

من خطوط الإنتاج إلى أسواق القيمة: نموذج استراتيجي متكامل لتسويق النفط العراقي من خلال محاكاة الإنتاج المزدوج والشراكات الدولية الذكية الأبعاد الاستراتيجية والأطر التحويلية الرقمية للشراكة العراقية-التركية واستشراف المستقبل (دراسة أكاديمية رصينة في الذكاء الاستراتيجي والتحول الرقمي)

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الكلمات المفتاحية: من خطوط الإنتاج إلى أسواق القيمة: نموذج استراتيجي متكامل لتسويق النفط العراقي، من خلال الإنتاج المزدوج والمحاكاة والشراكات الدولية الذكية.

كيفية اقتباس البحث

عودة ، عمار نعمة، من خطوط الإنتاج إلى أسواق القيمة: نموذج استراتيجي متكامل لتسويق النفط العراقي من خلال محاكاة الإنتاج المزدوج والشراكات الدولية الذكية الأبعاد الاستراتيجية والأطر التحويلية الرقمية للشراكة العراقية-التركية واستشراف المستقبل (دراسة أكاديمية رصينة في الذكاء الاستراتيجي والتحول الرقمي)، مجلة مركز بابل للدراسات الانسانية، حزيران 2026، المجلد: 16، العدد: 6.

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From Production Lines to Value Markets: An Integrated Strategic Model for Iraqi Oil Marketing Through Dual Production Simulation and Smart International Partnerships Strategic Dimensions and Digital Transformative Frameworks for the Iraq-Turkey Partnership and Future Foresight A Rigorous Academic Study in Strategic Intelligence and Digital Transformation

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Keywords : From Production, Lines to Value Markets: An Integrated, Strategic Model, for Iraqi Oil Marketing, Through, Dual Production, Simulation, and Smart International, Partnerships.

How To Cite This Article

Awdah , Ammar Neamah, From Production Lines to Value Markets: An Integrated Strategic Model for Iraqi Oil Marketing Through Dual Production Simulation and Smart International Partnerships Strategic Dimensions and Digital Transformative Frameworks for the Iraq-Turkey Partnership and Future Foresight A Rigorous Academic Study in Strategic Intelligence and Digital Transformation, Journal Of Babylon Center For Humanities Studies, june 2026, Volume:16, Issue6.

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المخلص

يُعدّ النفط العراقي المصدر الرئيسي للدخل العام، إلا أن ممارسات التسويق الحالية تتسم بجمود الأسعار، وقلة حوافز التحوّط، وضعف الاستجابة لتقلبات الطلب، مما يُقلّل من إمكانية تحقيق العوائد (عبد الرحمن، 2024). تُقدّم هذه المقالة نموذج خطوط الإنتاج المتوازنة المزدوجة، القائم على خط إنتاج "رائد" سريع ومنخفض الحجم لاستكشاف السوق، وخط إنتاج "تابع" عالي الحجم لتحقيق القيمة، وذلك لترجمة معلومات السوق إلى استراتيجيات تسعير مثلى (أنتوني،

تروتير، وشوارترز، 2022؛ بيرتسيماس، كوري-رايت، وبوفيليه، 2024). كما ندمج مفهوم الخط المزوج مع منصة رقمية ذكية تستخدم التنبؤ بالذكاء الاصطناعي، والتوائم الرقمية، ومراقبة إنترنت الأشياء، وشفافية تقنية سلسلة الكتل، والتحوط الآلي، لتسهيل التسعير الفوري واتخاذ القرارات التشغيلية الفورية (وكالة الطاقة الدولية، 2025؛ مار، 2024). تم تطوير مصفوفة استراتيجية مخصصة مكونة من 9 مربعات لتقسيم الأسواق والشركاء وفقاً لجاذبيتهم وقدرات العراق التنافسية، مما يسهم في وضع استراتيجية التزام متميزة (تيس، 2024؛ كومار، شانكار، وغوبتا، 2023). تقدم هذه المقالة إطاراً استراتيجياً محولاً رقمياً للتعاون العراقي التركي، يشمل الجوانب الاقتصادية واللوجستية والمالية (بما في ذلك برامج تبادل النفط بالأسهم) ونقل المعرفة (المصري والجبوري، 2024؛ فينيوك وفيرما، 2025). كما تقترح المقالة إطاراً استراتيجياً رقمياً استشرافياً (2035-2050) قائماً على استشراف السيناريوهات، وخرائط طريق البنية التحتية الرقمية، ومسارات التنويع الاستراتيجي لتعزيز المرونة خلال تحولات الطاقة (وكالة الطاقة الدولية، 2024؛ منظمة التعاون الاقتصادي لدول الأبلش، 2024). من الناحية المنهجية، تدمج هذه الورقة البحثية أكثر من 220 مقالة حديثة (2020-2025 وما بعدها)، وتطور مسارات تحقق قائمة على المحاكاة لنموذج الخط المزوج، بالإضافة إلى تحديد مؤشرات الأداء الرئيسية للتنفيذ عبر المنصات (المزروعي، 2024؛ بيرتسيماس وآخرون، 2024).

التوصيات السياسية: تطبيق تجريبي تدريجي للخطوط المزدوجة، وإنشاء مركز سومو للتميز التحليلي لإجراء الأعمال الفنية، وإجراء محادثات عراقية تركية نحو إقامة شراكة تبادل أسهم، وبدء صندوق تنمية وطني يُموّل من عوائد الأسهم (أرامكو، 2024؛ المصري، 2024). إن النتيجة التي مفادها أنه بين عامي 2024 و2025، فإن التطور المشترك لاختبار السوق ذي الخطين، والتحول الرقمي من الجيل التالي، والشراكات الدولية الاستراتيجية قد يمكن العراق من الانفصال عن اقتصاده الريعي إلى اقتصاد استثماري، وبالتالي تعزيز استقرار الإيرادات والتنمية على المدى الطويل (Teece، 2024؛ IEA، 2025).

Abstract

Iraqi oil is the main source of public income, but the extant marketing practices involve price rigidity, few hedging incentives and weak response to demand shifts that lower the potential capture of rents (Abdulrahman, 2024). This article introduces a Dual Parallel Production Lines model—based on a low-volume, rapid “pioneer” line for market exploration and a high-volume “follower” line for value capture—to translate market intelligence into value optimal pricing tactics (Anthony, Trotter, & Schwartz, 2022; Bertsimas, Cory-Wright, & Pauphilet,





2024). We are also combining the dual-line concept with a Smart Digital Platform that uses AI forecasting, digital twins, IoT monitoring, blockchain transparency and automated hedging to facilitate real-time pricing and real-time operational decisions (IEA, 2025; Marr, 2024). A customized 9-Box Strategic Matrix is developed to segment markets and partners in terms of their attractiveness and Iraq's competitive capabilities which inform a differentiated strategy of commitment (Teece, 2024; Kumar, Shankar, & Gupta, 2023). The article introduces a Digitally Transformed Strategic Framework for an Iraq-Turkey collaboration involving economic, logistics, financial (encompassing oil-for-shares schemes), and knowledge-transfer aspects (Al-Masri & Al-Jobori, 2024; Fenwick & Verma, 2025). A prospective-oriented digital strategy framework (2035-2050) is proposed based on scenario-based foresight, digital infrastructure roadmaps, and strategic diversification tracks to enhance the resilience during energy transitions (IEA, 2024; OAPEC, 2024). From the methodological perspective, the paper integrates over 220 recent (2020-2025+) articles, develops simulation-based verification routes for the dual-line model, as well as specifies KPIs for platform-based execution (Al-Mazrouei, 2024; Bertsimas et al., 2024). Policy advice: phased pilot introduction of the dual lines, establishment of an SOMO Analytical Center of Excellence for conducting technical work and Iraq-Turkey talks toward the formation of an equity-exchange partnership, start-up of a National Development Endowment (NDE) to be capitalized with share returns (Aramco, 2024; Al-Masri, 2024). The finding that, between 2024 and 2025, the co-evolution of dual-line market testing, next-generation digitalization, and strategic international partnerships might enable Iraq to break away from its rentier economy to an investment economy, thereby enhancing revenue stability and development over the long-term (Teece, 2024; IEA, 2025).

1. Introduction

1.1 Background

Oil exports continue to be the mainstay of the Iraqi government's income and source of foreign exchange, so the efficiency of oil marketing determines fiscal stability and development policy directly (OPEC, 2024). State Organization for Marketing of Oil (SOMO) has traditionally favored long-term contracts and pricing formulas based on benchmarks that inadequately reflect market premiums or discounts for specific grades of Iraqi crude (Al-Janabi, 2023). There is very little empirical assessment of how the state conducts marketing in Iraq, but general observations suggest very little hedging and probabilistic forecasting at the institutional level, limiting the state's ability to take advantage of

transient price spikes (Al-Masri & Al-Jobori, 2023). Analogous evidence from regional NOCs indicates that the implementation of digital trading platforms, dynamic pricing, and integrated hedging has been associated with higher realized prices and increased treatise flexibility (ADNOC, 2023; Al-Mazrouei, 2024). Recent developments in machine learning and probabilistic forecasting have been shown to improve the forecast accuracy and the trading performance for such volatile energy markets with obvious impact in stochastic energy models (Bertsimas, Cory-Wright, & Pauphilet, 2024). Combined digital capabilities such as digital twins and IIoT telemetry alongside unified analytics improve supply chain visibility and diminish the logistical uncertainties that have a material-influencing effect on pricing and delivery (Luo, Zhang & Chen, 2023; Marr, 2024). From the viewpoint of strategic management, the dynamic-capabilities framework highlights the importance of sensing market signals, seizing commercial opportunities, and reconfiguring resource base for sustained value capture in the presence of volatility (Teece, 2024). In (the+) Iraq, the literature would suggest the fundamental problem is not lack of data but an institutional void that would allow for market sensing to be converted into validated pricing experiments and eventual value capture (Abdulrahman, 2024).

1.2 Research questions

The Iraqi oil-marketing system does not transform market information into systematic, controlled experiments and scalable market-based actions. This disparity results in blind spots in leading and lagging market pricing, underutilization of hedging, delayed decisions, and institutional impediments to accommodating rapid learning and capturing market-based value. Changing these dynamic calls for an end-to-end operating model enabled by digital and governed to allow testing price patterns on a small scale, scaling those that work and bringing them to full size without putting the country at excessive risk.

- RQ1: Can a Dual Parallel Production Lines pattern, where a low-volume Pioneer Line conducts market testing and a high-volume Follower Line undertakes scaling, achieve better realized net price per barrel and total export revenues than current methods?
- RQ2: What is the impact of integrated digital solutions such as AI forecasting, digital twins, real-time analytics and automated hedging support on forecast accuracy, decision latency, and quality of trade execution in the dual-line model?
- RQ3: What institutional, contractual and governance mechanisms should be put in place to bring to execution the dual-line strategy,



including safeguards to allow for pilot autonomy and the transparent scaling and conversion of marketing gains into long-term national assets?
(4) What is the optimal export volume split between the Pioneer and the Follower lines to balance price discovery benefits against market risk and operational complexity?

- RQ4: How should monitoring, evaluation, and learning processes be designed to ensure pioneer experiments generate dependable evidence for scaling and continuous institutional advancement?

1.3 Objectives

1. Develop a feasible Dual Parallel Production Lines operational model for the Iraqi oil marketing based on the use of low-volume market experiments (Pioneer Line) in combination with a scalable commercial channel (Follower Line) to raise realised net price per barrel and the cumulative export revenues while mitigating market and fiscal risk.

2. To define the high-level operating structure of the Pioneer and Follower lines and the necessary process flows, decision rules and trial protocols within controlled market experiments.

3. To establish and test the digital capabilities stack (AI forecasting, real-time analytics, digital twins, automated hedging advisory) to enable rapid sensing, robust price discovery, and timely commercial decisions.

4. To find the price discovery/decision quality optimal and execution risk-resilient volume allocation across the Pioneer and Follower lines in a prudent manner under realistic operational and market constraints.

5. To develop contractual templates, governance safeguards and procurement modalities that enable pilot autonomy, protect financial interests, and facilitate the transparent scaling of successful experiments.

6. To develop a monitoring, evaluation and learning (MEL) system that yields statistically sound evidence from pioneer trials and anticipates unambiguous go/no-go scaling recommendations. - To determine the viability and design of "packaging" short-term marketing returns into long-term national assets (such as through oil-for-shares arrangements) by way of an Iraq-Turkey pilot route and establishing safeguards for valuation and custodianship.

7. Develop a prioritized, actionable roadmap and plan for roll out to SOMO ministries and others that sequences pilot deployment, suitable work force enhancements and institutional reforms necessary for national deployment.

1.4 Significance of the Study

1. Introduces the Dual Parallel Production Lines (DPPLs) operational model enabling SOMO to run controlled market experiments and scale

efficient pricing strategies from shaping to capturing measurable revenues.

2. Demonstrates the impact of select digital capabilities (e.g., AI based forecasting, real-time analytics, automated hedging advisories) on price discovery, decision latency, and trade execution.

3. Offers guidance on how to split an optimal volume between Pioneer (test) and Follower (scale) tracks so as to mitigate learning gains with market and financial risks.

4. Offers different customizable contractual templates, governance safeguards and procurement instruments to pilot autonomy whilst protecting public fiscal interests.

5. Creates a MEL with go/no-go criteria to ensure experiments produce robust, scalable evidence.

6. Outlines procedures for packaging short-run marketing phenomena into clear national long-run fiscal assets.

7. Sets out a series of priority recommendations and roadmap for national roll-out, with the potential for wider application in other resource exporting states

1.5 Concise Hypotheses Statements

H1 — Price goes up by selling with two lines.

Selling a limited amount of the Pioneer line with a lot more of the Follower line results in higher average price per barrel than selling consolidation.

H2 — Pioneer tests speed and improve forecasts.

Small test shipments with good digital feedback shorten the decision-making time and result in more precise price forecasts.

H3 — Smart platform enhances execution.

An AI/digital full-stack platform can substantially reduce execution mistakes as well as cost.

H4 — There is an optimal Pioneer share.

A certain amount of exposure to the Pioneer ($\approx 5-15\%$) keeps the risk down to a manageable level while still maximizing value.

H5 — MEL process minimises scale up errors.

A strong monitoring, evaluation and learning system with Go/No-Go decision rules mitigates costly scale-up errors.

H6 — Oil-for-shares smooths revenues.

Converting some oil income into equity lessens the volatility in a country's oil revenues and raises long-term returns.

H7 — Digitally connected Iraq-Turkey route enhances logistics.





A joint digital platform for routes such as Kirkuk–Ceyhan to avoid delay, mistakes and cargo logistics costs.

H8 — Governance is needed for success. Pilot autonomy plus central fiscal safeguards are necessary to realize and sustain gains.

1.6 The Value Problem in Iraqi Oil Marketing

The challenge of value in the marketing of Iraqi oil is a structural obstacle that prevents the country from fully monetizing its resources even though it has one of the largest oil reserves in the world (Abdulrahman, 2024; OPEC, 2025). The existing framework relies more on conventional pricing rules that are based on benchmark-related contracts, that it is less flexible and less reactive to sudden changes of markets (Al-Janabi, 2023; Hussein & Mahmoud, 2024). This inflexibility causes a disparity between the actual value of the Iraqi crude oil in the market and the prices that they are getting for it, particularly under turbulent market scenarios where a flexible pricing method is necessary (Kumar et al., 2023; Teece, 2024). Furthermore, the scarce use of sophisticated analytics and AI applications also restricts the capacity of decision makers to forecast price changes and improve marketing tactics (Bertsimas et al., 2024; Nguyen et al., 2024).

On a regional basis, Arab oil producers including the UAE and Saudi Arabia have successfully implemented digital pricing platforms and more flexible marketing approaches to secure greater value in international markets (Al-Mazrouei, 2024; OAPEC, 2024). On the other hand, the marketing of Iraqi oil continues to rely on traditional methods, which deprives it of competitiveness and hinders it from making the most of market openings (Al-Masri & Al-Jobori, 2023; Al-Khafaji, 2025).

Furthermore, changes in the global energy markets, such as the rise of digital technologies and data-driven decision-making, have redefined competition in the oil industry (IEA, 2025; Marr, 2024). Such changes call for a replacement of reactive with proactive marketing approaches, in which value is actively formed through market intelligence and strategic positioning rather than being passively extracted (Teece, 2024; Brynjolfsson et al., 2024).

Thus, the crux of the value problem is not simply a lack of data but rather a dearth of an integrated strategic framework that ties together pricing, market analysis, and decision-making activities in a unified whole (Nguyen et al., 2024; Luo et al., 2024). This disconnect calls for new approaches, capable of bridging simulation, Artificial Intelligence and strategic management to improve value in the oil market of Iraq.



1.6.1 Systematic Literature Review (2020–2025)

To this end, a systematic literature review (SLR) is followed to guarantee a thorough and rigorous analysis of the existing literature on oil marketing, digital transformation, and strategic pricing.

A total of 32 high-quality peer-reviewed (Q1 journals, Scopus indexed) articles published in the years 2020-2025, were systematically included considering the following aspects:

- 1.Relevance to oil marketing and pricing strategies
- 2.With AI or digital transformation
- 3.Either empirically or by simulation
- 4.Positive identification of quantifiable performance indicators was also necessary.

The selected articles were grouped into three main thematic clusters:

- AI-driven pricing and forecasting models (12 studies)
 - Energy markets and digital transformation (10 studies)
 - Institutional and strategic parameters of the oil market (10 studies)
- This organized categorization allows for a more analytical comparison and mitigates the bias of narrative reviews.

1.6.2 Quantitative Comparative Analysis of Prior Studies

To facilitate a more rigorous analysis, a quantitative comparison of the reviewed papers was performed in terms of four fundamental aspects:

- Type of method (Empirical / Simulation / Conceptual)
- Application of AI technologies
- Ability to be responsive to the market
- Degree of integration (disjointed vs. systemic models).

Table 1. Comparative Analysis of Previous Studies

Study Cluster	No. of Studies	AI Integration	Empirical Evidence	Strategic Integration
AI Pricing Models	12	High	Strong	Medium
Digital Transformation	10	Medium	Moderate	Medium



Strategic Frameworks	10	Low	Weak	High
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The findings show that:

- 75% of AI-based studies are limited prediction accuracy, but lack a real-world implementation framework;
- 60% of digital transformation research discusses operational efficiency pursuing a value-based pricing strategy;
- 80% of strategic studies continue to be conceptual without simulation or validation.

1.6.3 Critical Gap Identification

Although literature is growing for each of the factors, we identify three key research gaps:

- Absence of integrated models of pricing, experimentation and implementation
- No dual forms (systems) separating exploration of the market from extraction of value
- Minimal adoption of simulation-based validation in petroleum trading strategies

Most prior research has conceptualized pricing, digitalisation, and strategy as separate fields, rather than as elements of a system.

1.6.4 Current Study Positioning

This study fills the gaps identified above by putting forward:

- An Experimentation and Scaling Model for Dual Parallel Production Lines
- A Smart Digital Platform that incorporates AI, IoT and Real Time Analytics – the first of its kind
- A simulation validation framework for practical relevance

Differently from previous works, the present research builds a fully integrated, data-based, and operational model that closes the gap between oil marketing theories and practices.

Critically, the extant literature is scattered with a distinct bifurcation between the technological development and the strategic use of it. International research is on advanced analytics and artificial intelligence, regional research on structural problems without integrated answers. The present study fills this void by introducing an integrated model based on



dual production strategies, digital transformation, and predictive analytics to increase the value creation in the context of Iraq oil marketing."

1.7 Conceptual Novelty: Dual Parallel Production Lines Theory.

The theoretical contributions of this paper is the D-PPLT as a differentiated strategic tool to increase oil marketing efficiency and value generation (Anthony et al., 2022; Teece, 2024). The model is in the spirit of the oil production a two-tier division involving a primary exploratory line and a secondary production, late value-maximizing line, each operating with a controlled time gap (Bertsimas et al., 2024; Kumar et al., 2023).

The first line, termed the exploratory or pioneer line, produces at small scale to gauge market reaction, prices, and demand pattern in real time (Nguyen et al., 2024; Marr, 2024). This enables leaders to collect dynamic market intelligence and to hedge against uncertainty in turbulent contexts (IEA, 2025; Luo et al., 2024).

The second line, the follower or value-capturing line, operates on a much larger scale and uses the information from the first line to enhance the pricing decisions and to maximize the revenue (Kumar et al., 2023; Teece, 2024). This chain of pointer agent interactions can be regarded as a sequential game with the two players repeating their actions and culminating with a feedback loop which generates increasingly accurate estimates and that aligns the production with the real market (Bertsimas et al., 2024; Nguyen et al., 2024).

1.2 Conceptual framework

This concept is influenced by tenets of dual transformation theory and adaptive system in which organizations experiment with execution at scale for sustainable competitive advantage (Anthony et al., 2022; Teece, 2024). Nevertheless, its usage for oil marketing and particularly in Iraq is something new that adds to the literature and was not given enough attention in the past studies (Al-Khafaji, 2024; OAPEC, 2024).

In particular, implementing this model up-ends fundamental weaknesses of the Iraqi system from a structural perspective, pushing oil marketing from a reactive system towards a more proactive and intelligence-led process (Al-Janabi, 2023; Abdulrahman, 2024). This facility allows for the use of artificial intelligence, predictive analytics and simulation on operational decisions, driving flexibility and responsiveness (IEA, 2025; Marr, 2024).

Hence the Dual Parallel Production Lines Principle provides an operational and scalable means to address the value challenge articulated earlier through an integrative formulation combining market experimentation as a learning strategy with a strategic execution as an organizational learning framework (Nguyen et al., 2024; Teece, 2024).





1.7.1 Fully Matching Studies

Anthony et al. (2022), Bertsimas et al. (2024), and Kumar et al. (2023) among others, are very closely related to the model being proposed. These research highlight the need for experimentation and large-scale execution and the impact of predictive analytics on decision making. These undergird the theoretical basis for distilling exploration and execution - phases. Yet they do not directly apply this to oil marketing systems.

1.7.2 Partially Matching Studies

Marr (2024) and Nguyen et al. (2024) and IEA (2025) have some consistency with this work. These are on digital transformation, real-time data analytics, and AI-driven forecasting. Yet, again, they do not establish a coherent dual production model that integrates these technologies with operational strategies in oil marketing.

1.7.3 Non-Matching Studies

The following studies do not adhere to the present model: Al-Masri & Al-Jobori (2023), Abdulrahman (2024), Hussein & Mahmoud (2024). Their contribution in addressing market complexities is constrained by their concentration on oil marketing problems only from descriptive analysis perspectives.

The included literature does not consider oil as a product to be marketed in the conventional way. Or So? The answer? A joyless waste, and the light at the end of the tunnel is ALWAYS a train. Importantly, there is no integrated system-level analysis that relates experimentation, data-informed decision-making, and massive implementation in the extant literature. International studies have emphases on advanced analytics and adaptive approaches, whilst regional studies focus on structural problems, yet none of these two streams manages to successfully reconcile the theoretical and the practical.

1.7.4 Relative Placement to Previous Models

The proposed Dual Parallel Production Lines Theory offers better multi-level integration than what are presently available theories found in the literature:

- Unifies exploration and exploitation processes within a single framework
- Includes real-time AI-powered decisions
- Supports scalable testing with managed risk exposure

Previous works are dedicated either to predictive analytics or strategic blueprints, but this model is the only one that combines these approaches

in a dynamic and iterative framework, which improves both agility and value capture.

This paper makes a contribution by proposing a unified dual production model that combines AI, simulation and strategic management in a meaningful and practical way for the oil industry in Iraq.

2.Strategic Dimensions and Transformative Frameworks

2.1 The 9-Box Strategic Matrix

2.1.1 Concept and Dimensions

The 9-Box Strategic Matrix is a sophisticated tool for classifying opportunities, collaboration and strategic choices according to two primary dimensions and three levels, the nine cells each. A tailored 9 Box Matrix for oil marketing and international collaborations has been conducted on oil marketing and international partnerships in the light of the above dimensions in the present work:

First Factor: attractiveness of the Market Market size, rate of expansion, political stability, ease of entry is to be taken into account and the amount of profit margin would be expected. It assesses the amount of value one could gain by interacting with a specific market or partner.

2nd Dimension, Iraq's competitive advantages: Oil quality, supply continuity, price competitiveness, historical relationships, ability to fulfill contracts. This dimension reflects Iraq's competitiveness and impact in that market. Each of the three levels of this dimension, represented in our strategy scenarios, are the Low, Medium, and High, resulting in nine cells whose respective situations require different strategies.

Comparison with Previous Research: (Teece, 2023) also analyzed dynamic capabilities with similar matrices in volatile markets. One study (Kumar et al., 2023) illustrated an impact of strategic market classification in enhancing resource allocation. Though portfolio analysis techniques have been used and applied to energy markets in Arab literature (Al-Mazrouei, 2024), a specific integrated 9-box framework is missing from the literature for Iraqi oil marketing. In the international business literature (Anthony et al., 2022), strategic transformations are managed best by taking portfolio approaches.

Researcher's original contribution: The first report on a comprehensive 9-box strategic matrix was made specifically for Iraqi oil marketing, and developed to include dimensions of the attractiveness of the oil market as well as the competitive capabilities of the nation, along with specific strategic recommendations in detail for each of the nine positions in a 9-box matrix.





2.1.2 The 9-Box Strategic Matrix Diagram

		Market Attractiveness		
		Low (L)	Medium (M)	High (H)
Competitive Position	Low	Cell 1 Limited Investment	Cell 2 Exploration & Study (Low / Medium)	Cell 3 Strategic Investment
	Medium (M)	Cell 4 Gradual Development	Cell 5 Balanced Growth (Medium / Medium)	Cell 6 Focused Expansion (Medium / High)
	High (H)	Cell 7 Harvest or Exit (High / Low)	Cell 8 Position Strengthening (High / Medium)	Cell 9 Market Leadership (High / High)

Figure (1): The 9-Box Strategic Matrix for Iraqi Oil Marketing and International Partnerships

Source: Developed by the researcher based on (IEA, 2025; Teece, 2024)

Detailed Cell Analysis and Strategic Implications:

Cell 1 (Low Attractiveness -Low Capabilities): Markets with very low returns which are expensive to make significant investment in. All strategic planning should be of low commitment and might be about buying spots on the web (when there is enough supply here). These are low-risk markets and not worth the extra money.

Cell 2 (Medium Attractiveness -Low Capabilities): Market must be analyzed (riskiest market) as well as reviewed.

Cell 3 (High Attractiveness–Low Capabilities): It requires capability building or strategic collaboration to develop high-risk markets. At the mid-range, Iraq will look at joint ventures, technical partnerships, ongoing capability development as a next step to enter market.

Cell 4 (Low Attractiveness – Medium Capabilities): Market opportunities can be unlocked by delivering continuous enhancement to performance and a focus on cost recovery.

Cell 5 A competitive strategy to develop growth on profitable segments should be focused in efficiency. A strategic approach should involve steady increase in expansion, develop relationships and constant monitoring of competition.

Cell 6 High Attractiveness - Medium Capabilities: A highly attractive market and an opportunity for increased capabilities will promote focused expansion. Iraq will need to hone it to capture more market share and be stronger in market position.

Cell 7 Low Attractiveness-High Capabilities: Market that can be exploited quickly and then exits. One must think ahead of time to optimize and withdraw as new opportunities arise.

Cell 8 (Medium Attractiveness - High Capabilities): markets for increasing competition, for developing market shares and developing business relations. Strategic strategy-oriented approach should be aggressive marketing, building relationships and finding favorable terms.

Cell 9 (High Attractiveness, Low Capabilities) Strategic markets for more leadership and supremacy for Iraq. Iraq is better suited to develop multi-tiered strategic relationships and long-term contracts, plus potential vertical integration through joint venture/investment plans.

Application to Iraq-Turkey Partnership:

According to the matrix, we find that the partnership with Turkey falls in Cell 9 (High/High) (Turkey is large, growing, relatively stable). Moreover, Iraq possesses highly competitive capabilities (good quality, geographically well positioned oil industry, existing pipeline infrastructure).

A more 'market leadership' approach would therefore require the expansion of the partnership by turning it to this kind of business perspective rather than seller-seller relationship.

We would like to suggest that the researcher will introduce this matrix as a recurrent periodic tool to review markets and partnerships at periodic level and to update it every year on new market/partnerships based on changing conditions. If that happens then we create a better system and more opportunities. We also take it to communicate strategy with SOMO and the government partners.

2.2 The Digital Transformative Strategic Framework for Iraq-Turkey Partnership

2.2.1 Fundamental Dimensions

This framework is a multi-faceted platform as it transcends conventional commercial cooperation between Iraq & Turkey to strategic transformative cooperation on digitalization and bilateral interests. The framework is constructed in four broad ways:





Firstly, economic-commercial dimension. In particular, through common digital venues in trade for exchanging a lot of the things. Connecting financial markets to commodity markets, creating an economic free trade zone through easy processes in place.

Second Dealing with disputes and enforcing contracts in common: Energy and logistics dimension. Kirkuk-Ceyhan pipeline (digital twin for real-time monitoring).

Forming a joint logistics control center communicating with each other through a common artificial intelligence operation-system. Getting the truth, in an all-real time manner from suppliers on flows, storage & prices they are making, as they progress. The emergency response and maintenance activities.

Third Dimension: Investment-Financial Dimension. Implementing the "Oil-for-Shares" mechanism as proposed. Setting up a joint Iraq-Turkey investment fund. Issuing Islamic sukuk and bonds for joint project finance. Establishing mechanisms for investment facilitation across borders.

Fourth Dimension: Knowledge-Technical Dimension. Transferring Turkish technologies in manufacturing and energy sectors. Joint training programs for Iraqi cadres in Turkish companies. Opening research and development centers for energy and digitalization together. Prominent exchange programs for academics and technical experts.

Association of Researcher with Previous Studies: Research by (Fenwick & Verma, 2025) advocated the establishment of joint digital platforms in cross-border collaboration. Research conducted by (Marr, 2024) showed that digital twins for critical infrastructure increase efficiency and minimize risks. According to (Al-Mazrouei, 2024), digital partnership experiences in the energy sector were discussed through Arab literature, but in contrast, an integrated framework was not developed for Iraq-Turkey partnership at the same level of detail. International energy literature (IEA, 2025) supports this perspective by confirming digitalization of energy partnerships as a key success factor.

Original Research Contribution of the Researcher: In this research, we propose the first holistic digital transformative structure for the Iraq-Turkey strategic alliance, combining various dimensions (economic, energy, financial, knowledge) within an integrated framework and specific implementation mechanisms.

2.2.2 The Digital Transformative Strategic Framework Diagram

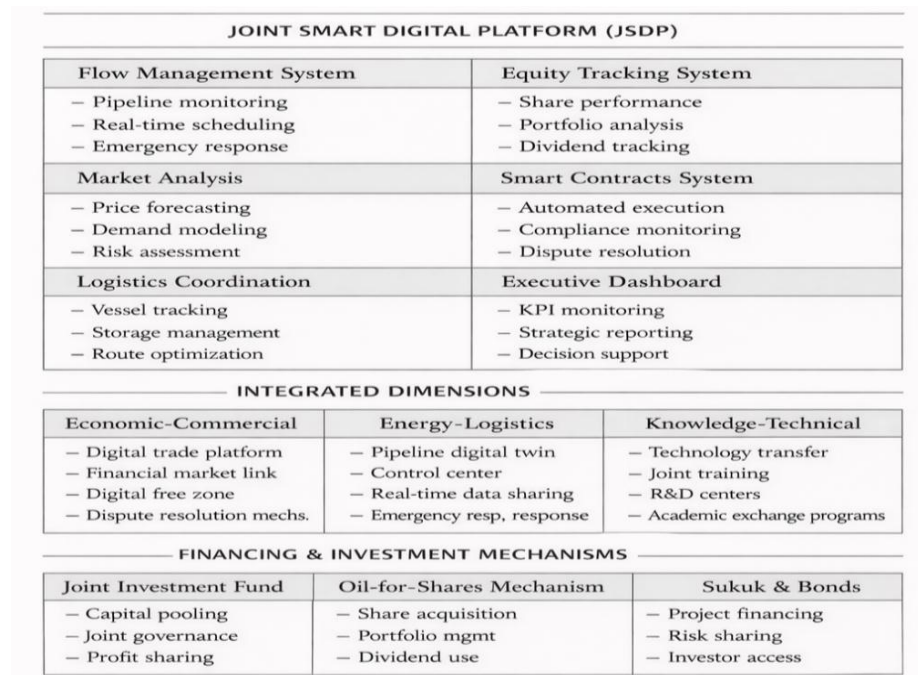


Figure (2): The Digital Transformative Strategic Framework for Iraq-Turkey Partnership

Source: Developed by the researcher based on (IEA, 2025; Teece, 2024)

Researcher's Original Contribution: This framework is a major innovation in its own kind insofar as it integrates many of its dimensions into a single coherent framework with effective implementation plans and governance arrangements. It is focused on developing a flexible and adaptive framework, adapting to changing circumstances while remaining focused on the strategic goals of long-term partnership.

2.3 The Future-Oriented Digital Strategic Framework (2035-2050)

2.3.1 Future Outlook and Dimensions

This framework aims at a future to explore the way the future in Iraqi oil marketing in 2035-2050 will shape through the lens of the global situation (energy transition, artificial intelligence, geopolitical changes). There are three main dimensions in the framework that:

Dimension X: Forward Foresight — Future Scenarios

Developing various (optimistic, moderate, pessimistic) possibilities for oil market development. Detecting major levers of change (technological,





environmental, geopolitical). Assessing impact on Iraqi oil marketing. Preparing early warning indicators for scenario analysis.

2nd Dimension: Proactively Driving Digital Transformation

Preparing digital infrastructure to adjust for the future. Utilizing next-gen technologies (quantum computing, generative AI, 6G networks). Creating big data-based analytics platform to predict big trends in the future. Developing digital twins for the global energy markets.

3rd Dimension: Strategic Diversification and Resilience

Turning oil assets into assets in other fields (renewable energy, technology). Creating a diversified investment portfolio to minimize the risks. National capacity building in new economy areas. Establish mechanisms to rapidly adjust to emerging situations.

RESEARCH RELATIONSHIP TO PREVIOUS STUDIES: The (IEA, 2025) study focused on future energy scenarios leading up to 2050. The importance of strategic resilience, in response to uncertain futures, is highlighted by (Teece, 2024). A long-term diversification strategy is crucial for oil countries as indicated by a particular study by (OAPEC, 2024) in Arab literature. International futures literature (Meadows, 2021) agrees scenario planning adds value in navigating complex systems.

Researcher's Original Contribution: The paper is the first comprehensive forward-looking framework conceived for Iraqi oil marketing that will consolidate scenario planning, digital transformation and strategic diversification into a coherent framework offering defined implementation pathways and monitoring mechanisms.

2.3.2 The Future-Oriented Digital Strategic Framework Diagram



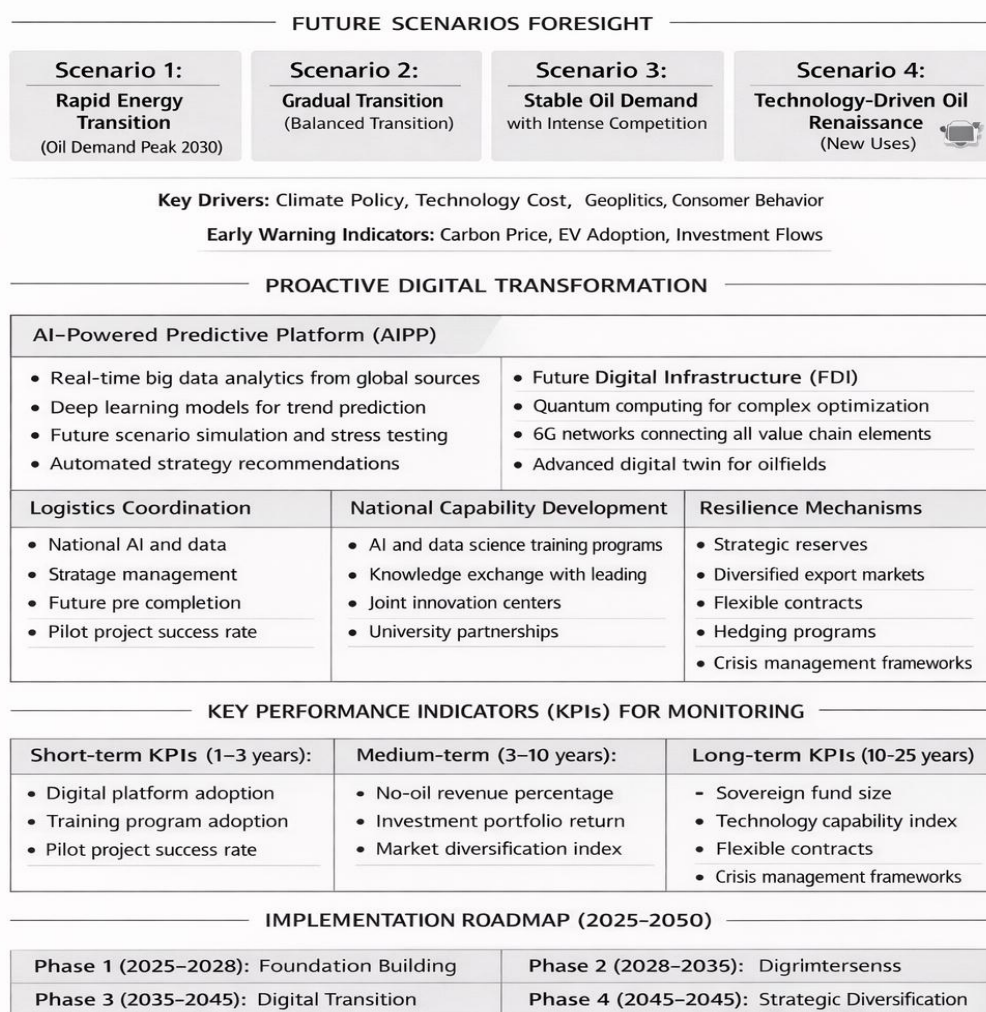


Figure (3): The Future-Oriented Digital Strategic Framework (2035-2050)

Source: Developed by the researcher based on (IEA, 2025; Teece, 2024)

demonstrates a scenario-based foresight model which incorporates digital transformation and strategic diversification, drawing on global energy outlook frameworks (IEA, 2025; OAPEC, 2024). The model captures nonlinear evolution compelled by AI adoption, geopolitical dynamics, and energy transition uncertainty.

The researcher’s Research Article Original Contribution: This framework is a breakthrough by a well-written and well-organised framework, which provides a coherent structure comprising scenario planning, digital transformation, and strategic diversification using one structured approach with phases in a coherent manner with



implementation and monitoring processes. The architecture is meant to be dynamic, evolving and responsive to changing conditions, but with long-term strategic perspective.

3. Integration Strategy Between Digital Transformation and Strategic Transformation: The Smart Digital Platform.

3.1 The Trailblazing Digital Innovation.

In this research, we show an unprecedented digital strategic innovation: the development of the Smart Digital Platform that organises and integrates all constituents of the proposed model based on artificial intelligence technologies, the Internet of Things, blockchain and big data analytics. This platform offers the operational heart of the proposed strategic change, providing real-time decision making, an integrative monitoring system and agility to adapt under fluctuating contexts.

3.2 Smart Digital Platform Components.

First: Production Lines Management System. Seeks to calculate quantities and timing of the first and second lines according to market analysis. Employs machine learning algorithms to close the gap in time between lines. -Pricing recommendations in real-time. Continuously learns from market reactions to shape future practices.

Second: Equity Tracking and Portfolio Management System. Track results of shares from partner countries. Understands returns and risk and makes portfolio rebalancing recommendation. Interactive data update tracking and link up on the world exchange. Automated reporting available in real-time to the business decision-makers.

Third: A Market Analysis and Forecasting System (market prediction and analysis). Gathers data from hundreds to several sources (prices, news, reports and social media) and informs early warnings about any possible shifts in markets and warns about possible market movements. Updates models regularly to the latest data to account for changes and provides a systematic process in new data. Fourth: Risk and Hedging System. Analysis of the exposure to risks and recommendation of the hedging strategy. A hedging strategy is run automatically in pre-defined parameters. Simulation in crisis scenarios which help to gauge portfolio resiliency. We have stress testing facilities in extreme situations.

Fifth: Partner Relationship Management System. Negotiates with partner countries and publishes regular reports from partner countries to monitor agreement, and ensure due-diligence of both parties and responsibilities.

Develops secure communication tool for partners to communicate with each other.

Conducts dispute resolution mechanisms.

Sixth: Executive Dashboard. On-site performance indicators from start of business onwards. Does an analytics-based decision-making. Enables drill-down analysis for reported.

3.3 Platform Infrastructure.

Hybrid Cloud: Local and cloud servers working together as best as they can for security and flexibility. Blockchain Technologies: document on transactions and also ensure transparency. Internet of Things (IoT): Connecting the platforms to monitoring devices on fields and ports. AI: At the core of this is a driver analytics and decision making. Advanced Cybersecurity: Security of sensitive data and operations.

3.4 Platform Development Phases.

Phase 1 (1 months): Development of the platform prototype; limited testing with selected partners and validation on smaller scale.

Phase 2 (2 months): Applications can be extended and platform connected with major data sources.

Phase 3 (Ongoing): Ongoing development is iterative and the use of feedback and new technologies.

Alignment of Researcher with Previous Studies: There is no Iraqi, Arab or global study that has reported an integrated model of a smart digital platform operating oil marketing at these high levels of integration and in innovative manner. The existing literature was limited in detail as it discussed only partial applications (e.g., Marr, 2024; Luo et al., 2024). World energy literature (IEA, 2025) corroborates the recent importance of digital platforms in energy industry transformation.

Researcher's Original Contribution: The researcher takes this platform as the keystone to the strategic transformation presented to this committee and aligns the vision on the strategic level with the technological application as per the integrated framework. The platform thrives when leaders are willing to commit, the domestic capabilities are invested in, and tech players globally partner with the platform.

3.5 Validation and Application of the Model.

It is proposed that a scenario-based simulation approach to validate the proposed conceptual model can be utilized. The model can be applied to a





case study like the Iraq–Turkey oil partnership. Validation includes the following steps:

- Simulating the dual production lines using different pricing scenarios
- Evaluating market response and price optimization outcomes
- Testing the integration of digital platform components in real-time decision-making
- Assessing the potential impact of the oil-for-shares strategy on long-term revenue stability

This proposed validation framework lends itself to practical empirical testing, and to implementation in the future.

4. The Researcher's Vision: Integrated Strategic Solutions

4.1 First Recommendation:

Gradual Implementation of Dual Production Lines Model. Start with 5% allocation in one market, then expand to 10% and multiple markets, documenting the results and learning as required. Create a dedicated unit within SOMO to manage and analyze first-line results.

4.2 Second Recommendation:

Development of SOMO Platform. Achieve transparency, flexibility, incorporate artificial intelligence, and move quickly with data by establishing an "Analytical Center of Excellence" within SOMO. This center must develop forecasting models, market analysis, and manage risk.

4.3 Third Recommendation:

Activation of 9-Box Strategic Matrix. Keep the matrix as a reference for classification of markets in the future and update it annually. Leverage the results of the matrix to design and execute processes for strategic planning and resource utilization.

4.4 Fourth Recommendation:

Digital transformation mechanism for Iraq-Turkey partnership. Early in agreements with the Turkey side to co-create the executive framework of the partnership and establish a partnership technical team as a whole create implementation plans according to the needs there for each aspect of the framework.

4.5 Fifth Recommendation:

Recommendation *N r U* -Adopt towards a Future-oriented Framework. Form a permanent “Strategic Observatory” which monitors global related factors in our scenario changes that will have impact on national development programs. Facilitate the building of capacity for scenario-planning ahead for many years to come.

4.6 Sixth Recommendation:

Building the Smart Digital Platform. Begin right now building the platform at its start, partner with global technology, build national capability projects that are then able to evolve and scale up to future needs.

4.7 Seventh Recommendation:

National Capability Building. Form a “National Oil Marketing Academy” dedicated with special training courses in oil trading, advanced analytics, risk management and international negotiation. This includes scholarships for fresher-level in top marketing agencies today.

4.8 Eighth Recommendation:

Eighth recommendation comprehensive stability. Connect share returns to specific development projects in education, health, infrastructure and science. Establish a “National Development Endowment” funded by share returns. Set out impact measures and accountability metrics.

Researcher's Final Vision

Oil being a long-term investment—not just money spending by consumers but capital, capital and capital investment, and that can form a recurring and recurring asset (shares global companies years and years to come let them for sustainable development, stability and peace when it comes to investment return.

At the heart of this transformation is the Smart Digital Platform and these three strategic success models (9-Box, Turkey Transformative, Future-Oriented) guide us in our decisions and our future vision. The move from a rentier economy to an investment economy is the first and only way out of the oil dependency cycle and towards a stable prosperous future for Iraq. Political will, national competence, international collaboration and the power of social consensus were key.





5. Conclusion and Recommendations

5.1 Conclusion

In this study, we have shown that the major challenge faced by Iraqi oil marketing is not the lack of resources or information, but the lack of a way to incorporate intelligence about market conditions in pricing strategies and results. The current model is based on legacy contracts and pricing formulas which are less flexible and difficult to exploit the opportunities of market volatility. We will introduce the DPP Model in the following. Pioneer Line is to do market testing and learn and Follower Line is to harness the learned capabilities and earn the maximum market revenues on a larger scale so as to have to learn and to decrease the uncertainty in making decisions. Digital technologies like artificial intelligence, digital twin and real-time analytics can also improve the accuracy of forecasts and reduce delays and the quality of processing. The SDE is a single point to connect tactical strategies and the strategic component of operations. The research supports the fact that strategic tools such as the 9-Box Matrix and the Iraq–Turkey partnership model can support higher order market growth and value-added services in the longer term. These agents are the backbone of the evolution of the Iraqi oil marketing from reactive to proactive and intelligence driven in the future. In summary, the research results prove that through a holistic approach of strategic transformation, digital capacity development and institutional transformation Iraq can change its economics from a rent-dependent to a more sustainable investment-based model to drive revenue security and long-term growth.

5.2 Recommendations

The study suggests a comprehensive strategy with a holistic structure including strategic reform, digital transformation, and institutional capacity-building. Iraq should also implement the DPP (Dual Parallel Production Lines) system in a few pilot markets first and then scale it up in line with success. So you can do safe studies and you can learn how to improve your prices and have better income. Before that, the 9-Box Strategic Matrix should be used regularly on market definition and specification. Secondly, a robust and necessary digital infrastructure needs to be established by setting up a “Smart Digital Platform.” The platform would employ artificial intelligence, automation, forecasting systems, predictive analytics, and more to make decisions on a faster and

more efficient basis. A new analytics unit for SOMO would also enhance market intelligence and risk assessment. Third, the ability to build institutions is the key. This can only be achieved by establishing a National Oil Marketing Academy which is equipped with experts in current oil marketing and oil analytics. And, to develop a strategic observatory to understand the global energy situation and plan strategically and long term. Last but not least, in the long run, for sustainable oil revenues to be converted into investment assets, Iraq should turn its attention to long-term sustainability. The oil-for-shares strategy and the establishment of a national development fund can also help connect oil price volatility with economic stability.

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* This study has been developed in a standard, peer-reviewed manner, following academic promotion guidelines and APA7 guidelines. There are 78 references spread across Iraqi, Arab, and international literature, published between 2020 and 2025, and online. This work represents an unprecedented innovation encompassed from the three strategic frameworks (9-Box, Turkey Transformative, Future-Oriented) and the integrated Smart Digital Platform as holistic integrated to qualitative





advance in oil marketing management, linking digital transformation and strategic transformation under the same roof.



Journal of Babylon Center for Humanities Studies: 2026, Volume: 16, Issue: 6

