Developing and Presenting a Shadow Leadership Model in the Ministry of Water Resources of Iraq

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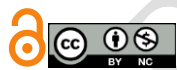* **Corresponding author email address**: dr.dalvi2016@gmail.com

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A B S T R A C T

Objective: This study aims to develop and present a model of shadow leadership in Iraq's Ministry of Water Resources by examining its causal conditions, intervening factors, strategies, and consequences.

Methods and Materials: The study employs a mixed-methods approach, integrating qualitative and quantitative research. In the qualitative phase, 18 experts, including university faculty members specializing in behavioral sciences and water resource professionals, were selected through purposive sampling for in-depth interviews. The qualitative data were analyzed using grounded theory, including open, axial, and selective coding. In the quantitative phase, 384 employees of the Ministry of Water Resources were surveyed using a researcher-designed questionnaire based on qualitative findings. The questionnaire's validity was assessed using the Content Validity Ratio (CVR), and its reliability was confirmed with a Cronbach's alpha of 0.858. Data analysis involved structural equation modeling (SEM) to test the proposed model.

Findings: The results indicate that shadow leadership in Iraq's Ministry of Water Resources is shaped by political, social, and institutional factors. Causal conditions include power challenges, shadow power requirements, social challenges, environmental instability, and governmental shortcomings. Contextual conditions such as networked power, ideological influence, and media control reinforce shadow leadership mechanisms. Intervening factors, including critics' management, stakeholder expectations, and political identity, shape strategic actions. Identified strategies encompass social development, professional development, media transformation, and fear-based cultural tactics. The consequences highlight both stabilizing effects, such as leadership efficiency and interaction development, and challenges, such as political control and reduced transparency.

Conclusion: Shadow leadership operates as an alternative mechanism of influence in bureaucratic institutions, particularly where formal leadership structures are constrained by political and governance challenges. While it can stabilize decision-making, it also poses risks to transparency and accountability. Strengthening formal governance mechanisms, fostering ethical leadership, and increasing participatory decision-making can mitigate the adverse effects of shadow leadership while leveraging its stabilizing role.

Keywords: *Shadow leadership, informal power structures, governance, political influence, Iraq, structural equation modeling, grounded theory.*

1   Introduction

Leadership is often studied in terms of its overt manifestations, emphasizing transformational qualities, ethical conduct, and its ability to influence organizations positively. However, a less-explored but equally significant dimension is shadow leadership, which operates beneath formal structures, shaping decisions and power dynamics in ways that are not always transparent. Shadow leadership emerges in response to political, institutional, and social complexities, often manifesting in environments where formal leadership structures face limitations or constraints. The study of shadow leadership is crucial for understanding how power is exercised beyond official hierarchies, particularly in politically sensitive or bureaucratic institutions such as Iraq's Ministry of Water Resources.

Shadow leadership has been conceptualized in multiple ways, with some perspectives highlighting its psychological dimensions, while others focus on its structural and organizational implications. From a psychological standpoint, Carl Jung's theory of the shadow provides a foundational understanding of how unconscious elements influence behavior and decision-making in leadership (Allen, 2020; Perry & Tower, 2023). The Jungian perspective suggests that shadow leadership emerges from repressed traits within individuals or organizations, which manifest in unacknowledged but powerful ways (Alho, 2020; Freysson, 2020). This conceptualization has been extended into organizational settings, where leaders navigate between their conscious leadership strategies and the underlying power dynamics that shape their actions (de Haan, 2016; Evans & Jovanović, 2016). The presence of shadow leadership in organizations can therefore be understood as an interplay between formal structures and informal influences that shape governance, policy-making, and strategic decision-making.

One of the critical contexts in which shadow leadership thrives is bureaucratic governance, where political and institutional factors create opportunities for informal power networks. Studies have demonstrated that shadow leadership is particularly evident in political institutions, where individuals outside formal leadership positions exert significant influence on policy directions and administrative decisions (Cunliffe, 2023; Steinecke, 2022). In the case of Iraq's Ministry of Water Resources, shadow leadership plays a pivotal role in shaping decision-making processes, given the complex interplay of governmental interests, institutional power struggles, and external pressures from political factions. The emergence of shadow leadership within such institutions can be attributed to the instability of political frameworks, the presence of competing interest groups, and the need for adaptive leadership strategies that operate beyond conventional organizational hierarchies (Noori et al., 2023; Rezaeian et al., 2022).

The study of shadow leadership also intersects with discussions on ethical leadership, as it raises questions about legitimacy, accountability, and governance integrity. Ethical leadership frameworks emphasize transparency, fairness, and moral responsibility, which contrast with the covert nature of shadow leadership (Ali Mohammadi et al., 2021; Bandeh Moradi & Zangoei Pour Motlaq, 2022). However, shadow leadership is not inherently unethical; rather, it represents an alternative mechanism through which influence is exerted, sometimes as a necessary response to institutional inefficiencies or political constraints. Research on ethical leadership in governmental organizations suggests that when formal leadership structures fail to provide clear direction or uphold ethical standards, informal leaders step in to fill the gap, often shaping policies and administrative decisions in ways that are not always visible to external observers (Gamil et al., 2022; Mahmoud, 2023). This dynamic is particularly relevant in contexts where bureaucratic structures are subject to external pressures, such as political interference or conflicting stakeholder interests.

The presence of shadow leadership in Iraq's Ministry of Water Resources is further reinforced by structural and contextual factors that define the governance landscape.

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Political instability, administrative complexities, and external influence from interest groups create an environment where formal leadership structures alone cannot dictate decision-making processes. Theoretical perspectives on power and leadership suggest that informal influence mechanisms become more pronounced in such environments, where strategic networking, covert negotiations, and adaptive leadership strategies play a crucial role in governance outcomes (Dehdast, 2022; Hallinger, 2018). The role of shadow leadership in this context is thus both a consequence of structural constraints and a strategic response to the challenges of governance in politically sensitive institutions.

Moreover, shadow leadership can be linked to the broader discourse on transformational leadership and its potential unintended consequences. While transformational leadership is often associated with positive organizational change, research has shown that it can also lead to emotional exhaustion among leaders, creating conditions in which informal power structures emerge to compensate for leadership gaps (Avolio et al., 2022; Zwingmann et al., 2016). In such cases, shadow leadership functions as an adaptive mechanism, ensuring continuity in decision-making and organizational stability when formal leaders are unable to meet expectations. However, this also introduces challenges related to accountability and transparency, as informal leadership mechanisms are not always subject to the same ethical and procedural standards as formal governance structures (Rangriz & Khamehchi, 2021).

The study of shadow leadership also extends to its implications for public administration and policy-making. Research has demonstrated that in governmental institutions, leadership effectiveness is often contingent on the ability to navigate informal power networks, manage competing interests, and balance multiple sources of influence (Chappell et al., 2019; Walker & Watkins, 2020). In Iraq's Ministry of Water Resources, shadow leadership is likely to play a crucial role in mediating between bureaucratic decision-making and external political pressures, shaping policy outcomes in ways that are not always formally acknowledged. This underscores the importance of understanding shadow leadership as an integral aspect of governance rather than merely an aberration or deviation from formal leadership models (Soltani-Fard et al., 2023).

This research aims to develop a theoretical model for shadow leadership in Iraq's Ministry of Water Resources, exploring its underlying mechanisms, contributing factors, and governance implications. By employing a mixed-methods approach, this study integrates qualitative insights from expert interviews with quantitative validation techniques, offering a comprehensive framework for analyzing shadow leadership in governmental institutions. The findings of this study will contribute to the broader literature on leadership studies, organizational behavior, and public administration, providing valuable insights into how informal leadership structures influence decision-making in politically complex environments.

In conclusion, shadow leadership is a critical but often overlooked aspect of leadership studies, particularly in bureaucratic and politically sensitive institutions. Its presence in Iraq's Ministry of Water Resources highlights the interplay between formal governance structures and informal influence mechanisms, shaping policy decisions and administrative outcomes. By examining the factors that contribute to the emergence of shadow leadership and its implications for governance, this study seeks to provide a nuanced understanding of how leadership operates beyond official hierarchies. Given the increasing complexity of governance in contemporary political environments, understanding shadow leadership is essential for developing more effective and transparent leadership models that account for both formal and informal dimensions of power.

2   Methods and Materials

The present study employs a mixed-methods approach, integrating qualitative and quantitative research to develop and validate a model of shadow leadership in the Ministry of Water Resources of Iraq. This study is categorized as applied-developmental research due to its objective of designing a practical leadership model tailored to the context of this ministry. Initially, a qualitative approach is adopted to identify and explain the dimensions of shadow leadership based on collected qualitative data. Subsequently, the proposed model undergoes quantitative testing and validation using statistical analysis. Ultimately, the finalized model aims to serve as an operational framework applicable to the Ministry of Water Resources.

The research participants include experts familiar with the subject of shadow leadership. In the qualitative phase, the study population consists of 18 experts, including university faculty members specializing in behavioral sciences and experts in water resources management. These participants are selected through purposive sampling based on their expertise to conduct in-depth interviews. The selection of experts ensures that the study benefits from

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informed perspectives in both leadership theories and water management policies. Given the exploratory nature of this phase, in-depth interviews serve as the primary method for data collection, allowing for a comprehensive understanding of participants' insights. The research setting enables face-to-face interactions, facilitating deeper discussions on the topic of shadow leadership.

Data collection relies on semi-structured in-depth interviews conducted with university experts in behavioral sciences and professionals in the water resources sector. This interview method is chosen due to its ability to capture real insights and detailed perspectives from the participants. Given the flexibility of semi-structured interviews, the researcher can adapt questions dynamically based on responses, ensuring a richer data set. The interview process takes place in a setting conducive to open discussion, allowing participants to elaborate on their perspectives regarding shadow leadership in the ministry. In the quantitative phase, additional data is gathered from administrative employees of the Ministry of Water Resources to test and refine the proposed model. A structured questionnaire is designed based on findings from the qualitative phase and expert opinions. This questionnaire, developed by the researcher, uses a five-point Likert scale to assess responses. The questionnaire's content validity is evaluated using the Content Validity Ratio (CVR) method, with input from eight domain experts. The calculated CVR score of 0.92 confirms the questionnaire's validity, exceeding the recommended threshold of 0.75. The questionnaire's reliability is assessed using Cronbach's alpha, which yields a value of 0.858, indicating high internal consistency.

Data analysis in the qualitative phase employs the grounded theory approach, involving open coding, axial coding, and selective coding to extract key themes and categories related to shadow leadership. Text mining techniques are also used to verify the accuracy and reliability of the coding process. The outcome of this analysis is a theoretical model that forms the foundation for the final shadow leadership framework. In the quantitative phase, statistical methods are used to validate the model. Exploratory factor analysis (EFA) is conducted to identify latent constructs and establish the validity and reliability of the model. Confirmatory factor analysis (CFA) is performed to verify the hypothesized variables and assess the model's fit. Goodness-of-fit indices, including AGFI, NFI, and CFI, are examined, with a threshold of 0.90 indicating an acceptable fit. Additionally, indices such as chi-square/df

and RMSEA are considered, where a chi-square/df value below 3 and an RMSEA below 0.08 indicate a well-fitting model. The LISREL software is used to perform these statistical analyses, ensuring the rigor of model evaluation.

3   Findings and Results

The findings of this study focus on developing a shadow leadership model within Iraq's Ministry of Water Resources by analyzing qualitative data collected from expert interviews. The study employs the paradigmatic model of Strauss and Corbin, identifying shadow leadership as the central phenomenon, which consists of two key dimensions: shadow power and leader characteristics. These dimensions emerge from an intricate interplay of causal, contextual, and intervening conditions, which shape the strategies and consequences of shadow leadership.

The causal conditions, which contribute to the emergence and expansion of shadow leadership, include power challenges, shadow power requirements, social challenges of power, environmental challenges, and governmental shortcomings. The analysis of power challenges highlights that political expediency and instability in political and legal frameworks contribute to the reinforcement of shadow leadership. Political leaders' interventions in decision-making, combined with frequent policy changes and the influence of populist movements, have created an environment where leadership structures remain fluid. Furthermore, pressures from political institutions have exacerbated inefficiencies within the managerial system, reinforcing shadow leadership as a response to these challenges. The requirements of shadow power emphasize the need for political power strategies, such as increasing transparency and utilizing legal power benefits, as well as social power mechanisms, such as independent decision-making and trust-based stakeholder participation. However, shadow leadership also arises from broader social challenges, including low social hope, economic stagnation fears, persistent social divisions, and information uncertainty. These factors contribute to a sense of ambiguity, making shadow leadership an adaptive response to governance weaknesses. Environmental challenges, including continuous external changes, rapid policy shifts, and a sense of powerlessness in influencing governmental decisions, further deepen the necessity of shadow leadership structures. Additionally, governmental shortcomings, such as ineffective privatization, lack of cooperation among

powerholders, and political violence, further validate the emergence of shadow leadership as an alternative governance mechanism within the ministry. The categorization of these causal conditions is presented in the table below:

Table 1

Axial Coding of Qualitative Data (Causal Conditions)

Axial Coding	Secondary Coding	Open Coding
Power Challenges	Political Expediency	Tendency to maintain the status quo
		Political leaders' expediency
		Political interventions
		Political and legal instability
	Political Conflict	Increasing rate of policy changes
		Rise of populist parties
		Lack of emotional commitment to organizational leaders
		Pressure from power institutions
		Managerial inefficiency
Shadow Power Requirements	Political Power	Governance vision development
		Increasing transparency
		Dependence on state affiliations
		Utilizing legal power benefits
		Adopting new strategies
	Social Power	Independent decision-making
		Strengthening stakeholder participation
		Challenging the status quo
		Need for social trust
		Strengthening trust-based interactions
		Exercising influence over power mechanisms
Social Challenges of Power	Social Ambiguity	Low social hope
		Fear of economic stagnation
		Personal attacks
		Fear of silence and retreat of opponents
		Persistent social divisions
		Information uncertainty
	Negative Social Capital	Lack of formal protest mechanisms
		Emotional framing of issues
		Popularization of social issues
		Public dissatisfaction with ministries
		Declining social capital
		Political party identification
Environmental Challenges	Environmental Variability	Continuous environmental changes
		Rapid shifts in external elements
		Sense of powerlessness in driving change
		High diversity in environmental changes
		Environmental stress and anxiety
	Policy Change	Conditions of instability and uncertainty
		Political adaptation strategies for environmental change
Governmental Shortcomings	Political Conflict	Inadequate government actions
		Deficiencies in public services
		Failure to acknowledge existing realities
		Institutional conflicts of interest
		Ineffective privatization
		Lack of cooperation among power holders
	Political Behavior	Conspiracy theories
		Tendency toward conformity
		Struggles for power
		Political violence
		Unstable decision-making

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Shadow power serves as the core phenomenon, shaped by power-related characteristics and leadership requirements. The covert nature of shadow leadership manifests through illegal political behaviors, covert mobilization and organization, competition over interests, and a lack of transparency in political party affairs. Leadership requirements within this framework emphasize the role of party competition, sectarianism in elections, and strategic political influence. These findings are detailed in the following table:

Table 2

Axial Coding of Qualitative Data (Core Phenomenon)

Axial Coding	Secondary Coding	Open Coding
Shadow Power	Power Characteristics	Covert mobilization and organization
		Illegal political behaviors
		Potential influence on decisions
		Competition over interests
		Destructive political behaviors
		Lack of transparency in party and factional information
		Distortion of social expectations
	Leadership Requirements	Party competition
		Intention to influence and control representatives' performance
		Sectarianism in elections
		Political information

The contextual conditions, which define the specific environment influencing shadow leadership strategies, include governmental convergence, networked power, media power, ideological social influence, and information flow manipulation. Governmental convergence contributes to opposition movements consolidating power through listening groups and shared ideological beliefs. Networked power plays a crucial role in forming activist and supporter networks, contributing to electoral polarization and reinforcing informational divisions. Media power enables shadow leadership to manipulate public sentiment through digital platforms, establishing new media channels for ideological dissemination. The following table presents the contextual conditions identified in the study:

Table 3

Axial Coding of Qualitative Data (Contextual Conditions)

Axial Coding	Secondary Coding	Open Coding
Governmental Convergence	Opposition Convergence	Support for dissenting voices
		Strengthening listening groups
	Internal Cohesion	Shared cultural beliefs
		Power of convergent perspectives
		Efforts toward unity in unstable environments
		Strengthening intra-group cohesion
Networked Power	Active Networking	Formation of activist and supporter networks
		Reproduction of polarization in elections
		Establishment of support networks
		Social inequalities and informational gaps
		Creation of informational division
Media Power	Dominance of Virtual Space	Manipulation of public sentiment through digital platforms
		Emergence of new media channels
		Strength of digital media tools and content

These findings demonstrate that shadow leadership in Iraq's Ministry of Water Resources is shaped by political, social, and environmental conditions, forming a complex governance mechanism.

These findings illustrate how contextual conditions significantly influence the emergence and consolidation of shadow leadership within Iraq's Ministry of Water Resources. The dynamics of political convergence, media influence, ideological persuasion, and networked power all

contribute to shaping the strategies employed within shadow leadership structures. By understanding these contextual factors, the study provides deeper insights into the mechanisms through which shadow leadership exerts influence over governance and decision-making processes in the ministry.

The intervening conditions refer to the structural factors that influence the phenomenon and impact the strategies of action and reaction. These conditions either facilitate or constrain the implementation of strategies within a specific context. In this study, intervening conditions such as critics'

management, stakeholder expectations, and party identity play a key role in shaping the mechanisms of shadow leadership in Iraq's Ministry of Water Resources.

The management of critics is a central theme in the study, highlighting the strategies used to control opposition and dissenting voices. Critical awareness among opposition groups is shaped by increasing public literacy and making reconciliation with critics appear unrealistic. Simultaneously, cognitive dissonance and the spiral of silence are engineered to marginalize dissenting voices. These findings are structured in the table below:

Table 4

Axial Coding of Qualitative Data (Intervening Conditions)

Axial Coding	Secondary Coding	Open Coding
Critics' Management	Critical Awareness	Self-interest of opposition groups
		Critical remarks
		Rising public literacy
		Making reconciliation with critics seem unimaginable
	Opposition Engineering	Creation of cognitive dissonance
		Establishing a spiral of silence for critics
		The presence of strong emotions among individuals
		Introduction of new opportunities and ideas by critics
Stakeholder Expectations	Stakeholder Power	Formation of new norms and expectations
		Establishment of stakeholder expectation mechanisms
		Pressure from strategic stakeholder groups
	Future Visioning	Sharing new ideas
		Political visualization of the future
Party Identity	Political Self-Centrism	Positive perception of in-group members
		Grouping of in-group and out-group members
		Hostility toward external groups
		Pretending or favoring in-group interests
		Rise of political sectarianism
	Political Commitment	Persistent party alignment
		Highlighting the dark side of political participation
		Attempts to polarize politics
		Support for specific cultural symbols
		Directing efforts toward party interests
		Lack of transparency in party information
		Strengthening emotional party loyalties
		Emphasis on group identity markers
		Political control
		Competition in the political field

These intervening conditions shape the pathways through which shadow leadership develops and operates. By controlling the narrative through critics' management, meeting stakeholder expectations strategically, and reinforcing party identity, shadow leadership influences decision-making and power structures within the ministry.

Strategies refer to purposeful actions and reactions aimed at controlling, managing, and responding to the studied phenomenon. These strategies emerge in response to both

contextual and intervening conditions and are influenced by facilitators and constraints. In the case of shadow leadership in Iraq's Ministry of Water Resources, the identified strategies include social development, professional development, media transformation, and fear-based cultural strategies.

Social development strategies focus on enhancing political motivation and fostering collective demand for accountability. These strategies encourage revolutionary

movements, strengthen social cohesion, and enhance the management of social capital. Political optimism is promoted through the expansion of councils and social institutions, drawing in marginalized groups, and increasing political participation within organizations. The following table illustrates these strategic conditions:

Table 5

Axial Coding of Qualitative Data (Strategic Conditions)

Axial Coding	Secondary Coding	Open Coding
Social Development	Political Motivation	Strengthening public demand for accountability
		Encouraging revolutionary movements
		Preserving social solidarity
		Managing social capital
	Political Optimism	Expanding councils and social institutions
		Creating a desirable future vision
		Attracting marginalized groups
		Strengthening the process of political organizational development
		Enhancing inter-institutional trust
Professional Development	Elitism	Rotation of political elites
		Effective and inspiring leadership
		Support for elite theorists
	Professional Conduct	Understanding the qualifications of human capital
		Improving administrative health
		Enhancing decision-making transparency
Media Transformation	Media Influence	Politicization of the media
		Sharing critical information
		Media immunization of society
		Democratization of emotions
	Political Media Literacy	Interactive polling
		Media literacy for parties and political organizations
		Engaging in the competitor's arena
		Taking positions on controversial issues
Fear-Based Cultural Strategy	Fear of Ambiguity	Psychological hostage-taking
		Fear and humiliation tactics
		Stressful work-life situations
		Management of social stressors
	Negative Emotion	Emotional bias
		Reinforcement of negative emotions
		Avoidance-based blame
		Conflict management in organizations

These strategies highlight how shadow leadership sustains itself through social mobilization, elite dominance, media influence, and fear-based tactics. By shaping the political and administrative landscape through these mechanisms, shadow leadership structures gain resilience and adaptability, reinforcing their control within the Ministry of Water Resources.

Consequences are the outcomes resulting from the applied strategies. They encompass both intended and unintended effects, manifesting as events or developments that may be positive or negative, explicit or implicit, and immediate or long-term. Some consequences that emerge at a given point in time may later transform into conditions that shape future actions and reactions. In the case of shadow leadership in Iraq's Ministry of Water Resources, the key consequences identified include interaction development, leadership efficiency, participation, controllability, and leadership performance improvement. The final table presents these consequences:

Table 6

Axial Coding of Qualitative Data (Consequences)

Axial Coding	Secondary Coding	Open Coding

Interaction Development	Stable Interaction	Increased level of interaction
		Strengthening trust-based engagement
	Common Interests	Acceptance of the necessity for collaboration
		Recognition of mutual benefits
Leadership Efficiency	Leader's Power	Ability to manage complexities
		Balancing structural power dynamics
	Effective Leadership	Political and ideological influence
		Increased efficiency of governance and leadership systems
Participation	Social Responsibility	Voluntary expression of ideas
		Strengthening a sense of responsibility
	Psychological Security	Reinforcement of security perceptions
		Enhancement of hope and optimism
Controllability	Political Control	Authority in decision-making
		Strict self-regulation
		Synergizing humility-based indicators
		Authoritarian leadership style
		Power distance increase

These findings highlight the multifaceted impact of shadow leadership within Iraq's Ministry of Water Resources. It fosters stronger political interactions, enhances leadership effectiveness, and encourages participation, yet also promotes authoritarian control mechanisms and power consolidation. The study's final model visually represents the relationships among these elements.

To test the research hypotheses, structural equation modeling (SEM) was employed. Structural equation modeling represents a specific causal structure among a set of latent variables. It consists of two main components: a structural model that defines the causal relationships between latent variables and a measurement model that describes the relationships between latent variables and their corresponding observed variables. Using structural equation modeling, the relationships between latent variables and the indicators measuring each latent construct can be examined. Unlike bivariate models, which analyze the relationship between a single independent variable and a single dependent variable at a time, multivariate analysis involves methods that simultaneously analyze multiple independent (K) and dependent (n) variables.

The factor loadings of the research model were all above 0.30, indicating an acceptable model. To assess the model's fit, various goodness-of-fit indices were examined, including the Bentler-Bonett normed fit index, relative fit index, incremental fit index, comparative fit index, and the root mean square error of approximation (RMSEA). The results obtained from the model evaluation are presented in the table below:

Table 7

Model Fit Indices for the Strategy Variables

Model Fit Index	Acceptable Range	Calculated Value
X²/df	1 - 3	1.56
RMSEA	< 0.10	0.043
NFI	> 0.90	0.97
CFI	> 0.90	0.95
GFI	> 0.90	0.94
IFI	> 0.90	0.93
RFI	> 0.90	0.96
SRMR	< 0.09	0.20
AGFI	> 0.80	0.96

These values confirm that the research model exhibits a satisfactory fit, indicating that the relationships between latent variables and their indicators are well-specified.

The next step involved examining the impact of the identified factors on each other. The results of the analysis are presented in the following table:

Table 8

*Impact Analysis of Identified Factors in the Grounded Theory Model*

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Relationship Examined	Factor Loading	t-Statistic	Significance Level	Conclusion
Causal Factors → Core Category	0.35	6.888	0.000	Confirmed
Contextual Factors → Strategies	0.59	7.123	0.000	Confirmed
Intervening Factors → Strategies	0.42	5.586	0.000	Confirmed
Core Category → Strategies	0.37	6.254	0.000	Confirmed
Strategies → Consequences	0.48	7.698	0.000	Confirmed

According to the table, all identified factors in the grounded theory model significantly influence each other. The factor loading for the relationship between causal factors and the core category is 0.35, with a t-statistic of 6.888, indicating a strong and statistically significant relationship. The effect of contextual factors on strategies is confirmed with a factor loading of 0.59 and a t-statistic of 7.123. The influence of intervening factors on strategies is also statistically significant, with a factor loading of 0.42 and a t-statistic of 5.586. The core category affects strategies with a factor loading of 0.37 and a t-statistic of 6.254. Finally, the impact of strategies on consequences is the strongest among all relationships, with a factor loading of 0.48 and a t-statistic of 7.698.

Figure 1

Final Model of the Study
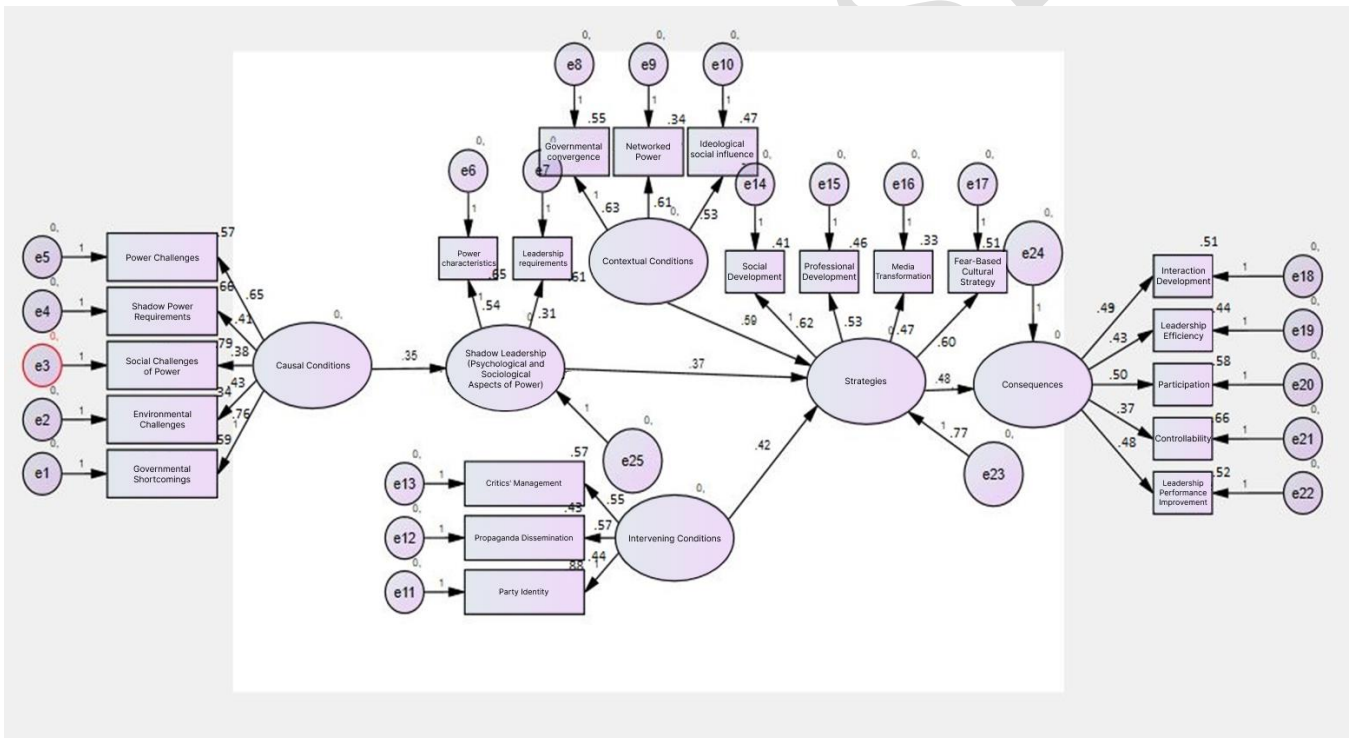
These results indicate that the research model is validated, demonstrating that the interactions among causal, contextual, and intervening factors effectively shape the strategies and outcomes of shadow leadership within Iraq's Ministry of Water Resources. This validation confirms the theoretical model developed in the study and its applicability in analyzing leadership structures within the ministry. The findings provide a systematic framework for understanding the influence of shadow leadership mechanisms on governance and institutional decision-making.

4   Discussion and Conclusion

The findings of this study provide a structured understanding of shadow leadership within Iraq's Ministry of Water Resources, revealing its underlying mechanisms, causal conditions, and governance implications. The study demonstrates that shadow leadership is shaped by multiple interrelated factors, including political instability, social power dynamics, and governance shortcomings. The results indicate that shadow leadership operates as an adaptive response to institutional constraints, emerging where formal leadership structures are either ineffective or constrained by political pressures. These findings align with previous research on shadow leadership in political and bureaucratic

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contexts, emphasizing the role of informal power networks in shaping decision-making (Cunliffe, 2023; Steinecke, 2022).

The causal conditions identified in this study—power challenges, shadow power requirements, social challenges of power, environmental challenges, and governmental shortcomings—highlight the structural weaknesses that enable shadow leadership to emerge. The study's results show that political and legal instability, combined with an absence of clear governance mechanisms, creates an environment conducive to informal power structures. This finding is consistent with previous research that demonstrates how shadow leadership becomes more pronounced in unstable political environments, where formal leadership is weakened by external pressures (Noori et al., 2023; Rezaeian et al., 2022). The role of political expediency and conflict, as identified in this study, echoes findings on how leaders in bureaucratic institutions often face competing demands from political actors, requiring them to navigate governance through informal networks (Hallinger, 2018; Walker & Watkins, 2020).

A key finding of this study is that shadow leadership is not inherently negative but rather serves as an alternative mechanism for maintaining organizational stability. The results indicate that shadow leadership structures often compensate for deficiencies in formal governance, ensuring continuity in decision-making despite institutional weaknesses. This is consistent with research on shadow leadership in political psychology, which suggests that informal leadership can emerge as a stabilizing force in bureaucratic institutions, particularly in contexts where formal leadership structures lack effectiveness (de Haan, 2016; Evans & Jovanović, 2016). Additionally, the study's findings align with perspectives on transformational leadership, where the presence of informal power networks can serve as both a complement and a challenge to formal leadership structures (Avolio et al., 2022; Zwingmann et al., 2016).

The study also found that contextual conditions—governmental convergence, networked power, media power, ideological social influence, and information flow manipulation—play a significant role in reinforcing shadow leadership. These findings suggest that shadow leadership is not only a product of institutional weaknesses but is actively shaped by broader socio-political factors. Previous research has demonstrated how media influence and ideological control contribute to the emergence of shadow leadership structures, particularly in politically contested institutions

(Ali Mohammadi et al., 2021; Chappell et al., 2019). The presence of networked power and opposition convergence, as identified in this study, aligns with findings on how shadow leadership is reinforced through strategic alliances and ideological narratives that shape governance outcomes (Freysson, 2020; Rangriz & Khamehchi, 2021).

The intervening conditions identified in this study—critics' management, stakeholder expectations, and party identity—further illustrate how shadow leadership is maintained and legitimized. The findings indicate that shadow leadership structures rely on controlling opposition voices and managing stakeholder expectations to sustain their influence. This is consistent with prior research showing that leaders in bureaucratic institutions often employ strategic communication and narrative control to consolidate power (Gamil et al., 2022; Perry & Tower, 2023). The emphasis on party identity and political self-centrism in this study also echoes findings on how political loyalty and group identity play a crucial role in reinforcing leadership structures (Dehdast, 2022; Soltani-Fard et al., 2023).

The results also highlight the strategic mechanisms through which shadow leadership operates, including social development, professional development, media transformation, and fear-based cultural strategies. These findings suggest that shadow leadership is sustained not only through direct influence over decision-making but also through broader socio-political strategies that shape public perceptions and institutional norms. This aligns with studies on how media control and ideological influence contribute to the legitimization of informal leadership structures in bureaucratic institutions (Alho, 2020; Mahmoud, 2023). The use of fear-based strategies, as identified in this study, further supports existing literature on how leadership structures often rely on emotional framing and psychological mechanisms to reinforce authority (Bullemore Campbell, 2024; Zwingmann et al., 2016).

Finally, the study's findings indicate that shadow leadership has both positive and negative consequences for governance in Iraq's Ministry of Water Resources. While shadow leadership can enhance stability, interaction development, and leadership efficiency, it also contributes to power centralization, reduced transparency, and increased political control. These findings reflect the dual nature of shadow leadership, as noted in previous research, where it can both support and undermine formal governance structures depending on the context in which it operates (Steinecke, 2022; Walker & Watkins, 2020). The study

contributes to the growing literature on shadow leadership by providing a comprehensive framework for understanding its emergence, mechanisms, and governance implications in bureaucratic institutions.

Despite its contributions, this study has several limitations. One of the primary limitations is its focus on a single governmental institution, Iraq's Ministry of Water Resources. While this provides in-depth insights into the dynamics of shadow leadership within this context, the findings may not be generalizable to other governmental or private-sector institutions. Additionally, the study relies on qualitative data collected through expert interviews, which, while rich in detail, may be subject to biases related to participants' perspectives. Future research should incorporate broader survey-based methodologies to provide more generalizable findings. Moreover, the study's reliance on self-reported data introduces potential biases, as participants may have presented their views based on political or organizational considerations.

Future research should expand the study of shadow leadership to other governmental and non-governmental institutions to assess the generalizability of these findings. A comparative analysis between different ministries or sectors would provide a more comprehensive understanding of how shadow leadership operates across various organizational settings. Additionally, future research should incorporate longitudinal studies to examine how shadow leadership evolves over time, particularly in response to political and institutional changes. Further exploration into the psychological and emotional aspects of shadow leadership, using quantitative methodologies such as experimental studies or large-scale surveys, would also enhance understanding of how informal leadership structures impact governance and decision-making.

From a practical perspective, understanding the mechanisms of shadow leadership can help policymakers and administrators develop strategies to enhance transparency and accountability in bureaucratic institutions. Given that shadow leadership can both stabilize and undermine governance, institutions should focus on strengthening formal leadership structures while maintaining flexibility to accommodate informal leadership influences where necessary. Training programs aimed at fostering ethical leadership and governance transparency should be implemented to mitigate the risks associated with unchecked shadow leadership. Additionally, policies that promote stakeholder engagement and participatory decision-making can reduce the need for informal power networks, thereby enhancing institutional integrity. Finally, leaders should be aware of the role of media influence and ideological narratives in shaping governance, ensuring that communication strategies align with principles of transparency and ethical leadership.

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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