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# Identification and Assessment of Factors Affecting the Implementation of Beyond Activity-Based Costing System (BABCS) in Public Organizations of Kurdistan Region

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# ABSTRACT

**Objective:** The purpose of this study is to identify and assess the factors influencing the implementation of the Beyond Activity-Based Costing System (BABCS) in public organizations of the Kurdistan region.

**Methodology:** This research is applied in aim and mixed (qualitative-quantitative) in nature, utilizing interviews and researcher-made questionnaires. The statistical population includes managers, experts, and scholars in the field of the study.

Findings: According to the perspectives of the statistical population, for the implementation of the BABCS system in the public organizations of the Kurdistan region, seven categories of factors are influential, including organizational-behavioral, technical, economic, design and execution, legal, external, and policy factors. The assessment of these factors in the current situation revealed that only the "legal factors" are relatively adequate, thus indicating that the conditions for implementing BABCS in public organizations of the Kurdistan region are not optimal. Additionally, regarding the potential for implementing BABCS in these organizations, all dimensions showed a positive status, with organizational-behavioral factors having a higher potential to aid the implementation of BABCS. Overall, the potential for employing BABCS in the public organizations of the Kurdistan region is currently in a relatively good state (scored 3.13 out of 5), and by overcoming barriers, this potential could be utilized. Conclusion: The BABCS method, which is critically needed in the public organizations of the Kurdistan region, can be implemented; as Kurdistan, with its recent advancements in various fields and the trend towards the development of public and semi-public organizations, urgently requires efficient and modern methods in the financial, managerial, and organizational arenas to achieve fruitful

**Keywords:** Activity-Based Costing, BABCS, Public Organization, Kurdistan Region.



## 1 Introduction

oday, management accounting techniques require an appropriate costing system to provide management with necessary information, such as profitability and optimal product mix, and areas to focus on for cost reduction (Mirzaei Nasirabad et al., 2021). Due to significant changes in technology and the introduction of new methods and perspectives, financial units and organizations have realized the need to improve their methods and processes to provide superior services to customers (Mirzaei Nasirabad et al., 2021) and, to survive in the market, reduce costs in favor of the customer while also improving quality. Despite the growth in technology somewhat facilitating this, these organizations must reconsider their accounting and management methods (Sadeghi Askari, 2019, p. 35); as reliance on traditional methods and techniques can no longer meet their contemporary needs. This urgent need, on one hand, and the growth and development of new perspectives in management accounting on the other, have led to a transformation in the presentation of modern cost calculation methods. Among these, Activity-Based Costing (ABC) is particularly popular among organizations (Afsoon Aeenparast et al., 2015; Al-Halabi & Shaqqour, 2018; Balouch lashari, 2019; Bobade et al., 2019; Borges et al., 2024; Durana, 2019; Mahal & Hossain, 2015; Mirzaei Nasirabad et al., 2021; Rankin, 2020; Sharafoddin, 2016).

Given the deficiencies of traditional costing systems, such as their inability to provide accurate full-cost information especially in service-diverse organizations, use of a common and uniform basis for cost allocation (Afsoon Aeenparast et al., 2015; Messaoud & Mourad, 2021; Talebnia et al., 2017), the lack of precise information on full costs (Baldvinsdottir et al., 2010), and their failure to demonstrate performance improvements in operational processes, there is a perceived need for a modern costing system in organizations (Bobade et al., 2019; Messaoud & Mourad, 2021). Activity-Based Costing (ABC) serves as a tool to help organizations' management accurately portray the full cost of various goods and services and provides a framework that improves management decision-making and organizational performance evaluation (Altawati et al., 2018). By employing management accounting based on activity, managers of manufacturing organizations will be able to better distinguish between profitable and less profitable or even loss-making activities (Mirzaei Nasirabad et al., 2021).

Activity-Based Costing is a method for the precise allocation of both direct and indirect resources of an organization, based on their consumption in activities performed. Essentially, it is a costing method that provides managers with useful information about the share of each customer and, overall, the profitability of the company (Mahal & Hossain, 2015). It also aids managers in identifying ways to enhance performance and implement profitable strategies (Balouch lashari, 2019). This method is an integrated set of techniques and systems designed for managing components and requires the creation of appropriate technical, behavioral, and cultural conditions for successful implementation (Chen & Wang, 2007).

Accurately determining the costs of a product or service plays a crucial role in the success of economic enterprises, and by using costing methods, steps can be taken towards achieving better competitive advantages (Mirzaei Nasirabad et al., 2021; Sharafoddin, 2016). With the globalization of markets that we are currently witnessing and the issue of joining the global trade market, we are inevitably stepping into a competitive environment, and for survival in such an environment, the implementation of target costing is imperative (Sharafoddin, 2016). Target costing in the Kurdistan region faces numerous challenges, but the benefits and future of the business world compel us to use this very beneficial method.

Despite the outstanding and positive features that ABC has, the question remains why most organizations do not favor the initial implementation and then the continuation of Activity-Based Costing. The costliness of implementation, computational complexity, lack of senior management support, lack of internal organizational support, size, lack of consultancy, significant overhead costs (Rankin, 2020), and product diversity are associated with the reluctance to use ABC (Al-Halabi & Shaqqour, 2018); while it provides a powerful tool for managers. Given that target costing enables organizations to simultaneously find dimensions of quality, cost, and time, controls costs before they occur, values customers, coordinates cross-functional operations, and clarifies information (Mahal & Hossain, 2015; Mirzaei Nasirabad et al., 2021), the necessity of using this method in organizations is increasingly felt. This is particularly evident in a geography like the Kurdistan region, which is progressing and hosts many foreign institutions and organizations, underscoring the necessity of using this method in the Kurdistan region but identifying the factors influencing its use will be beneficial before implementation. The present research was conducted with the aim of



identifying and assessing the factors affecting the implementation of the Beyond Activity-Based Costing system in public organizations of the Kurdistan region.

#### 2 Methods and Materials

The present research is applied in objective and mixed (qualitative-quantitative) in nature. The qualitative part involves examining the experiences and perspectives of managers and experts qualitatively, while the quantitative section follows a descriptive survey method to validate the findings from the qualitative phase. The sample population consists of managers, experts, and scholars, with 10 individuals selected purposefully as the sample. The determination of saturation was achieved after conducting this number of interviews. Factors such as experience, availability, and level of cooperation were considered in selecting the sample. For the quantitative part of the research, 30 individuals were randomly selected.

The qualitative part of the research was conducted through semi-structured interviews, and the design of the questions took into account the theoretical literature and expert opinions and research conducted in this field. In the quantitative section, based on the data collected from the qualitative analyses, a quantitative study using a researchermade questionnaire was performed to confirm the findings obtained from the qualitative phase.

For qualitative evaluation, Guba and Lincoln's (1985) criteria were used, which include credibility, transferability, dependability, and confirmability. These criteria, equivalent to internal validity, external validity, reliability, and objectivity in quantitative research, were as follows:

Credibility: The full text of all interviews along with coding and initial categories was sent to the respected guide professor, and the full text of 2 interviews along with coding was sent.

Transferability: Efforts were made to enhance transferability by presenting rich and accurate findings and using credible references to increase dependability.

Confirmability: The research process was made available to several colleagues to verify the accuracy of the research procedure.

Dependability: Prolongation of data collection was avoided, and all participants were asked about the same topic.

Additionally, to measure reliability, the Holsti coefficient was used, and two interviews were coded along with a researcher, with the intra-subject agreement percentage serving as the reliability index. According to the formula, the overall agreement percentage between evaluators for the two interviews was 88%, which is higher than 0.7, indicating relatively good reliability.

For the validity assessment of the researcher-made questionnaire, face validity was used, and the questionnaire was given to 15 experts whose feedback was incorporated into the questionnaire. For reliability testing, Cronbach's alpha method was used, and a reliability of 0.84 was obtained, indicating acceptable reliability.

In the qualitative part, theoretical coding was used, and qualitative data were analyzed using open, axial, and selective coding to ultimately identify key factors. Initially, attributes mentioned in the interviews were extracted and coded using open coding. In the second phase, all these attributes were categorized, and in the final stage, the categories obtained were summarized into several main categories using selective coding. For data analysis in the qualitative part, Clarke and Braun's thematic analysis method was used. In the quantitative section, descriptive analysis methods and t-tests using SPSS software were utilized.

## 3 Findings and Results

The discussion on Beyond Activity-Based Costing System (BABCS) has recently started and is, in fact, a nascent industry in the field of financial management. Nevertheless, it is essential for centers, institutions, and organizations, especially governmental ones, to take steps in designing a BABCS system suitable to the economic structure of the country and based on international standards, due to the increasing importance of financial management and competition in this field. Therefore, data analysis covers opportunities, challenges, and factors with an emphasis on public organizations in the Kurdistan Region.

The data analysis process was conducted in stages of open, axial, and selective coding along with coding tables. Initially, data were read line-by-line, and open codes were extracted. Codes that shared conceptual similarities were categorized under a single category, thus forming multiple categories. The result of this stage is the summarization of a vast amount of information obtained from interviews into concepts and categories that are similar in these questions. After comparing the extracted concepts, related concepts were categorized into a general category and general titles for categories were considered based on existing titles in related theories or concepts derived from research (the



process of elimination and standardization). Now, the process of merging concepts is under review (Table 1).

**Table 1**Creation of Categories (Merging of Concepts)

Row	Category	Concepts
1	Staff Training	Timely and sufficient staff training
	· ·	Continuous improvement in staff training and expertise
		Training participation
2	Suitable Resources	Sufficient organizational resources
		Sufficient resources in data collection
		Support from adequate resources
3	Collaboration and Teamwork	Interest in teamwork
		Collaborative methods in data collection
		Participation of non-financial sections in design and execution
4	Support from Senior Management	Support and backing from senior managers
		Commitment from senior management
		Senior management support for staff training
		Support for the internal team
5	Commitment and Expertise of Staff	Commitment and time from staff
Ü	Communication and Emperation of States	Ensuring staff correctly understand the costing method
		Education and interest in teamwork
		Need for change and personal commitment
6	Staff Confidence	Sufficient staff trust in information
U	Staff Confidence	Sufficient staff trust towards middle and senior managers
7	Decision-Making Process	Decisions related to cost reduction and process improvement
,	Decision-Waking 1 Toccss	Decisions regarding pricing and material mix
		Decision-making on output from cost reduction processes
8	Competence and Commitment of Designers	Competence of the design team
0	Competence and Commitment of Designers	Boldness of the design team
		Full-time work by the design team
9	Culture and Behavior in the Organization	Organizational culture and continuous improvement
9	Culture and Benavior in the Organization	Need for organizational changes and personal commitment
10	Darrond Cristoms	Individual commitments within the organization  Motivational incentives
10	Reward Systems	
		Group rewards
		Reward system structure Performance of the reward system
1.1	Manifestina Contant	·
11	Monitoring System	Presence of a monitoring system over operations
		Continuous assessment of operational executions
10	Consider and Innovation in Management	Evaluation of design outputs
12	Capacity and Innovation in Management	Existing managerial capacity
		Existing managerial knowledge in the organization
		Managerial commitment in the organization
10	M 1 (C) 1C (C)	Innovative thinking within the managerial body
13	Market Changes and Competition	Intensity of market competition
1.4	Ctt	Diversity of products and speed of change in the industry
14	Structure and Size of Organization	Organization size
		Organizational structure
1.5		Culture and organizational structure
15	Organizational Information System	Suitable information system
		Quality of the information system
	T	Quantity of the information system
16	External Organizational Experiences	Consultants external to the organization
		Utilization of experiences from similar external organizations
17	Correlation Between Drivers and Costs	Strong correlation between drivers and costs
		Relationship between innovations and costs
18	Legitimacy and Legal Execution	Feasibility of this method in terms of legal legitimacy
		Impact of this method in line with Principle 44



		No interference with legal procedures in the organization				
19	Appropriate Software Methods	Selection of suitable software				
		Use of simulation techniques				
		Determining appropriate communication pathways and networks				
20	Planning Design Method - Time	Planning and managing activities				
		Determining the execution process of the method				
		Planning and designing products				
		Reasonable timing for design and execution				
21	Identification of Costly Activities and Methods	Identification of cost centers and activities				
		Number of cost drivers and cost centers				
		Awareness of costing method				
		Identification of cost drivers				
22	Accurate and Complete Costing Method Reports	Considering all costs of the value chain				
		Completeness and relevance of costing method reports				
		Determining the execution processes of activity-based costing				
23	Capacity and Capability of Management	Quality of management and control and management capacity				
		Sufficient trust in managers' knowledge outcomes				
		Adequate information available to managers				
		Selection of organization managers				
24	Strategic Operational Program	Planning and designing products				
		Use of strategic program				
		Actionable programs				

The relationship between concepts in axial coding was clarified, with concepts falling under one category in common axes. Subsequently, we move to selective coding, which aims to create relationships between categories developed (in axial coding). The foundation of relating in axial coding relies on expanding one of the categories.

 Table 2

 Aggregation of Identified Categories

Row	Category (Selective Coding)	Category (Axial Coding)
1	Organizational and Behavioral Factors	Staff training; Appropriate resources; Collaboration and teamwork; Commitment and expertise of staff; Structure and size of the organization; Reward system; Organizational culture and behavior; Trust of staff; Support and backing from senior management; Capacity and capability of organizational management; Innovation in management; Organizational information system
2	Technical Factors	Selection of suitable software methods; Accurate and complete reports of costing methods; Correlation between cost drivers and costs
3	<b>Economic Factors</b>	Decision-making process; Identification of costly activities and methods
4	Design and Execution Factors	Competence and commitment of designers; Planning of method - design time; Strategic operational planning
5	Legal Factors	Legitimacy and legal execution
6	External Factors	External organizational experiences; Market changes and competition
7	Policy Factors	Monitoring system; Strategic operational planning

Table 2 is essentially the result of data analysis collected from interviews. Thus, the final factors influencing the realm of activity-based costing have been identified and extracted; all factors are classified into 7 general categories, each having its impact on the field of activity-based costing. In the previous phase, the final factors influencing the realm of activity-based costing were extracted. Accordingly, a researcher-made questionnaire based on the results of the interview analysis was prepared to determine how BABCS can be applied in public organizations of the Kurdistan region and to what extent it aligns with the condition of these

organizations. The results of the T-test application indicate the following realities:

All dimensions used to assess the current status of BABCS factors in public organizations of the Kurdistan region have shown significant levels. Considering the range of each dimension (Likert scale), the "Legal Factors" dimension had the highest mean rank, indicating a relatively suitable level of this dimension, while all other dimensions are seen to fall below the average in the negative range. Additionally, the T-value obtained for all dimensions, except for "Legal Factors," was below the critical value of 1.96, with negative upper and lower bounds and an overall mean



of 2.85, indicating that the conditions for BABCS factors in public organizations of the Kurdistan region are currently not in an optimal state.

 Table 3

 T-test Results in Relation to the Evaluation of the Current Status of BABCS Factors in Public Organizations of the Kurdistan Region

Criterion	Mean	Standard Deviation	Mean Error	t	Significance Level	Upper	Lower
Organizational and Behavioral Factors	2.87	-0.77723	0.03079	-16.775	0.001	-0.4993	-0.4495
Technical Factors	2.69	-0.64464	0.03666	-10.261	0.000	-0.3417	-0.4963
Economic Factors	2.77	-0.52731	0.03839	-9.807	0.000	-0.3818	-0.4743
Design and Execution Factors	2.95	-0.69107	0.03744	-2.447	0.000	-0.0391	-0.1868
Legal Factors	3.15	0.69047	0.03731	80.326	0.000	0.3021	0.4883
External Factors	2.85	-0.74421	0.04262	-11.682	0.001	-0.4991	-0.4721
Policy Factors	2.67	-0.5196	0.03183	-9.779	0.000	-0.3725	-0.3901
Overall Mean	2.85						

After evaluating the current state of BABCS factors in public organizations of the Kurdistan region in Table 3, this section assesses the potential for implementing BABCS in public organizations of the Kurdistan region to determine, from the perspective of experts and managers, how much

this approach can be implemented and established in the current situation of the Kurdistan region in its public organizations. The results of the application of the T-test indicate the following realities:

 Table 4

 T-test Results in Relation to Assessing the Potential for Implementing BABCS in Public Organizations of the Kurdistan Region

Criterion	Mean	Standard Deviation	Mean Error	t	Significance Level	Upper	Lower
Organizational and Behavioral Factors	3.24	0.80123	0.03709	13.554	0.001	0.4793	0.4338
Technical Factors	3.08	0.62164	0.03906	8.267	0.001	0.3872	0.4843
Economic Factors	3.11	0.50531	0.04389	9.181	0.000	0.3902	0.4543
Design and Execution Factors	3.19	0.66757	0.04114	4.473	0.000	0.0872	0.2168
Legal Factors	3.21	0.68557	0.03521	9.817	0.000	0.3551	0.4583
External Factors	3.01	0.70221	0.04412	11.164	0.001	0.4671	0.4031
Policy Factors	3.09	0.4896	0.03083	9.894	0.000	0.3935	0.3891

All dimensions used to measure the potential to implement BABCS in public organizations of the Kurdistan region have shown significant levels. Considering the range of each dimension, the "Organizational and Behavioral Factors" dimension had the highest mean rank, indicating that this factor has a higher capacity and impact to help implement BABCS in public organizations of the Kurdistan region compared to other factors. In other cases, it is observed that the other dimensions are in the positive range and above the average. Additionally, the T-value obtained for all dimensions was above the critical value, and the upper and lower bounds indicate that the potential for implementing BABCS in public organizations of the Kurdistan region is currently in a relatively suitable condition with an average rank of 3.13, suggesting that barriers can be overcome to utilize this potential.

# 4 Discussion and Conclusion

Activity-Based Costing (ABC) assists managers in identifying ways to enhance performance and implement effective and profitable strategies. It is evident that accurately determining the costs of a product or service plays a crucial role in the success of economic enterprises, which can leverage costing methods to better achieve competitive advantages. Given the globalization of markets we are currently experiencing and the issue of joining the global trade market, we are inevitably stepping into a competitive space and are compelled to implement target costing. Target costing in the Kurdistan region faces numerous challenges, but the benefits and the future of the business world force us to use this highly beneficial method. However, what is crucial is identifying which factors influence the



implementation of BABCS in an organizational system, to what extent organizations are capable of adopting such a system, and why most organizations do not favor the initial implementation and then the continuation of Activity-Based Costing.

Accordingly, this research addressed these issues in the Kurdistan region. The findings indicate that for the implementation of the BABCS system in the Kurdistan region, seven categories of influential factors are identified: organizational and behavioral, technical, economic, design and execution, legal, external, and policy factors. Organizational and behavioral factors include various issues such as staff training, participation, commitment, organizational culture, necessary support especially from managers, information, management capacity, and more. Technical factors involve issues like software methods and reports; economic factors include decision-making processes and identifying costly activities; and design and execution factors relate to the designers and implementers of the BABCS system. Additionally, legal factors concern the legitimacy of implementation, external factors include external experiences and market changes and competition, and finally, policy factors cover issues such as the monitoring of implementation and its continuity. An assessment of these factors in the current condition of organizations in the Kurdistan region showed that only the legal factors dimension has maintained a relatively suitable condition, while the other factors do not have an adequate status. Thus, the conditions for BABCS factors in public organizations of the Kurdistan region are not currently in an optimal state. Moreover, regarding the potential for implementing BABCS in public organizations of the Kurdistan region, all dimensions showed a positive and suitable status, among which, the organizational and behavioral dimension had the highest mean rank, indicating that this factor has a greater capacity and impact in assisting the implementation of BABCS in public organizations of the Kurdistan region. Overall, the results indicate that the potential for employing BABCS in public organizations of the Kurdistan region is currently in a relatively suitable condition with an average rank of 3.13, suggesting that overcoming barriers can enable the utilization of this potential.

According to the research results, which showed that organizational and behavioral factors can facilitate the implementation of Activity-Based Costing in public organizations of the Kurdistan region, managers and officials should pay special attention to factors such as senior

management support, participation of non-financial departments in the design and implementation process, training in financial and administrative automation, improving the quality level of the information system, clear and transparent definition of authority and responsibilities, employee motivation, teamwork, enhancing staff skills, and the willingness and readiness of managers and staff. On the other hand, technical factors can also facilitate the implementation of Activity-Based Costing in public organizations of the Kurdistan region. Managers and officials should pay special attention to factors such as the level of trust in the information system, management of cost centers and activities identification, recognizing the costs of the value chain, accuracy and precision of costing method reports, the level of information technology from hardware and software aspects, and determining the implementation process of the costing method. Additionally, economic factors can facilitate the implementation of Activity-Based Costing in public organizations of the Kurdistan region. Managers and officials should pay special attention to identifying activities that do not add value, the effects of the costing method implementation on decisions related to pricing services, the effects of its implementation on decisions related to cost reduction and process improvement, the effects of the costing method implementation on the activity planning process, and cost-benefit analysis in the implementation of the costing method. Finally, individual factors can facilitate the implementation of Activity-Based Costing in public organizations of the Kurdistan region. Managers and officials should pay special attention to the seriousness and boldness of designers and consultants in the implementation process, the type and extent of using simulation techniques in design, the timing of each stage of design and implementation, the quality and quantity of activities of the design team, the scientific rank and competence of design and consultancy groups, and the approach of the implementers and consultants of the costing method.

The results of this research showed that the BABCS method can be implemented in public organizations of the Kurdistan region, consistent with the findings of Mirzaei Nasirabad et al. (2021), who found that implementing a Beyond Activity-Based Costing system and connecting it with other electronic systems at a university could play a fundamental role in managing processes and increasing the efficiency of employees and faculty (Mirzaei Nasirabad et al., 2021).



Others showed that construction costs using the traditional system are higher than those using the ABC system, which will negatively affect the organization's performance, profitability, and competitive position. ABC had greater precision, as it led to efficiency, accuracy, and objectivity in the goals of activity-based costing and reduced costs, which is consistent with the results of this research (Messaoud & Mourad, 2021). Talebnia et al. (2017) showed that the BABCS method, as the newest and most precise method, can be very effective in the profitability of companies and that the implementation of the discussed factors seems to be controllable, which is consistent with the results of this research (Talebnia et al., 2017). Sharafoddinj (2016) suggested that identifying competitive pricing and consumer needs, entering global competition, reducing the cost of products, creating motivation and teamwork among employees, using value engineering, and activity-based costing for successful implementation of target costing are essential, which is consistent with the results of this research (Sharafoddin, 2016).

Finally, as a concluding remark, the author believes that today, especially in public organizations given the intensity and level of market competition, globalization, drastic and rapid changes in organizational, technical, and knowledge areas, reducing costs and transforming the cost process into a reasonable and acceptable trend alongside achieving positive and effective results should become a fundamental priority for organizational managers so that the organization can make structural changes and reforms within its body and align itself with the conditions of the day and its needs to remain standing and effective in today's turbulent conditions. This is also strongly felt in public organizations in the Kurdistan region, as Kurdistan, with several years of advancements in various fields and the growing trend of private and public organizations, urgently needs efficient and modern methods in financial, managerial, and organizational areas to achieve fruitful results.

# **Authors' Contributions**

All authors have contributed significantly to the research process and the development of the manuscript.

# Declaration

In order to correct and improve the academic writing of our paper, we have used the language model ChatGPT.

# **Transparency Statement**

Data are available for research purposes upon reasonable request to the corresponding author.

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#### **Declaration of Interest**

The authors report no conflict of interest.

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## **Ethical Considerations**

In this research, ethical standards including obtaining informed consent, ensuring privacy and confidentiality were observed.

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