Commercial Affairs Department	Permanent employee		0.5
Day Labor Station Supervisor	Seconded employee		1	Commercial Affairs Officer	Temporary employee		0.5
Day Labor Station Supervisor	Seconded employee		1	Pricing Specialist	Outsourced personnel		0.5
Day Labor Station Supervisor	Seconded employee		1	(Market Supervisor)	Permanent worker		0.5
Day Labor Station Supervisor	Seconded employee		1	Economics Specialist	Temporary employee	Research and development activities	1
Day Labor Station Supervisor	Seconded employee	Management	1	Organizational Development and Transformation Specialist	Temporary employee		0.5
Day Labor Station Supervisor	Seconded employee		1	Chief Executive Officer (CEO), Organization for Urban Jobs and Agricultural Products, Mashhad Municipality	Outsourced personnel	Management	1
Deputy for Resource Development and Management	Contract worker		0.4	Records and Archives Specialist	Temporary employee	Secretariat and office administration	1
Deputy for Business and Trade Organization	Temporary employee		0.2	Secretariat Officer	Temporary employee		1
Deputy for Economic Affairs and Partnerships	Permanent employee		0.3	Registration Specialist	Temporary employee		1
Deputy for Operations	Permanent employee		0.2	Executive Assistant to the Deputy for Operations	Volume-based contract personnel		1
Legal Affairs Specialist	Permanent employee	Legal affairs	1	Executive Staff (Services)	Permanent worker	General affairs	1
Legal Affairs Officer	Permanent employee		1	Executive Staff (Services)	Volume-based contract personnel		1
Inspection Officer	Seconded employee	Security affairs	1	Executive Staff (Services)	Volume-based contract personnel		1
Security Officer	Seconded employee		1	Executive Staff (Services)	Volume-based contract personnel		1

Organizational position title	Employment type	Activity type	Activity share	Organizational position title	Employment type	Activity type	Activity share
Public Relations Specialist	Outsourced personnel	Public relations	0.4	Executive Staff (Services)	Volume-based contract personnel	General affairs	1
Public Relations Specialist	Permanent worker		0.1	Executive Staff (Services)	Volume-based contract personnel		1
Public Relations Officer	Permanent employee		0.5	Executive Staff (Services)	Volume-based contract personnel		1
Administrative and Welfare Officer	Outsourced personnel	Human resources	0.25	Executive Staff (Services)	Permanent worker		1
Administrative Affairs Specialist	Permanent employee		0.5	Executive Staff (Services)	Volume-based contract personnel		1
Administrative Specialist	Permanent worker		0.5	Market Supervisor	Permanent worker		1
Follow-up Specialist	Permanent employee	Secretariat and office administration	1	Deputy for Resource Development and Management	Contract worker	Accounting	0.3
Special Follow-up Specialist	Temporary employee		1	Head of the Financial Affairs Department	Temporary employee		0.7
Administrative and Welfare Officer	Outsourced personnel		0.2	Financial Affairs Officer	Temporary employee		1
Administrative Affairs Specialist	Permanent employee		0.5	Payroll Specialist	Outsourced personnel		1
Administrative Specialist	Permanent worker		0.5	Financial and Tax Affairs Specialist	Outsourced personnel		1
Contract Accounting Specialist	Temporary employee		1	Statistics and Performance Evaluation Specialist	Temporary employee	Planning	0.6
Asset Custodian	Temporary employee	Accounting	1	Crisis Prevention, Health and Safety Specialist	Temporary employee	Staff training	0.3
Credit and Account Reconciliation Specialist	Temporary employee		1	Public Relations Specialist	Outsourced personnel		0.2
Maintenance and Repairs Officer	Outsourced personnel		0.1	Head of the Planning and Development Division	Permanent employee		0.15
Head of the Maintenance and Repairs Department	Permanent employee	Budget and finance	0.25	Statistics and Performance Evaluation Specialist	Temporary employee	Statistics	0.1
Deputy for Resource Development and Management	Contract worker		0.3	Research and Studies Specialist	Outsourced personnel (contract management)		1
Head of the Planning and Development Division	Permanent employee		0.5	Head of the Planning and Development Division	Permanent employee		0.1

Organizational position title	Employment type	Activity type	Activity share	Organizational position title	Employment type	Activity type	Activity share
Planning Officer	Temporary employee	Budget and finance	0.9	Planning Officer	Temporary employee	Statistics	0.1
Planning and Budget Specialist	Permanent worker		1	Statistics and Performance Evaluation Specialist	Temporary employee		0.2
Statistics and Performance Evaluation Specialist	Temporary employee		0.1	Deputy for Economic Affairs and Partnerships	Permanent employee		0.2
Administrative and Welfare Officer	Outsourced personnel		0.1	Coordination and Follow-up Specialist	Temporary employee		0.5
Head of the Financial Affairs Department	Temporary employee		0.2	Head of the Partnership and Investment Department	Temporary employee		0.4
Head of the Financial Affairs Department	Temporary employee	Procurement and supply affairs	0.1	Project Evaluation Specialist	Temporary employee	Statistics	0.2
Procurement Officer	Outsourced personnel		1	Head of the Environmental Advertising and Trade Affairs Department	Temporary employee		0.4
Head of the Planning and Development Division	Permanent employee	Planning	0.1	Environmental Advertising Specialist	Temporary employee	Statistics	0.2
Planning Specialist	Permanent employee		1	Regional Supervision Specialist	Temporary employee		0.2
Land Use Signage Specialist	Temporary employee	Statistics	0.2	Vehicle Operator	Volume-based contract personnel	Transportation	1
Trade Advertising Specialist	Permanent worker		0.2	Vehicle Operator	Volume-based contract personnel		1
Trade Advertising Specialist	Permanent worker		0.2	Vehicle Operator	Volume-based contract personnel		1
Trade Advertising Specialist	Permanent worker		0.2	Vehicle Operator	Volume-based contract personnel		1
Trade Advertising Specialist	Permanent worker		0.2	Vehicle Operator	Volume-based contract personnel		1
Partnership Affairs Officer	Permanent employee		0.2	Vehicle Operator	Volume-based contract personnel		1
Head of the Planning and Development Division	Permanent employee	Information Technology (IT)	0.05	Vehicle Operator	Volume-based contract personnel	Transportation	1
Information Technology (IT) Officer	Temporary employee		1	Vehicle Operator	Volume-based contract personnel		1

Organizational position title	Employment type	Activity type	Activity share	Organizational position title	Employment type	Activity type	Activity share
Information Technology (IT) Specialist	Outsourced personnel (contract management)	Information Technology (IT)	1	Vehicle Operator	Volume-based contract personnel	Transportation	1
Administrative and Welfare Officer	Outsourced personnel (contract management)		0.2	Vehicle Operator	Volume-based contract personnel		1
Vehicle Operator	Volume-based contract personnel		1	Vehicle Operator	Volume-based contract personnel		1
Vehicle Operator	Volume-based contract personnel		1	Vehicle Operator	Volume-based contract personnel		1
Vehicle Operator	Volume-based contract personnel		1	Vehicle Operator	Volume-based contract personnel		1
Vehicle Operator	Volume-based contract personnel		1	Vehicle Operator	Volume-based contract personnel		1
Vehicle Operator	Volume-based contract personnel		1	Vehicle Operator	Volume-based contract personnel		1
Vehicle Operator	Volume-based contract personnel		1	Vehicle Operator	Volume-based contract personnel		1
Vehicle Operator	Volume-based contract personnel		1	Vehicle Operator	Volume-based contract personnel		1

Table C. Proposed cost allocation bases for allocating intra-organizational support activities to other activities

	Transportation	Human resources	Employee welfare	Revenue collection	Management	General affairs	Budget and finance	Planning	Staff training	Statistics	Warehouse management
Support activities	Number 119592	Number 87.6	Number 87.6	Number 812	Number 5250	Number 78.85	Number 8625	Number 4250	Number 4375	Number 9250	Number 11201
	Proposed Cost Allocation Basis: Number of hours	Proposed cost allocation basis: Number of employees	Proposed cost allocation basis: Number of employees	Proposed cost allocation basis: Number of documents	Proposed cost allocation basis: Person-hours	Proposed cost allocation basis: Number of employees	Proposed cost allocation basis: Person-hours	Proposed cost allocation basis: Person-hours	Proposed cost allocation basis: Person-hours	Proposed cost allocation basis: Person-hours	Proposed cost allocation basis: Number of items
Management	20331	2	2	12	0	2	212	102	105	228	110
Legal affairs	3450	2	2	25	121	2	202	98	100	217	40
Security affairs	3450	2	2	6	121	2	202	98	100	217	128
Public relations	1725	1	1	38	61	1	101	49	50	109	20
Human resources	2156	0	1	6	76	1	126	61	63	136	91
Secretariat and office administration	12418	7	7	13	436	7	727	351	362	782	120
General affairs	17248	10	10	164	605	0	1010	488	502	1086	327
Accounting	12936	7	7	24	424	7	707	341	352	760	366
Budget and finance	5951	3	3	28	209	3	0	168	173	375	162
Procurement and supply affairs	1897	1	1	12	67	1	111	54	55	119	5

Support activities	Transportation	Human resources	Employee welfare	Revenue collection	Management	General affairs	Budget and finance	Planning	Staff training	Statistics	Warehouse management
	Number 119592	Number 87.6	Number 87.6	Number 812	Number 5250	Number 78.85	Number 8625	Number 4250	Number 4375	Number 9250	Number 11201
	Proposed Cost Allocation Basis: Number of hours	Proposed cost allocation basis: Number of employees	Proposed cost allocation basis: Number of employees	Proposed cost allocation basis: Number of documents	Proposed cost allocation basis: Person-hours	Proposed cost allocation basis: Number of employees	Proposed cost allocation basis: Person-hours	Proposed cost allocation basis: Person-hours	Proposed cost allocation basis: Person-hours	Proposed cost allocation basis: Person-hours	Proposed cost allocation basis: Number of items
Planning	2932	2	2	18	103	2	172	0	85	185	0
Staff training	3018	2	2	41	106	2	177	85	0	190	0
Statistics	6382	4	4	13	224	4	374	180	186	0	0
Information technology (IT)	3536	2	2	34	124	2	207	100	103	223	0
Transportation	0	29	29	12	1767	29	2949	1424	1467	3172	0
Quality management system (QMS)	1035	1	1	23	36	1	61	29	30	65	0
Employee welfare	2156	1	0	156	76	1	126	61	63	136	9770
Contract administration	5778	3	3	132	203	3	338	163	168	364	18
Revenue collection	6037	4	4	0	242	4	404	195	201	435	0
Buildings and facilities management	5433	3	3	0	191	3	318	154	158	342	44
Warehouse management	1725	1	1	55	61	1	101	49	50	109	0

Table D. Cost of final cost objects

Permanent market		Temporary market	
Total		Total	
238,462,307,069		100,877,232,556	Total
15,227,872,805	Palestin Store	2,870,321,256	Shafa Market
4,607,695,830	Abuzar Store	6,683,549,978	Janbaz Market
1,657,646,671	Zanbaq Store	3,508,170,424	Majd Market
13,837,135,344	Elahiyeh Store	2,385,001,237	Seyedi Market
9,693,018,667	Piroozi Store	3,979,624,157	Daneshjoo Market
5,071,274,984	Morvarid Store	5,574,247,077	Rahe Toosheh Market
6,925,591,599	Mehrabad Store	27,080,857,070	Saremi 30 Market
11,069,708,275	Ostad Yousefi Store	3,508,170,424	Taleghani Market
9,369,918,045	North Tabarsi Store	2,038,344,081	Vakilabad 68 Market
3,231,006,222	Haft Tir Store	1,913,547,504	Sayyad Shirazi 14 Market
11,069,708,275	Misag Store	4,146,019,592	North Kosar Market
7,375,122,899	Mehregan Store	2,870,321,256	Fallahi Market
12,924,024,890	Mirza Kuchak Khan Store	1,594,622,920	Noghaviyeh Market
11,814,244,492	Tous Store	2,232,472,088	Haft Tir Market
4,607,695,830	Samen Store	1,275,698,336	Namjoo Market
6,546,299,564	Jahanara Store	956,773,752	Piroozi Market
12,924,024,890	Shariati Store	1,192,500,619	Saremi 19 Market
14,764,293,651	Panj Tan Store	7,959,248,314	Horr Ameli Market
6,827,256,627	Abdolmotalieb Store	11,148,494,155	Underpass Stalls
27,309,026,506	Hedayat Store	7,959,248,314	Special Seasonal Markets
5,169,609,956	Niyayesh Store		
7,375,122,899	Sarafrazan Store		
9,229,439,514	Hejab Store		
2,303,847,915	Eidgah Store		
10,142,549,968	Qaem Store		
3,694,585,376	Gomnam Store		
3,694,585,376	Sadaf Store		

Organization of daily wage workers and skilled workers		Commercial signboards	
Total	Total	80,740,414,348	Total
201,413,429,154			
15,985,192,790	Delavaran Day Labor Center (Headquarters)	17,702,443,788	Advertising display
27,174,827,743	Ferdowsi Day Labor Center	1,295,300,765	Display screen
23,977,789,185	Seyed Razi Day Labor Center	8,851,221,894	Vehicular bridge
31,970,385,580	Imam Hossein Day Labor Center	52,891,447,902	Pedestrian bridge
15,985,192,790	Seyedi Day Labor Center		
11,189,634,953	Khadem al-Shariah Day Labor Center		
15,985,192,790	Tous Day Labor Center		
13,587,413,871	Shahid Avini Day Labor Center		
13,587,413,871	Raja Day Labor Center		
15,985,192,790	Hedayat Day Labor Center		
15,985,192,790	Daneshjoo Day Labor Center		

Service kiosks		Day markets and similar markets	
49,561,890,416	Total	349,897,829,917	Total
11,750,186,560	Booth	2,742,450,265	Saturday Market – Basij Park
37,811,703,856	Kiosk	3,431,271,626	Sunday Market – Seyedi
		7,136,360,440	Monday Market – Resalat
		3,568,180,220	Tuesday Market – Panj Tan
		5,215,361,736	Wednesday Market – Andisheh
		6,862,543,253	Thursday Market – Delavaran
		5,489,178,923	Friday Market – Madar
		273,817,187	Day Market – Near the Shrine
		136,908,594	Shrine Ring Sellers Market
		27,441,616,223	Sunday Market – International Exhibition Square
		5,489,178,923	Monday Market – Mehregan
		2,057,907,297	Tuesday Market – Tous 63
		27,441,616,223	Wednesday Market – International Exhibition Square
		1,373,364,329	Wednesday Market – Tous 81
		4,115,814,594	Wednesday Market – Torogh
		3,431,271,626	Thursday Market – Jahed Shahr
		3,431,271,626	Evening Market – Hedayat
		273,817,187	Evening Market – Hejab 96
		684,542,968	Evening Market – Tolab
		1,095,268,749	Night Market – Tabarsi
		3,431,271,626	Night Market – 17 Shahrivar
		3,431,271,626	Friday Market – Shahnameh
		89,191,670,316	Shahid Shoushtari Market
		140,778,510,028	Friday Car Market
		1,373,364,329	Friday Book Market

Authors' Contributions

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Conflict of Interest

The authors declare no conflict of interest.

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