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A critical assessment of mangers' perceptions of supply chain performance: a case study of international oil companies in Iraq.

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Abstract

Purpose: *This study investigates International Oil Companies (IOCs) managers' perceptions of supply chain performance barriers and enablers within Iraq's oil sector, addressing a critical research gap in existing literature.*

Design/methodology/approach: *A qualitative research methodology employing semi-structured interviews with IOCs managers operating in Iraq was adopted. Data were analysed using NVivo software through deductive thematic analysis.*

Findings: *Key barriers identified include transportation inefficiencies, inadequate management practices, political interference superseding technical decision-making, COVID-19 operational impacts, customs processing delays, and skilled labour shortages. Primary enablers comprise robust infrastructure capacity, low extraction costs, extensive oil reserves, and potential for rapid return on investment.*

Practical implications: *Strategic recommendations encompass digitalisation initiatives, political stability enhancement, corruption mitigation, pipeline infrastructure development, and workforce capacity building. The research underscores the necessity of developing resilient supply chains through proactive risk management.*

Originality/value: *This study provides the first systematic examination of IOCs managers' perspectives on Iraqi oil supply chain performance, contributing novel theoretical insights and practical frameworks for supply chain optimisation in politically complex, resource-abundant economies.*

Keywords: *Barriers, Enablers, Entire Supply Chain Management, Iraq, Oil Industry, Petroleum Industry.*

Introduction

The proliferation of third-party providers has fundamentally transformed industrial supply chains, with the oil industry exemplifying this shift towards outsourcing functions to minimise operational costs, overcome expertise limitations, and transfer supply chain risks (Menhat et al., 2019). Contemporary supply chain management has evolved beyond traditional cost reduction to encompass comprehensive coordination of information, materials, capital, labour, technology, and financial assets, where companies must focus strategically on managing supply chains to achieve competitive advantage (Kulkarni & Dabade, 2019; Hassan, 2018). This transformation reflects broader recognition that competition no longer occurs between individual companies but between entire supply chains (Hove-Sibanda & Pooe, 2018).

Oil supply chains represent exceptional complexity compared to other industries, characterised by lengthy processes where crude oil travels for weeks through multiple participants before reaching

refineries (Hussain et al., 2006). Oil production concentrates in specific geographical areas whilst products are distributed globally, creating intricate logistical networks requiring exceptional coordination (Hilmola, 2011). The industry's complexity intensifies through dependence on suppliers providing electrical and mechanical components across extraction, refinement, and distribution stages (Balossino, 2019; Sharma, 2016). Supply reliability becomes critical regarding both quality and timing, where poor quality or delayed supplies negatively affect profitability and productivity (Sharma, 2016).

Iraq's economy demonstrates extreme oil dependency, with petroleum generating 95% of foreign exchange earnings despite war-damaged infrastructure creating supply uncertainty (Al-Douri, 2018). The country's situation exemplifies how geopolitical factors directly influence supply chain performance, where Joint Decision Making, Risk and Reward Sharing, and Information Sharing demonstrate positive effects on supply chain performance during uncertainty periods (Al-Douri, 2018). Since oil became entwined with national security and geopolitics following the British navy's shift from coal to oil in 1911, the strategic importance of oil supply chains has intensified (Mazen, 2012). The oil industry provides essential services to vital sectors including manufacturing and automotive industries, where competitiveness depends on constant strategic repositioning due to market changes and technological developments (Lisitsa et al., 2019).

Despite extensive research on oil supply chain management, significant gaps persist regarding region-specific challenges. Chima (2007) examined supply chain efficiency improvements, whilst Menhat et al. (2014) investigated uncertainty in supply chain management processes. Joshi et al. (2017) addressed logistics challenges requiring innovative technologies, and Menhat et al. (2019) examined comprehensive performance management challenges. However, these studies fail to address challenges unique to particular regions, despite geopolitics and regulatory environments heavily influencing oil supply chains across different geographical contexts.

Research specifically addressing Iraq remains severely limited. Alzuwaini et al. (2019), Neshat (2018), Jaffe (2006), Al-Douri (2018), Mehdi (2018), and Lee (2018) focused primarily on terrorism impacts and security situations resulting from internal and external conflicts. Previous studies by Neshat (2018) and Mehdi (2018) concentrated on upstream and midstream segments regarding production enhancement, whilst Ibrahim et al. (2019) examined sustainability. Critically, no studies comprehensively address supply chain matters across all segments in Iraq's oil industry, with Lee's (2018) logistics study representing the sole exception addressing partial supply chain elements.

The Iraqi oil industry suffers from severe challenges linked to infrastructure regarding extraction, production, transport, storage, and export outlets (Mehdi, 2018; Abdullah, 2021). Despite upstream developments, Iraq's midstream and downstream supply chains have failed to achieve growth enabling competitive positioning within the Middle Eastern context. Pipeline development programs and crude oil storage capabilities pose threats to future production, making Iraq unique as the only primary producer in the Middle East facing such comprehensive infrastructure challenges (Mehdi, 2018).

This research addresses critical knowledge gaps by investigating International Oil Companies (IOCs) managers' perceptions of barriers and enablers affecting supply chain performance in Iraq's oil sector. IOCs managers possess unique experiential knowledge of operational complexities arising from political instability, infrastructure deficiencies, and security concerns that traditional academic approaches fail to capture. Their perspectives on managing comprehensive supply chain performance across upstream, midstream, and downstream operations remain unexplored despite their critical importance for understanding real-world operational dynamics.

The research employs interpretivist philosophy focusing on understanding managers' perceptions working within Iraqi supply chains, utilising descriptive research design with qualitative approaches. Semi-structured interviews provide primary data sources, employing deductive methodology to critically investigate supply chain segments in Iraq's oil industry. Qualitative methods represent optimal approaches for identifying concepts and understanding problems' entirety within Iraq's natural setting

(Yin, 2003). Judgmental sampling ensures access to experienced IOCs managers, with NVivo software facilitating systematic data analysis.

This research provides the first systematic examination of IOCs managers' perspectives on Iraqi oil supply chain performance, filling significant voids in academic literature whilst offering practical insights for policymakers and industry practitioners. The emerging framework for barrier mitigation and enabler promotion provides actionable strategies for improving operational efficiency in politically complex, resource-abundant environments.

Literature Review

Supply Chain Management in the Oil Industry

Supply chain management has evolved from operational logistics functions to strategic competitive advantage, particularly in complex industries such as oil and gas. Christopher (1992) defined supply chains as networks of organisations engaged in upstream and downstream processes delivering goods and services to final consumers, whilst Flynn et al. (2009) emphasised strategic cooperation amongst supply chain associates to achieve effective flows of goods, services, and information. The oil industry exemplifies exceptional supply chain complexity, characterised by lengthy processes where crude oil travels for weeks through multiple participants before reaching refineries (Hussain et al., 2006; Gainsborough, 2006). This complexity intensifies through dependence on suppliers providing electrical and mechanical components across extraction, refinement, and distribution stages (Balossino, 2019; Sharma, 2016).

Contemporary supply chain management development has progressed through five stages, from internal logistics departmentalism in the 1960s to e-supply chain management utilising internet technology (Ross, 2002). The oil industry's strategic significance became evident when oil became directly entwined with national security following the British navy's shift from coal to oil in 1911 (Mazen, 2012). Since the mid-1950s, oil has served as the world's most critical raw material, significantly influencing global economic growth and providing essential services to manufacturing and automotive industries (Lisitsa et al., 2019). Supply chain strategy in oil operations focuses on delivering products safely, timely, and cost-effectively whilst managing high degrees of risk including construction, production, market fluctuations, political circumstances, and force majeure situations (Arora, 2012; Gainsborough, 2006).

The oil supply chain operates across three distinct segments: upstream (exploration and production), midstream (transportation and storage), and downstream (refining and marketing). Upstream operations require substantial financial, expertise, and technological resources for exploration, drilling, and field development (Arifin et al., 2021). Midstream activities encompass gathering, transportation through pipelines and tankers, and storage facilities, representing critical links between production and consumption (Read, 2021; McKenzie, 2019). Downstream operations focus on refining crude oil into finished products and marketing to end consumers, completing the value chain (Fanchi & Christiansen, 2017). This integrated structure creates interdependencies where challenges in any segment can create ripple effects throughout the entire supply chain (Sharma, 2016).

Iraq's Oil Industry Context

Iraq historically holds significant influence in international oil markets, possessing 115 billion barrels of proven reserves ranking second globally behind Saudi Arabia (The Economist Intelligence Unit, 2010). The country's economy demonstrates extreme oil dependency, with petroleum generating 95% of foreign exchange earnings despite infrastructure challenges resulting from prolonged conflicts (Al-Douri, 2018). Iraq played crucial roles as OPEC co-founder and major producer, with international oil

companies adding nearly 1.7-1.8 million barrels per day between 2010-2017 (Mehdi, 2018). However, whilst upstream development progressed, Iraq's midstream and downstream supply chains failed to achieve growth enabling competitive positioning within the Middle Eastern context, making Iraq unique as the only primary producer where pipeline development and storage capacity undermine future production potential (Mehdi, 2018).

The Iraqi oil industry faces multifaceted challenges including infrastructure deterioration, political instability, corruption, security issues, and inadequate legal frameworks. Infrastructure challenges encompass production problems due to poor reservoir management, unmaintained pipelines, deteriorating security situations, lack of trained workers, and politicisation affecting critical production areas (Jaffe, 2006). Political instability characterises Iraq's recent history, with foreign interference creating arenas for regional and international conflicts, particularly US-Iranian disputes, whilst quota-based sectarian political processes fragment society and weaken governmental institutions (Mohamed, 2021; Youssef, 2022). Corruption permeates border crossings, customs procedures, and oil revenue management, with widespread smuggling diverting government revenues and state officials exploiting positions for personal benefit (Barbarani, 2021; al Marsoumi, 2022).

Environmental concerns have intensified following dramatic increases in oil operations since 2004, accompanied by significant crude oil production increases resulting in enormous associated gas flaring and environmental contamination. Absence of legal legislation limiting environmental pollution has adversely affected Iraqi citizens and environments through water, air, and soil contamination from drilling operations and various chemicals (Jawda & Jaafar, 2018). Legal and regulatory uncertainties persist due to lack of specific hydrocarbon laws, constitutional ambiguities, and selective adoption of pre-2003 legislation, creating investor concerns about uncertain legal status under unreliable systems (Maniruzzaman & Al-Saleem, 2017).

Supply Chain Performance and Challenges

Supply chain performance encompasses reliability, responsiveness, agility, costs, and asset management attributes enabling organisational comparisons between those competing on reliability versus low-cost provision (Smith, 2014). In oil industry contexts, performance measurement focuses particularly on cost efficiency, minimising expenses whilst maintaining service quality through optimised labour, materials, transportation, and inventory management. This emphasis proves critical given high production, transportation, and infrastructure maintenance costs, especially in complex environments where external pressures including fluctuating prices, regulatory obstacles, and security concerns affect profitability (Hausman, 2004).

Research specifically addressing Iraq's oil supply chain remains severely limited. Alzuwaini et al. (2019), Neshat (2018), Jaffe (2006), Al-Douri (2018), Mehdi (2018), and Lee (2018) focused primarily on terrorism impacts and security situations from internal and external conflicts. Previous studies concentrated on upstream and midstream segments regarding production enhancement (Neshat, 2018; Mehdi, 2018), whilst Ibrahim et al. (2019) examined sustainability. Critically, no studies comprehensively address supply chain matters across all segments, with Lee's (2018) logistics efficiency study representing the sole exception addressing partial elements.

Logistics management challenges in Iraq's oil industry include inadequate infrastructure, inefficient customs procedures, and corruption affecting operational efficiency. Iraq's logistics infrastructure lags behind regional neighbours, with ports lacking proper recording systems and insufficient capacity for increasing cargo volumes (Osgood, 2012; BMI, 2017). Customs procedures require excessive documentation including commercial invoices, packing lists, certificates of origin, bills of lading, and multiple delivery orders, whilst corruption at border crossings creates delays and additional costs (Lee, 2018). Transportation infrastructure suffers from years of underinvestment and conflict damage, with road networks experiencing security threats and congestion, whilst railway connections remain largely non-functional due to security situations (BMI, 2017).

Sustainability and Environmental Considerations

Sustainable supply chain management has gained prominence in oil industries due to environmental and social impacts requiring systematic approaches. The sector's influence on global economies necessitates balancing economic prosperity with environmental concerns, where companies must measure operational and environmental achievements to achieve corporate sustainability (Sueyoshi & Wang, 2014). Sustainability implementation requires preparation and commitment, with risk management, cross-functional integration, and performance management serving as key factors influencing extent of adoption (Wan Ahmad, 2016).

Iraq faces particular sustainability challenges given its climate change vulnerabilities, with projections indicating 20% water supply decline and one-third of irrigated land becoming parched by 2050 (Falk, 2022). The country contributes significantly to global methane emissions, with oil and gas production representing 40% of greenhouse gas emissions, prompting government commitments to curbing gas flaring practices (Allawi & Birol, 2021). Environmental degradation from oil operations includes extensive contamination of water, air, and soil components through drilling activities and chemical usage, whilst natural gas burning contributes to pollution from aging refineries lacking modern technology (Jawda & Jaafar, 2018).

Research Gap and Theoretical Framework

The literature review reveals significant gaps in understanding supply chain performance within Iraq's oil sector, particularly regarding International Oil Companies (IOCs) managers' perceptions of barriers and enablers affecting operational effectiveness. No previous studies have systematically investigated managerial perspectives across all three supply chain segments (upstream, midstream, downstream) within Iraq's unique operational context characterised by geopolitical instability, infrastructure deficiencies, and security concerns. This represents a critical knowledge gap given IOCs managers' frontline experience managing complex supply chain operations under challenging conditions.

Existing research on supply chain optimisation and design techniques emphasises technology integration, visibility through transportation management systems, and adaptive approaches addressing geopolitical unrest and price volatility (Capgemini, 2008; Morem, 2017). However, these studies fail to address region-specific complexities where traditional management approaches may prove insufficient. The theoretical framework for this research encompasses barriers including geopolitical factors, corruption, political instability, and logistics inefficiencies as independent variables, whilst enablers such as country infrastructure, low extraction costs, massive oil reserves, and rapid investment returns serve as factors promoting improved supply chain performance.

Understanding these dynamics proves essential for developing evidence-based strategies addressing Iraq's supply chain challenges whilst leveraging existing advantages. The absence of comprehensive studies examining IOCs managers' perceptions represents a substantial gap requiring systematic investigation to inform policy decisions, operational strategies, and performance optimisation initiatives within Iraq's strategically important oil sector.

Methodology

This research employs an interpretivist paradigm with qualitative methodology to investigate IOCs managers' perceptions of supply chain performance in Iraq's oil sector. An interpretivist approach enables understanding of subjective experiences within complex operational contexts (Sandberg, 2005), whilst qualitative methods facilitate exploration of managerial perspectives in challenging environments.

The study adopts a descriptive research design with deductive approach, examining existing supply chain management theories within Iraq's specific context. Judgmental sampling was utilised to select twelve senior managers from various international oil companies operating in Iraq. Participants

possessed extensive experience (15+ years each) across upstream, midstream, and downstream operations.

Primary data collection involved semi-structured interviews with participants. Semi-structured interviews enabled structured consistency whilst maintaining flexible exploration of complex topics (DeJonckheere & Vaughn, 2019). A pilot study with four managers informed question refinement. Secondary data supplemented primary sources through government reports and academic literature.

Thematic analysis was employed to systematically identify recurring themes within collected data using NVivo software (Clarke & Braun, 2006). The analytical process encompassed data familiarisation, coding, theme development, and interpretation.

Research trustworthiness was established through credibility, dependability, confirmability, and transferability criteria. Ethical protocols included informed consent, confidentiality protection, and voluntary participation rights. The twelve-participant sample reflects qualitative research saturation principles where theoretical saturation typically occurs within 6-16 interviews (Guest et al., 2006).

Findings and Analysis

This study employed thematic analysis using NVivo software to analyse semi-structured interviews with twelve senior managers from International Oil Companies operating in Iraq. The analysis identified five major themes encompassing current supply chain practices, barriers and enablers affecting performance, and strategic approaches for optimisation.

Current Supply Chain Practices

Analysis revealed significant structural limitations in Iraq's oil supply chain operations. Political decisions consistently override technical and scientific considerations, undermining operational efficiency and reservoir management. As one manager noted, "there have been several Iraqi oil fields destroyed by improper management... often political decisions instead of scientific-based technical decisions." Transportation relies predominantly on road networks rather than pipeline infrastructure, creating vulnerabilities and inefficiencies throughout the supply chain. The absence of standardisation across operations compounds these challenges, with inconsistent industrial norms limiting performance optimisation. Improper management practices, influenced by political considerations rather than technical expertise, represent fundamental operational constraints affecting long-term sustainability.

Barriers to Supply Chain Performance

Seven critical barriers emerged from the analysis. COVID-19 significantly impacted operations through border closures, demand disruptions, and material supply uncertainties, particularly affecting Kurdistan's supply chains dependent on Turkish routes. Customs clearance delays create substantial bottlenecks, with varying efficiency levels between regions. Neighbouring country interference, particularly from Iran and Turkey, influences policy decisions and operational autonomy. The shortage of skilled local human resources reflects decades of conflict, sanctions, and underinvestment in education and training systems. Legal framework inadequacies persist despite ongoing efforts to establish comprehensive oil and gas legislation. Regional uncertainties and insurgency continue threatening operational security, whilst oil's role in historical conflicts demonstrates complex relationships between resource control and violence.

Enablers for Supply Chain Performance

Three primary enablers support supply chain performance despite operational challenges. Iraq's country infrastructure, whilst requiring development, provides foundational opportunities for operational expansion and efficiency improvements. The nation's massive oil reserves, ranking among the world's largest proven reserves, ensure long-term viability and international investment attractiveness. Low

extraction costs combined with high-quality crude oil create competitive advantages enabling rapid return on investment for International Oil Companies, sustaining operational interest despite security and political challenges.

Strategic Approaches for Barrier Mitigation

Managers identified six key strategies for addressing operational barriers. Digitalisation represents critical modernisation potential, though currently underutilised, with only one manager emphasising Industry 4.0 technologies including artificial intelligence and IoT applications. Enhancing security measures addresses persistent threats to personnel and infrastructure, particularly affecting pipeline operations. Ensuring political and economic stability requires sustained governance improvements and reduced corruption. Establishing international technical advisory frameworks could strengthen local capacity whilst maintaining operational standards. Corruption reduction remains essential, with managers emphasising political stability's importance for investor confidence. Robust contract drafting processes provide legal clarity and risk mitigation frameworks essential for complex operational environments.

Performance Enhancement Strategies

Eight strategies emerged for promoting enhanced supply chain performance. Pipeline construction represents the most critical infrastructure development need, with managers consistently emphasising transportation vulnerabilities and the necessity for comprehensive pipeline networks. Implementing generic oil and gas legislation would resolve federal-regional disputes and provide operational clarity. Minimising uncertainties through transparent legal frameworks and stable fiscal terms enhances investor confidence. Hiring trained workforce addresses critical human resource gaps through merit-based recruitment and international collaboration. Leveraging oil resources strategically balances current production with future sustainability considerations. Offering incentives attracts international investment and expertise whilst reducing financial instability through improved fiscal terms and transparent regulations. Establishing concrete legal frameworks provides operational certainty and investment protection.

Sustainability and Decommissioning Considerations

The analysis revealed limited awareness regarding decommissioning and sustainability transitions. Most managers acknowledged renewable energy developments whilst maintaining oil's continued importance for Iraq's economic development. Decommissioning awareness remains low, with few managers demonstrating understanding of long-term environmental obligations. The zero-carbon agenda presents challenges given Iraq's economic dependence on oil revenues, though some International Oil Companies are developing environmental compliance strategies.

Implications

These findings demonstrate Iraq's oil supply chain operates within a complex environment where substantial natural advantages coexist with significant operational constraints. Political interference in technical decisions represents a fundamental barrier requiring governance reforms. Infrastructure development, particularly pipeline construction, emerges as the most critical requirement for operational efficiency. Human resource development through education and training programmes is essential for sustainable operations. Legal framework establishment would provide operational clarity and investment security. The research confirms that whilst Iraq possesses exceptional oil resources and competitive extraction advantages, realising full potential requires systematic attention to governance, infrastructure, and human capacity development challenges identified through managerial perspectives.

Discussion and Conclusion

This research systematically investigated International Oil Companies (IOCs) managers' perceptions of supply chain performance barriers and enablers within Iraq's oil sector, addressing a significant gap in academic literature through qualitative analysis of twelve senior managers from major oil companies operating in Iraq.

Research Achievement and Analysis

The study successfully achieved its primary objectives by identifying five major themes reflecting supply chain performance dynamics. However, examination reveals that whilst the research provides valuable managerial insights, it exposes fundamental contradictions within Iraq's oil supply chain management that previous literature has failed to adequately address. The analysis uncovered a paradoxical situation where Iraq possesses exceptional natural resource advantages yet suffers from systematic operational failures.

Current supply chain practices demonstrate systemic institutional failures where political considerations systematically override technical expertise. As Manager M2 noted, "there have been several Iraqi oil fields destroyed by improper management... often political decisions instead of scientific-based technical decisions." The predominant reliance on road transportation despite obvious pipeline advantages represents strategic failure, with all transportation occurring through road networks as confirmed by multiple managers (M4, M12, M3, M7).

The identification of seven primary barriers reveals interconnected challenges extending beyond typical operational constraints. These barriers include cost barriers due to COVID-19 (identified by M1, M6), delays in customs clearance (M6, M12, M7), interference from neighbouring countries (M2), lack of skilled local human resources (M3, M4), legal issues (M3, M4), oil as a reason behind violence (M1, M3, M4, M2, M7, M8, M12), and regional uncertainties. The persistence of these barriers suggests that conventional supply chain improvement methodologies may be inadequate in politically fragmented contexts.

Literature Comparison and Findings Validation

Analysis of findings against existing literature reveals mixed alignment. The study confirms previous research on road transportation dependency (BMI, 2017), improper management issues (Gunter, 2018), customs clearance delays (Al Suwaidi, 2020; BMI, 2017; Lee, 2018), and neighbouring country interference (Editor, 2022; JICA, 2008; al Marsoumi, 2022; Jiyad, 2018; Youssef, 2022).

However, this research identified previously unexplored factors including lack of standardisation (M4) and political decisions rather than scientific technical decisions (M2), which were not mentioned in previous literature. Additionally, the study revealed enablers not previously considered: low extraction cost (M7) and rapid return on investment potential (M1, M3), representing novel contributions to academic understanding.

The research addresses a substantial academic gap by providing the first systematic examination of IOCs managers' comprehensive perspectives across all supply chain segments within Iraq's complex operational environment, as no previous studies had captured these specific managerial perceptions.

Strategic Recommendations Analysis

The strategic recommendations emerging from managerial interviews encompass both barrier mitigation and performance enhancement approaches. Managers identified digitalisation (M4), ensuring stability (M8, M11), increasing security (M2, M6, M10), reducing corruption (M7, M8, M12), and robust contract drafting processes (M4) as key barrier mitigation strategies.

Performance enhancement strategies emphasised pipeline construction and infrastructure improvement (M3, M6, M11), generic oil and gas law implementation (M2), hiring trained workforce (M3, M6), leveraging oil resources (M1), minimising uncertainty (M1, M2, M3, M5, M6, M9, M12), offering incentives (M1), reducing financial instability (M3), and establishing transparent and concrete laws (M2).

The emphasis on pipeline construction emerged as particularly significant, with Manager M3 stating: "Iraq used to transport all its Oil through trucks to neighbouring countries. Then it formalised its selling of oil when it built one exporting pipeline from Kirkuk to Turkey. Iraq has been working on building more pipelines within Iraq and to Turkey to smoothen the process of exporting Oil, however due to the political issues internally and externally, there have been disruptions."

Enablers and Natural Advantages

Three primary enablers emerged from the analysis: country infrastructure potential (M3, M5, M6, M8), massive oil reserves (M1, M3, M4, M7, M8), and low extraction costs (M7) enabling rapid return on investment (M1, M3). Manager M1 noted: "Iraq is strategically located and possesses massive oil reserves with relatively inexpensive extraction costs," whilst Manager M8 confirmed that "oil reserves in Iraq are prolific, and the oil is of very good quality."

These enablers represent Iraq's fundamental competitive advantages, with Manager M3 emphasising that "Iraq's Oil reserves is amongst first fifth largest reserves in the world, with this, it holds an important political and economic place in the world of Oil and Gas." However, the research reveals that these natural advantages remain underutilised due to institutional and governance challenges.

Methodological Contributions and Limitations

The research employed an interpretivist paradigm with qualitative methodology through semi-structured interviews, enabling deep exploration of managerial perceptions within Iraq's challenging environment. The study's focus on IOCs managers provided unique insights into operational complexities arising from political instability, infrastructure deficiencies, and security concerns that traditional academic approaches fail to capture.

However, the exclusive focus on IOCs managers potentially creates limitations in understanding broader stakeholder perspectives. The study's reliance on perceptual data, whilst valuable for understanding managerial mindsets, provides limited insight into objective performance measures. Additionally, the research's contextual specificity to Iraq's oil sector constrains immediate applicability to other geographical regions or industrial sectors.

Theoretical Framework Validation

The theoretical framework developed for this study, examining barriers and enablers affecting supply chain performance, proved effective in organising and understanding the complex dynamics identified through manager interviews. The framework successfully captured the interdependencies between political interference, infrastructure limitations, natural resource advantages, and strategic responses.

The empirical findings validate the framework's utility in explaining supply chain performance challenges in politically complex environments. However, the research reveals that Iraq's challenges cannot be resolved through conventional management interventions but require fundamental political and institutional reforms beyond traditional supply chain management scope.

Research Quality and Trustworthiness

The study demonstrates credibility through diverse participant recruitment across multiple IOCs and systematic thematic analysis using NVivo software. Dependability was ensured through consistent

analytical frameworks and careful data validation, whilst confirmability was achieved through transparent research processes and deductive framework application.

Transferability considerations acknowledge Iraq's unique operational context whilst providing insights potentially applicable to similar resource-rich regions experiencing political instability and infrastructure constraints. However, direct generalisability remains limited due to Iraq's specific geopolitical, economic, and security circumstances.

Implications and Contributions

This research provides the first comprehensive examination of IOCs managers' perceptions regarding Iraq's oil supply chain performance, filling a significant void in academic literature. The study's practical significance stems from Iraq's extreme oil dependency, contributing 95% to foreign exchange earnings, and the substantial role of international companies in national economic development.

The findings inform policymakers about effective strategies for enhancing supply chain performance whilst providing industry practitioners with evidence-based approaches for managing operations in challenging environments. The emerging framework for barrier mitigation and enabler promotion provides actionable insights for improving operational efficiency in politically complex, resource-abundant environments.

Limitations and Future Research

The study acknowledges several limitations, including reliance on managers' perceptions potentially subject to bias, concentration solely on IOCs potentially missing other stakeholder perspectives, and the unique political and security environment limiting immediate applicability to other contexts. The sample size and selection approach may not adequately represent the full spectrum of IOC experiences within Iraq's oil supply chain.

Future research should explore similar dynamics in comparable conflict-affected, resource-rich environments whilst incorporating broader stakeholder perspectives including local vendors, government officials, and community representatives. Longitudinal studies could track progress and assess the effectiveness of recommended interventions over time.

Conclusion

This research demonstrates that Iraq's oil supply chain operates within a fundamental paradox where exceptional natural advantages coexist with systemic operational constraints primarily stemming from governance and institutional failures rather than resource limitations. The study confirms that whilst Iraq possesses massive oil reserves ranking among the world's largest and competitive extraction costs, realising full supply chain potential requires systematic efforts addressing governance reforms, infrastructure development, and human capacity building challenges.

IOCs managers perceive substantial potential for performance enhancement through coordinated attention to political interference reduction, infrastructure development, particularly comprehensive pipeline networks, and transparent regulatory framework establishment. However, the research reveals that conventional supply chain management approaches may be inadequate in politically fragmented contexts where basic institutional prerequisites for rational economic behaviour are compromised.

The findings provide evidence-based recommendations for stakeholders seeking supply chain performance optimisation within complex operational environments, contributing significant insights to both academic understanding and practical application in challenging resource-extraction contexts. Most importantly, the research fills a critical gap in academic literature by providing the first systematic

examination of IOCs managers' perspectives on Iraqi oil supply chain performance, offering valuable insights for similar challenging operational environments globally.

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