International Journal of Current Science Research and Review
ISSN: 2581-8341
Volume 07 Issue 06 June 2024
DOI: 10.47191/ijcsrr/V7-i6-57, Impact Factor: 7.943
IJCSRR @ 2024
www.ijcsrr.org

Agile Establishment of ERP System Roll Out in Maintaining Production Sustainability during the PSC Transition & Liquidation Phase Case Study a Site Acquisition in the Oil & Gas Industry

Roni Rahadian[1], Prawira Fajarindra Belgiawan[2]
[1]School of Business and Management, Institut Teknologi Bandung
[2]Jl. Ganesha No. 10, Bandung, 40132, Indonesia

ABSTRACT: In the dynamic landscape of the Oil & Gas Industry, Information Technology (IT) emerges not only as an enabler but as the central driving force reshaping business operational paradigms. This paper delves into the transformative power of Enterprise Resource Planning (ERP) systems, with a spotlight on the agile approach unveils the critical role of the Software as a Service (SaaS) Systems establishment of the Applications, and Products in Data Processing (SAP), in providing a means to mitigate the business process gaps anticipates the indefinite time of Gazettal issuance, streamlining operations, and accelerate business deployment to maintain the oil production sustainability during liquidation and transition phase for a new Production Sharing Contract (PSC) in the case study of a site acquisition in Oil & Gas Industry.

The primary data collection is gathered through Focus Group Discussions (FGDs) with key stakeholders, including the Company's Management, Subholding Upstream, and Holding's task force team consisting of SAP Consultants, and Business Process Owners (Subject Matter Experts) who are well-versed in the business requirements and current surrounding issues. Combining the literature review for secondary data collection for broader context and insights into best practices and lessons learned in similar cases.

The data analysis focuses on the External Strategic Factors Analysis Summary (EFAS) is conducted using PESTLE, Porter's Five Forces, and the Competitor Analysis to gain a competitive landscape, while the Internal Strategic Factors Analysis Summary (IFAS) with the VRIO framework, assessing a firm's internal resources and capabilities to maintain a competitive edge over the long term, summarizes the key external & internal factors for the SWOT analysis resulting the alternative strategies. The ultimate best alternative strategy utilizes the Quantitative Strategic Planning Matrix (QSPM) method by analyzing attractiveness scores to the factors & enhances the probability of selecting the best strategic options.

Through real-world case studies on a site acquisition and Oil & Gas Industry insights, the paper underscores how SAP SaaS Roll-Out with an established Shared Service Centre as a support organization could revolutionize the Oil & Gas sector, paving the way for enhanced efficiency, sustainability, and strategic decision-making would benefit in the Liquidation and Transition phase of a PSC. Ultimately, this research illuminates the indispensable nature of the SAP applications, as the linchpin driving the industry's progression towards a more agile, competitive, and ready-to-use landscape as it opens further feasibility study of SAP SaaS "packaged-solution" deployment for the benefit of next block acquisition.

KEYWORDS: ERP; SAP; Roll-Out; PSC; Agile; Liquidation PSC; Transition PSC

I. INTRODUCTION

Acquiring a new Production Sharing Contract (PSC) in the oil and gas industry demonstrates a company's commitment to make substantial and sustained investments in the exploration, development, and production phases, which plays a significant role in a company's growth ensuring a continuous supply of hydrocarbons for production as well as diversifying of Portfolio of assets and allowing a company to gain access to untapped oil and gas reserves in a particular country.

The Indonesian government is managing national energy security by implementing several strategies to increase oil and gas reserves and production, both domestically and through overseas operations. One key initiative is the "Bring Barrels Home" program, which aims to bring oil production from abroad to Indonesia to meet local demand considering the declining oil production and increasing consumption have resulted in Indonesia being a net oil importer since 2004 (PWC, 2020), as well as opportunities to sell foreign products to third parties to optimize revenue (Bring Revenue/Value Home). This program is part of a broader effort to reduce

International Journal of Current Science Research and Review
ISSN: 2581-8341
Volume 07 Issue 06 June 2024
DOI: 10.47191/ijcsrr/V7-i6-57, Impact Factor: 7.943
IJCSRR @ 2024
www.ijcsrr.org

dependence on imported energy and increase domestic energy production. PT. Pertamina, the Indonesian state-owned company, from the year 2014 to 2022, contributed 52.3 million barrels of oil, or around US$3.1 billion shipped domestically (domestic refineries). About 79% of oil output from abroad has been shipped to domestic refineries (PIEP Annual Report, 2022).

The signing of the new PSC raised the business gaps leads to challenging activities in managing responsibilities during the Liquidation settling the outstanding obligations, ceasing the operation and cost recovery process of the existing PSC, and the Transition phase in managing the Business processes, Data, Applications, and Technology from the existing to the New PSC.

In Algeria, the uniqueness of the New Production Sharing Contract (PSC) compliance with the Law No 19-13 (the Law governing hydrocarbon activities in Algeria) (iea.org, 2022) is due to no continuation from the existing PSC, while the new PSC, though it has been signed, has yet to be officially ratified by the Algerian regulator with the Gazettal issuance (the primary sources of Algeria's law published by national governments to disseminate new legislation).

Oil and gas operations have similar characteristics to software development, with wells and refineries applying digital technologies to facilitate control and utilize heavy and complex procedures resulting in high-priced failure (Czachorowski et al., 2022), while the conventional project waterfall methodology aSAP (Gulledge, 2005) of SAP system implementation puts the Company at risk of a long Lead time, an overblown budget & inflexible project scope, and the complex migration strategy (backlog transaction) which may lead to a common 90% of ERP projects spending more allocated budgets and crossed the schedule, and approximately 20% of ERP projects are unsuccessful (Kaushik, Bharadwaj, & Awasthi, 2015).

The study contributes to a distinguished recommendation on the agile Roll-Out of SAP's SaaS solution as a ready-to-deploy fit-for-purpose configuration enriching the previous studies on SAP implementation, upon answering the research questions on how the SAP covers the business requirement during the Liquidation of existing PSC and Transition to new PSC, kind of system Roll Out that benefits further acquisition, rather than the new implementation (the autonomous ERP) as well as the key success factors to approach the best ERP implementation considering the condition.

II. LITERATURE REVIEW

A. Previous Study

ERP system leverages the company with the competitive advantage in terms of a technologically integrated system, with the management support indicator as an essential success factor (Wijaya et al., 2023). The understanding of agile transformation in the oil and gas business by determining success criteria and frameworks for agile transformation and presenting a conceptual framework for adopting agile methodology within this industry can be of assistance to oil and gas firms in their efforts to adjust to the dynamic business environment enables to become more responsive and adaptable as organizations (Darusulistyo et al., 2022). Pointed out, though SAP, as a business solution, is superior to most products in the market, the major obstruction to further roll-out is customer service, whereby SAP as an ERP vendor only concerned with a sale and not after-sales service (Cunningham, 2004). The organization moves from on-premises to on-demand software solutions to minimize overhead costs, due to heavy costs associated with the initial purchase of the software, its licensing costs, the subsequent configuration, and maintenance (Lewandowski et al., 2013). The consideration of perceived risk, cost, and performance on the user acceptance upon ERP SaaS cloud system adoption (Lim et al, 2016), with the offered cloud-based types of Public Cloud, Private Cloud, and Hybrid cloud (Elragal & Kommos, 2013) upon representation of the cloud computing 3 layers of service, Software as Service (SaaS), Platform as a Service (PaaS), and Infrastructure as a Service (IaaS) (Saini et al., 2011).

B. SAP Implementation types

The theoretical foundation refers to the requirement context of a best-fit strategy for ERP system establishment to accelerate business development in the new acquisition of a site or new PSC being recommended based on the given situation considering strength capability and the opportunity refers to the SAP Implementation types options (Varad, 2022) with the system Roll-Out, repurposing the existing cycle of implementation system and business process at a new site allows a standardized solution for all business entities instead of having different business processes and operations, organizations can rely on more accurate and consistent business processes at any given time in any given areas and to consider using the 3rd Roll out Model (Kunze M. , 2007). The main motivation behind a rollout project, based on experience (Jasiński, 2023), shows one common factor, the main driver for all these projects: the need to efficiently address business diversity and continuous change. Nowadays, rollout projects and large-scale global rollout programs can be a true long-distance run.

International Journal of Current Science Research and Review
ISSN: 2581-8341
Volume 07 Issue 06 June 2024
DOI: 10.47191/ijcsrr/V7-i6-57, Impact Factor: 7.943
IJCSRR @ 2024
www.ijcsrr.org

C. The agile roll-out

Approaching the standard business models to apply for New PSC Block 405A, in Algeria with an agile preceding standard project upon indefinite Gazettal issuance, the roll-out deploys the SaaS SAP ECC 6 and in the long-term upgrade to S/4 HANA, the purpose of which is to work out a common model of operation for a group of companies in combination with the agile methodology as a proactive and reactive alternative to handle the known problem in implementing ERP. The development of an agile ERP model is one way to achieve success in ERP implementation (Wijaya, Prabowo, & Kosala, 2019).

III. RESEARCH METHODOLOGY

To provide a comprehensive understanding of the business issue and situation analysis, this chapter outlines the research methodology employed in the study.

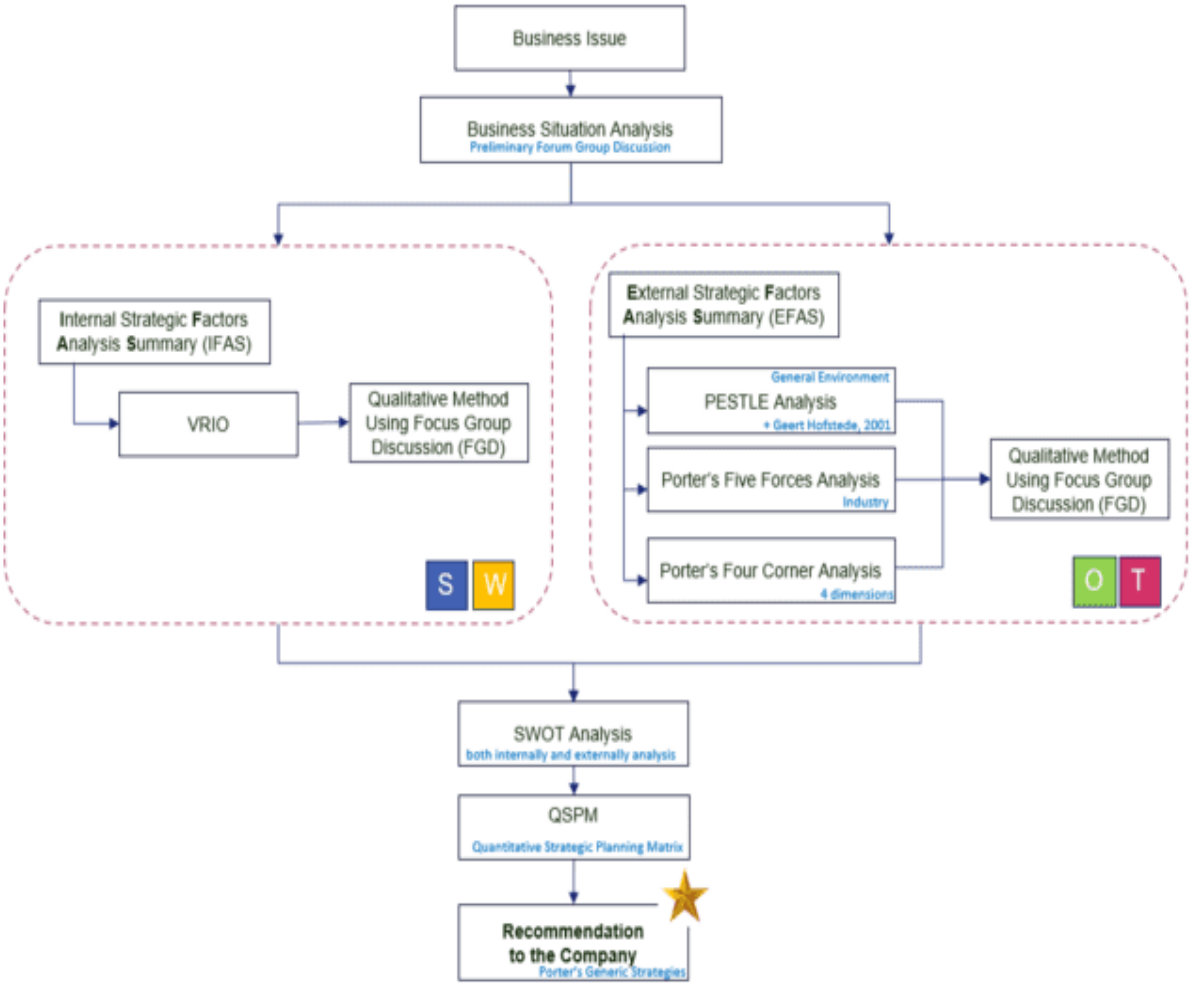


Figure 1. Research & Methodology

The research process begins to affirm the business issue, obtaining the primary data, through a Forum Group Discussion (FGD) allows the collection of rich and detailed data from a diverse range of stakeholders and serves to validate the real issue and provide insights into the underlying causes potential challenges, and consequences of the problem.

The FGD was attended by the Company's Management representatives, SAP Consultants, Business users (the SME), and Business Process Owners, while the secondary data was obtained through the study literature for broader context and insights into best practices and lessons learned in similar cases.

International Journal of Current Science Research and Review
ISSN: 2581-8341
Volume 07 Issue 06 June 2024
DOI: 10.47191/ijcsrr/V7-i6-57, Impact Factor: 7.943
IJCSRR @ 2024
www.ijcsrr.org

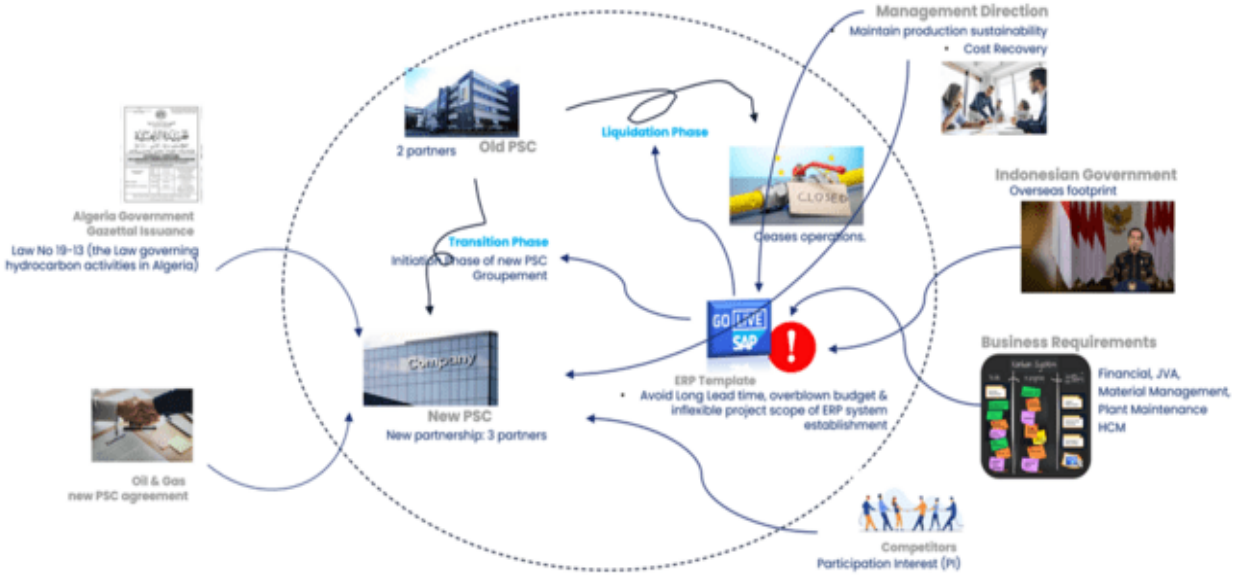


Figure 2. The Rich Picture of a Site Acquisition in Oil & Gas Industry

The Rich Picture explains the complexity of the new site acquisition in the Oil & Gas Industry, whereas the Gazettal issuance is indefinite, and concerns about production sustainability as well as its cost recovery maintain the business requirement anticipating the competitor's movement.

Business Requirements, the global and business issues are familiar with the success and failure in ERP system establishment and have the highest merit to participate in the analysis under consideration of the IFAS and EFAS, the first and foremost is the selection of methodology and implementation type to be adopted for the site acquisition during the liquidation and transition phase.

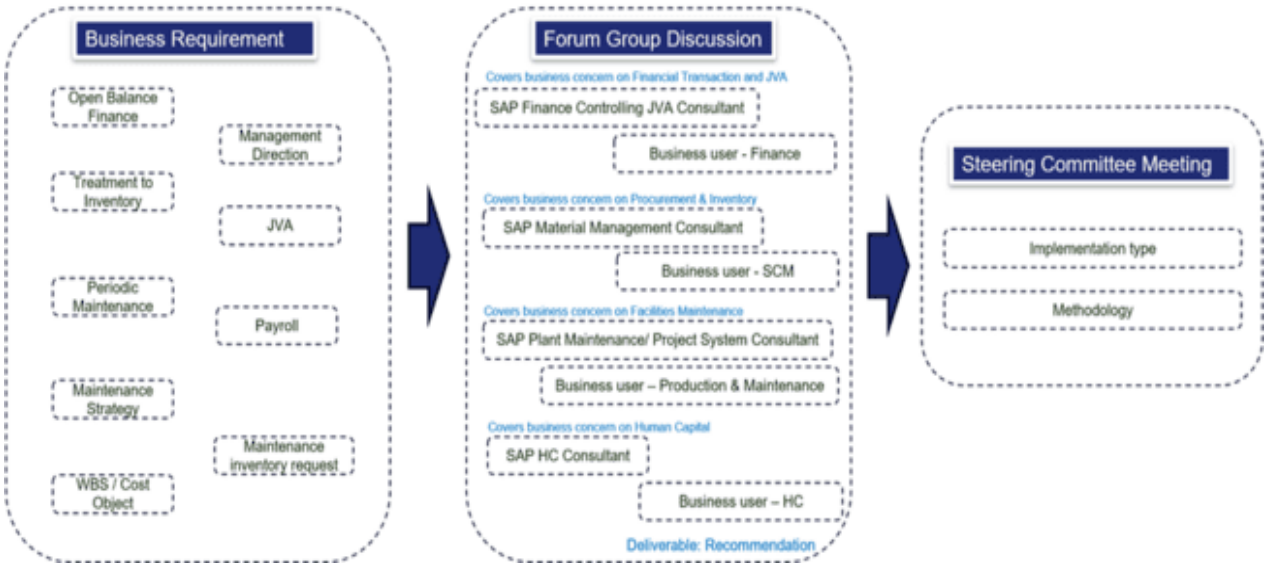


Figure 3. FGD points of concern

Data gathering from the eligible experts and resolving the business requirements inquiries, the FGD involves the Management representative, SAP Consultants, and Key user from the Business Process Owner as the SME (Subject Matter Expert) directed by the PMO – Project Management Officer.

International Journal of Current Science Research and Review
ISSN: 2581-8341
Volume 07 Issue 06 June 2024
DOI: 10.47191/ijcsrr/V7-i6-57, Impact Factor: 7.943
IJCSRR @ 2024
www.ijcsrr.org

Table 1. SME Profiles

No	*Function*	*Name (abbr.)*	*Experiences*
1	SHU Management	AH	+/- 20 years
2	PIEP Management	IH	+/- 20 years
3	SAP FI CO JVA Consultants	NC	10 – 15 years
4	SAP MM Consultants	CA	10 – 15 years
5	SAP PM/PS Consultants	BM	10 – 15 years
6	SAP HC Consultants	RU	10 – 15 years
7	FI Key User	AG	10 – 15 years
8	SCM Key User	FM	10 – 15 years
9	Production Maintenance Key User	SE	10 – 15 years
10	HC Key User	WA	10 – 15 years
11	PMO	RR	+/- 20 years
12	PMO	SE	10 – 15 years

The affirmative business issue is then used as consideration for further analysis on:

- The External strategic factors analysis summary (EFAS) is conducted using PESTLE analysis (Aguilar, 1967), the Porter's Five Forces (Porter, 1979). and Porter's Four Corner - competitor analysis (Porter M. E., 1980), identifying the specific issue or challenge that the business is facing, which may relate to market trends, customer needs, or internal operations, as well as the external factors influencing the business would be examined, to help in understanding how these external factors are impacting the business and its ability to address the issue. Assessment of the competitive landscape would provide insights into the competitive dynamics that are affecting the business and its ability to address the issue, where the competitor analysis is conducted to understand the strategies and strengths of key competitors, which inform the business's strategy for addressing the issue.
- The Internal strategic Factors Analysis Summary (IFAS) using the VRIO framework, serves as a strategic management tool employed to assess a firm's internal resources and capabilities for maintaining a competitive edge over the long term which focuses on the company's strengths and weaknesses, evaluating its resources and capabilities in terms of value, rareness, inimitability, and organization (Murcia et al., 2022).

The IFAS and EFAS analysis summary (the key external and internal factors) establishes the SWOT analysis within two dimensions: internal and external to be able to analyze the SO strategies to leverage strength to maximize opportunities, the WO strategies to counter weaknesses through exploiting opportunities, the ST strategies to leverage strengths to minimize threats, and the WT strategies to counter weaknesses and threats resulting the alternative strategies, which are used in both strategic planning and marketing strategy (Helms & Nixon, 2010) and serves as the basis for the usage of QSPM (Quantitative Strategic Planning Matrix), a quantitative tool that helps to prioritize and evaluate strategic options based on their potential impact on the company's performance (David et al., 2016), determine the most attractive option based on the cumulative impact of key external and internal factors (Wardhana et al., 2021) to determine a best-fit recommendation strategy in the formulation of strategy attractiveness for the company.

IV. RESULT & DISCUSSION

The outcomes of the study, upon the affirmative business issue, followed by the analysis of the data collection using the Internal Strategic Factors Analysis Summary (IFAS) and External Strategic Factors Analysis Summary (EFAS) with the proposed recommendation of business solution, the implementation plan, and the justification for the proposed solution.

- The Preliminary Forum Group Discussion

  Anticipating the business situation during the transition and liquidation phase, a task force team held a preliminary forum group discussion on the subject of ERP Solution Feasibility in the Liquidation & Transition Phase and affirmed the business issues.

International Journal of Current Science Research and Review
ISSN: 2581-8341
Volume 07 Issue 06 June 2024
DOI: 10.47191/ijcsrr/V7-i6-57, Impact Factor: 7.943
IJCSRR @ 2024
www.ijcsrr.org

Table 2. Business Issue Affirmation

Concern identification		*Priority*		*Process*
Major Concern	***Sub-concern***	***Timing***	***Impact***	***Action Needed***
Oil Production	Maintain Oil production sustainability	H	H	Deployment of the SAP system, for the new PSC
Gazettal date	Data and Initial transaction	H	H	Cutover & Migration strategy
Organization	Role Responsibility	M	M	Establish new Org.

- The External Strategic Factors Analysis Summary (EFAS)
  - PESTLE

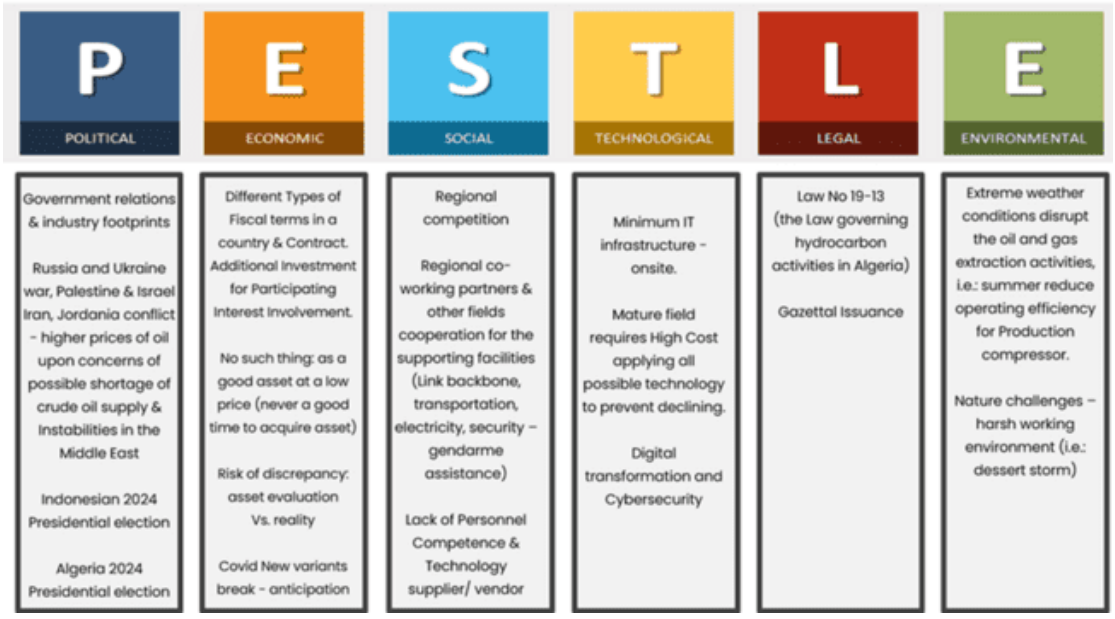


Figure 4. Summary of PESTLE analysis

- **Political**

A significant portion of the Algeria block's hydrocarbon reserves are located in certain areas that are exposed to political and security risks. Companies operating in these regions must navigate complex political environments and build strong relationships with local governments and communities to secure access to resources and operate safely, having better positioned to access new resources and diversify their operations. The 2024 Presidential election in Algeria may have a potential impact on the sector's regulatory environment, policy, and overall stability.

- **Economic**

The Algerian fiscal agreement defines the balance of investor risk and specific country's needs for the resource (oil & gas) cooperation, by the PSC system, on the exposure of discrepancy risk of an asset evaluation versus the reality upon reserves, uncertainty of global oil price, and the amount of investment.

- **Social**

The regional competitive rivalry between partners that already operate in the region also could be collaboratively beneficial as co-working partners for the remote site supporting facilities (as such Link backbone, transportation, electricity, security – gendarmerie assistance).

International Journal of Current Science Research and Review
ISSN: 2581-8341
Volume 07 Issue 06 June 2024
DOI: 10.47191/ijcsrr/V7-i6-57, Impact Factor: 7.943
IJCSRR @ 2024
www.ijcsrr.org

- **Technological**

The block of 405A is in a remote location, the Sahara Desert, for oil and gas activities, the technological section focuses on the challenges and opportunities for the limited IT infrastructures, cybersecurity handling, and slow adoption of digital transformation for new technology.

- **Legal**

The new Law No 19-13 governing hydrocarbon activities in Algeria upon no continuation of existing PSC to a new PSC agreement involving the liquidation phase (ceasing the operations, settling the outstanding obligation, and settling the right for cost recovery, and calculation of profit share), as well as the transition process to new PSC awaiting the indefinite date of Gazettal Issuance as the primary sources of Algeria's law published by national governments to disseminate new legislation.

- **Environmental**

The consideration of working onsite in the Sahara Desert, location of Block 405A, takes special attention to the environment which impacts the oil and gas extraction activities due to extreme weather and harsh working conditions.

- Porter's 5 forces

The analysis within a few dimensions has come to the understanding of profitability analysis from the **point of view of the Incumbent**, under the category of:

Table 3. Overall Industry Rating

	Low ***< -2***	***Medium*** ***2 ≤ X ≤ 2***	***High*** ***>2***
Threats of new entrants	**-8**		
Bargaining power of buyers	**-4**		
Threats of substitutes		**-2**	
Bargaining power of suppliers		**1**	
Intensity of rivalry among competitors	**-4**		

Whereas,

- **The threat of new entrants** is Favorable considering high entry barriers. The existing industry footprint and government relations are supported by the significant experience-based cost advantages/ learning curves effect of the fact that the Company as the existing PSC Operator, and high switching costs upon requirements of new infrastructure, project implementation (cost, time, resources - skilled people who know the business), and support organization setup.
- **Competitive pressure from buyers** is Favorable, which justifies the status quo of the provided services upon authority concern for the main sustainability of Oil production, smooth transition, and minimum disruption to the operations.
- **The threat of substitute** is at the Moderate state, where the potential threat of a veto (CDG's direction) could overwrite the given recommendation upon the expectation of autonomous SAP (as one of the alternative strategies), still hoping the given pros – cons of alternative strategy justify the recommendation.
- **The intensity of rivalry** is Favorable, considering the limited competitor of the JVA partnership, the technology trap, and the Company's objective on Oil Production sustain and low-cost operation to maintain the economics of operations.

- Competitor Analysis

A micro-level tool designed to help understand business, intent, and strategy, focuses on four key elements evaluating competitors and generating insights into likely competitor strategy changes.

International Journal of Current Science Research and Review
ISSN: 2581-8341
Volume 07 Issue 06 June 2024
DOI: 10.47191/ijcsrr/V7-i6-57, Impact Factor: 7.943
IJCSRR @ 2024
www.ijcsrr.org

Table 4. Competitor analysis

	1st partner: The state-owned company	*2nd Partner: the Incumbent*	*3rd partner: The new joint partner*
Current Strategy	New Implementation of SAP onsite (autonomous SAP)	Roll-Out the SAP SaaS packaged solution	No information related to the intention of SAP worldwide Roll-Out.
Objectives	Local data authority	• System readiness upon indefinite Gazettal date • Back charge mechanism	Involvement as per invested PI %
Resource & Capability	Lack of IT infrastructure and Non-existence of the SAP Support Organization	Expertise and experience as an existing Operator from a pooled Shared Service centre with an established SAP support organization	Worldwide expertise
Assumptions	Transfer technology roll out to another block within the Region.	• Aiming for a smooth Liquidation and Transition phase. • Proper methodology is required to anticipate the indefinite Gazettal issuance	No information related to their intention for their SAP worldwide Roll-Out strategy to new PSC.

- The Internal Strategic Factors Analysis Summary (IFAS)

  The summarized EFAS analysis is categorized as the group of analysis reference for the IFAS – VRIO analysis, whereby:
  - Financially, related to the SAP implementation types
  - Human, related to the Shared Service Center (SAP shared organization)
  - Material/ Product, on the SaaS ready-to-use (SAP packaged solution)
  - Non-material, related to the Company's expertise & experience.

  The analysis covers various aspects of the organization, including its strategic position, resources, capabilities, and competencies.

Table 5. VRIO Internal Analysis for the Incumbent

Sector	*Subject*	*Valuable*	*Rare*	*Inimitable*	*Organized*	*State*	*Remarks*
Financial	Implementation Type	Yes	Yes	Yes	Yes	Sustained Competitive Advantage	Availability of SaaS SAP services ready-to-use with agile methodology anticipates indefinite Gazettal date.
Human	Shared Service Centre (SAP Shared Organization)	Yes	Yes	Yes	Yes	Sustained Competitive Advantage	• SAP Shared Service Centre as a pooled organization with a back charge mechanism to support day-to-day operations. • Leveraging the expertise and experience operating the existing Block minimizes the impact of not having the

International Journal of Current Science Research and Review
ISSN: 2581-8341
Volume 07 Issue 06 June 2024
DOI: 10.47191/ijcsrr/V7-i6-57, Impact Factor: 7.943
IJCSRR @ 2024
www.ijcsrr.org

							majority control over joint-operating assets.
Material/ Product	SaaS ready-to-use (package solution) services for SAP applications	Yes	Yes	No	-	Temporary Competitive Advantage	The SaaS packaged solution should leverage the position of the offered product upon the speedy establishment to overcome the perceived performance on the SaaS accessibility to achieve the short-term target in parallel to plan the project on an autonomous SAP journey.
Non-Material	Expertise & experience	Yes	No	-	-	Competitive Parity	Crucial to identify areas of improvement to differentiate itself, monitor industry trends, collaborate with partners & maintain a cost leadership position, where the expertise and experience of Operating existing PSC would help the Company to adapt to agile fulfilling the requirement.

The incumbent company has engaged in managing the overseas footprint in 12 countries and 4 continents (PIEP Annual Report, 2022) with the expertise as an Operator in existing PSC and having a good relationship with the Algeria authorities. The signing of the new PSC has raised global concerns about the establishment of Indonesia's Portfolio in the Oil & Gas industry worldwide (overseas footprint) upon indefinite Gazettal issuance to settle remaining cost recovery in the liquidation phase of existing PSC as well as managing the following business issues during the transition phases to new PSC.

The ERP SaaS ready-to-use services owned by the incumbent company currently serve existing PSC, are supported by a firmed SAP Shared Service use to handle the facilities and dynamic situations (inc. uncertainty of definitive milestone and weather). Data visibility for the Operations facilities' histories since 2014 is crucial for data-driven decision-making, equipped with the service portfolio of the satellite applications for the automation possibility to sustain cost leadership upon efficient operation and able to overcome the perceived performance of network accessibility from MLN Algeria. It's acknowledged that SAP is an Off-the-shelf configurable software and Oil & gas is a common and mature business process, where expertise is not a rare aspect though the experience handling the block as an Operator is a competitive advantage.

- SWOT Analysis

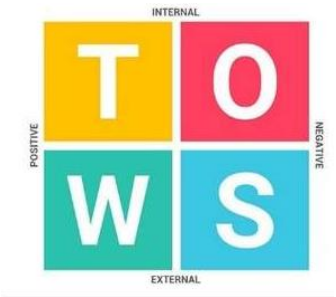
The analysis from the EFAS to gain a competitive landscape, and the IFAS assesses a firm's internal resources and capabilities to maintain a competitive edge over the long term, summarizes the key external (Opportunities and Threats) & the internal factors (Strengths and Weaknesses) as follows:

  - Opportunities
    - Government relations & industry footprints
    - Law No 19-13 (the Law governing hydrocarbon activities in Algeria)
    - Acquiring new assets – economical
    - Co-working partners in the region
    - ERP system readiness - digital transformation
    - Data authority for autonomous ERP

International Journal of Current Science Research and Review
ISSN: 2581-8341
Volume 07 Issue 06 June 2024
DOI: 10.47191/ijcsrr/V7-i6-57, Impact Factor: 7.943
IJCSRR @ 2024
www.ijcsrr.org

- Threats
  - Security & Country Risk – the geopolitical conditions, Extreme weather – facilities, harsh working environment
  - Discrepancy: asset evaluation Vs. reality (mature fields require high cost due to technology requirements)
  - Gazettal unspecified date
  - Minimum IT infrastructure & Cybersecurity
  - Necessary skilled people, materials, or suppliers
  - Threats of new entrants for substitutes
- Strengths
  - Presences in 12 Countries and 4 Continents & as Operator of existing PSC in MLN, Algeria (overseas portfolio).
  - ERP SaaS ready-to-use services.
  - ERP Support Shared Service with back charge mechanism.
  - Personnel & networks capability (experience & expertise) handling the facilities and dynamic situations (inc. uncertainty of definitive milestone and weather) since 2014.
  - Data visibility for the Operations facilities' histories since 2014 crucial for data-driven decision-making
  - Service catalog portfolio of the satellite apps core functions for automation possibility to sustain cost leadership.
- Weaknesses
  - Perceived performance – network accessibility
  - SAP is an Off-the-shelf configurable software
  - Oil & gas is a common and mature business process
  - Doesn't have majority control over New PSC joint-operating assets to solely decide the usage of the offered service.

Table 6. TOWS Analysis

	**Strength** 1. Presences in 12 Countries and 4 Continents & as Operator of existing PSC in MLN, Algeria (overseas portfolio). 2. ERP SaaS ready-to-use services. 3. ERP Support Shared Service with back charge mechanism. 4. Personnel & networks capability (experience & expertise) handling the facilities and dynamic situations (inc. uncertainty of definitive milestone and weather) since 2014. 5. Data visibility for the Operations facilities' histories since 2014 crucial for data-driven decision-making 6. Service catalog portfolio of the satellite apps core functions for automation possibility to sustain cost leadership.	**Weaknesses** 1. Perceived performance – network accessibility 2. SAP is an Off-the-shelf configurable software. 3. Oil & gas is a common and mature business process. 4. Doesn't have majority control over New PSC joint-operating assets to solely decide the usage of the offered service.

International Journal of Current Science Research and Review
ISSN: 2581-8341
Volume 07 Issue 06 June 2024
DOI: 10.47191/ijcsrr/V7-i6-57, Impact Factor: 7.943
IJCSRR @ 2024
www.ijcsrr.org

Opportunities 1. Government relations & industry footprints 2. Law No 19-13 (the Law governing hydrocarbon activities in Algeria) 3. Acquiring new assets – economical 4. Co-working partners in the region 5. ERP system readiness - digital transformation 6. Data authority for autonomous ERP	1. Leverage the expertise and experience to maintain production sustainability aiming the Long-Term goal to establish the autonomous SAP local hosting ECC6 or HANA in MLN either ECC 6 or HANA with the SAP activate agile project approach, with significant experience-based cost advantage/ learning curve effect as MLN operator, embedded operational business processes & establish new service, the Technical Advisory service (S1, S2, S3, S5, O2, O5, O6) 2. Manage resources (personnel, expertise, material, and facilities) for speedy Business deployment and maintain the production (S1, S4, O1, O3, O4) 3. Extensive potential- services, New Operatorship zones for Value creation Digitalization (Apps & Tool) PKS SS & EIT, i.e.: Non-ERP Applications (Roll-Out & Replication) (S6, O3, O5)	1. Aiming at the Medium-Term goal the SAP SaaS 'built-in package' leverages the expertise into the package to leverage the position of the offered product upon speedy establishment, become hard to imitate. (W2, W3, O5) 2. Roll-out on repurposing the existing cycle of implementation system and business process at a new site to support operations across entire regions or countries, or around the world for a standardized solution for all business entities. (W1, W2, O3)
Threats 1. Security & Country Risk – the geopolitical conditions, Extreme weather – facilities, harsh working environment 2. Discrepancy: asset evaluation Vs. reality (mature fields require high cost due to technology requirements) 3. Gazettal unspecified date 4. Minimum IT infrastructure & Cybersecurity 5. Necessary skilled people, materials, or suppliers 6. Threats of new entrants for substitutes	1. Aiming the Short-Term goal to Roll-Out the SAP SaaS ready-to-use-service to anticipate the Gazettal date with the best-fit implementation methodology by the Shared Service organizational, integrated satellite apps, and business process expertise (S1, S2, S3, S5, T1, T3, T4, T5) 2. Cut over migration strategy anticipating liquidation and transition phase (S3, S4, S5, T3, T5, T6)	1. Provide the transition & preparation Journey, inc. organization, IT infrastructure & skillset to aim the long-term goal of autonomous SAP establishment. (W4, T2, T4, T5, T6)

The TOWS analysis of the combination of key external & internal factors resulting in the alternative strategies is structured around four key relationships:

- **Strengths & Opportunities**: This relationship focuses on leveraging internal strengths to capitalize on external opportunities. It involves identifying how each strength can be used to take advantage of each opportunity and outlining specific actions to make this happen.
- **Strengths & Threats**: This relationship aims to use internal strengths to mitigate or avoid external threats. It involves mapping each strength against each threat and outlining actions to reduce or remove the threats.

International Journal of Current Science Research and Review
ISSN: 2581-8341
Volume 07 Issue 06 June 2024
DOI: 10.47191/ijcsrr/V7-i6-57, Impact Factor: 7.943
IJCSRR @ 2024
www.ijcsrr.org

- **Weaknesses & Opportunities**: This relationship looks at how internal weaknesses can be addressed by leveraging external opportunities. It involves identifying which weaknesses prevent or risk the opportunities and outlining actions to address these weaknesses.
- **Weaknesses & Threats**: This relationship examines how internal weaknesses can contribute to external threats and outlines actions to address these weaknesses and mitigate the threats.

- The Quantitative Strategic Planning Matrix (QSPM)

The given analysis from the TOWS comes up with the 6 (six) alternative strategies:

1. Short Term: SaaS SAP New Implementation
2. Short Term: SaaS SAP Roll-Out
3. Medium Term: SaaS SAP 'built-in packaged' New Implementation
4. Medium Term: SaaS SAP 'built-in packaged' Roll-Out
5. Long Term: Autonomous (New Implementation) SAP ECC6
6. Long Term: Autonomous (New Implementation) SAP HANA

The analysis provides a solid foundation for the QSPM analysis by identifying the key factors that influence the organization's strategic choices, which are then used to evaluate and rank alternative strategies based on their attractiveness and feasibility.

			Short Term (SaaS New Implementation)		Short Term (SaaS Roll-Out)		Medium Term (SaaS 'built-in packaged' New Implementation)		Medium Term (SaaS 'built-in packaged' Roll-Out)		Long Term (Autonomous SAP ECC6)		Long Term (Autonomous SAP HANA)	
		Weight	AS	TAS	AS	TAS	AS	TAS	AS	TAS	AS	TAS	AS	TAS
	Key External Factors													
	Opportunities													
1	Government relations & industry footprints	7	0,09	-	-	-	-	-	-	-	-	-	-	-
2	Law No 19-13 (the Law governing hydrocarbon activities in Algeria)	7	0,09	1	0,09	4	0,36	1	0,09	2	0,18	1	0,09	1	0,09
3	Acquiring new asset – economical	8	0,10	1	0,10	4	0,42	1	0,10	2	0,21	1	0,10	1	0,10
4	Co-working partners in the region	5	0,06	-	-	-	-	-	-	-	-	-	-	-	-
5	ERP system readiness - digital transformation	8	0,10	1	0,10	4	0,42	2	0,21	3	0,31	1	0,10	2	0,21
6	Data authority for autonomous ERP	5	0,06	1	0,06	1	0,06	1	0,06	1	0,06	3	0,19	4	0,26
	Threats													
1	Security & Country Risk – the geopolitical condition, Extreme weather – facilities, harsh working	4	0,05	1	0,05	4	0,21	1	0,05	3	0,16	1	0,05	1	0,05
2	Discrepancy: asset evaluation Vs. reality (mature fields require high-cost due technology requirement)	7	0,09	1	0,09	4	0,36	1	0,09	2	0,18	1	0,09	1	0,09
3	Gazettal unspecified date	9	0,12	1	0,12	4	0,47	1	0,12	1	0,12	1	0,12	1	0,12
4	Minimum IT infrastructure & Cybersecurity	6	0,08	2	0,16	4	0,31	1	0,08	2	0,16	1	0,08	1	0,08
5	Necessary skilled people, materials or suppliers	6	0,08	1	0,08	4	0,31	1	0,08	2	0,16	1	0,08	1	0,08
6	Threats of new entrants for substitutes	5	0,06	1	0,06	3	0,19	1	0,06	4	0,26	1	0,06	1	0,06
	Total	77	1											
	Key Internal Factors													
	Strengths													
1	Presences in 12 Countries and 4 Continents & as Operator of existing PSC in MLN, Algeria (overseas	5	0,1	2	0,20	4	0,40	1	0,10	2	0,20	2	0,20	3	0,30
2	ERP SaaS ready-to-use services.	9	0,18	1	0,18	4	0,72	1	0,18	3	0,54	2	0,36	2	0,36
3	ERP Support Shared Service with back charge	8	0,16	1	0,16	4	0,64	1	0,16	3	0,48	1	0,16	2	0,32
4	Personnel & networks capability (experience & expertise) handling the facilities and dynamic situations (inc. uncertainty of definitive milestone and weather) since 2014	7	0,14	1	0,14	3	0,42	1	0,14	4	0,56	1	0,14	2	0,28
5	Data visibility for the Operations facilities' histories since 2014 crucial for data-driven decision making	6	0,12	1	0,12	4	0,48	1	0,12	3	0,36	1	0,12	2	0,24
6	Service catalogue portfolio the satellite apps core functions for automation possibility to sustain cost leadership upon efficient operation.	5	0,1	1	0,10	2	0,20	1	0,10	4	0,40	1	0,10	3	0,30
	Weaknesses													
1	Perceived performance – network accessibility	4	0,08	1	0,08	2	0,16	1	0,08	2	0,16	2	0,16	4	0,32
2	SAP is an Off-the-shelf configurable software	3	0,06	1	0,06	3	0,18	1	0,06	4	0,24	1	0,06	2	0,12
3	Oil & gas is a common and mature business process	2	0,04	1	0,04	3	0,12	1	0,04	4	0,16	1	0,04	1	0,04
4	Doesn't have majority control over New PSC joint-operating assets to solely decide the usage of the offered service.	1	0,02	1	0,02	3	0,06	1	0,02	2	0,04	1	0,02	4	0,08
	Total	50	1		2,02		6,50		1,95		4,93		2,33		3,50

Figure 5. QSPM Analysis result

The QSPM calculation analysis shows that the deployment of Short-Term SaaS Roll-Out repurposes the existing cycle of implementation system and business process at a new site to support operations across entire regions or countries, or around the world for a standardized solution for all business entities. is more attractive (TAS score 6,50), with strong feasibility on the continuance bridging to a term plan for SaaS built-in packaged (TAS score 4.93) incorporate the expertise and known best practice in the block would benefit the next block acquisitions, with Long-term goal compliance aiming to move to autonomous HANA (TAS score 3,50).

International Journal of Current Science Research and Review
ISSN: 2581-8341
Volume 07 Issue 06 June 2024
DOI: 10.47191/ijcsrr/V7-i6-57, Impact Factor: 7.943
IJCSRR @ 2024
www.ijcsrr.org

- Business Solutions

The QSPM analysis has provided a comprehensive framework for evaluating the six alternative strategies based on both key external and internal factors. The outcome of this analysis has led to the selection of the most suitable strategy, which is aiming for the short-term objective of rolling out the configured SaaS with the new company code represents the New PSC Block 405A, as it comes from the strategic combination of factors that align with the organization's goals and objectives. The chosen strategy effectively addresses external factors such as market trends, competitor analysis, and regulatory requirements, while also leveraging internal strengths such as operational efficiency, financial resources, and organizational capabilities. This strategic approach ensures that the organization is well-positioned to adapt to changing market conditions, maintain a competitive edge, and achieve long-term success.

The project kick-off meeting was held and continued with the next milestone of the project the Steering Committee meeting, with the agreed phases of implementation to be agile with the issuance of Gazettal,

- **Phase 1**: Go live system by January 1, 2024, to represent the new PSC with existing organization configuration and master data.
- **Phase 2**: Go live system upon Gazettal issuance through cutover and data migration activity for new transaction record readiness in New PSC.
- **Phase 3**: Go live system for the alignment to set up of the organization. The new Organization shall be agreed upon by partners, therefore the configuration most likely will be applied in the next phase of deployment (known as a modification due to reorganization changes).

- Implementation Plan & Justification

The implementation plan of the recommended solution would be with the agreed deliverable phases with the agile sprints approaches respectively,

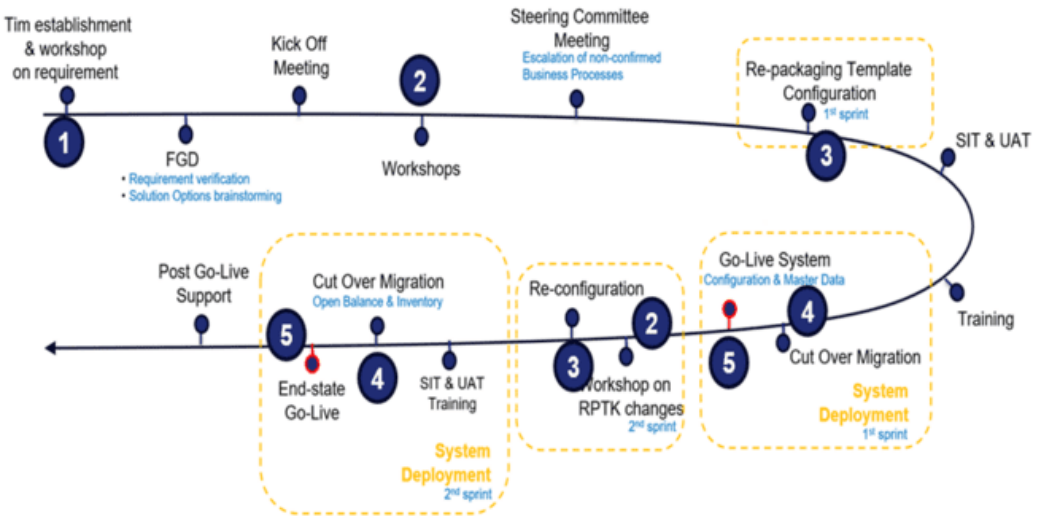


Figure 6. Implementation Plan

The implementation plan for SAP deployment involves a structured approach that begins with a thorough evaluation of the organization's preparedness for the transition. A business plan and justification are established, outlining specific goals and a detailed plan that includes financial projections, timelines, and expected outcomes. A focused project team is formed, consisting of consultants, IT specialists, functional experts, and key stakeholders. The system needs to be set up according to best practices and business needs, followed by data migration to ensure accurate and seamless transfer of data from current systems. Once, the system is successfully tested for functionality, data integrity, and performance to ensure a successful deployment, finally, the Go-Live phases shall be carried out together with the change management process to align the changes put into the operations.

International Journal of Current Science Research and Review
ISSN: 2581-8341
Volume 07 Issue 06 June 2024
DOI: 10.47191/ijcsrr/V7-i6-57, Impact Factor: 7.943
IJCSRR @ 2024
www.ijcsrr.org

CONCLUSION

Indefinite gazettal issuance requires anticipation for the smooth liquidation and transition phase upon new site acquisition in Algeria, while the technology trap of the SAP system plays its role in covering the business process and cut-over migration to the business sustainability with less impact on the oil production operations.

The highest attractiveness score, 6.50, for the strategy deploying the agile Short-Term SaaS Roll-Out repurposing the existing cycle of implementation system and business process at a new site to support operations across entire regions or countries, or around the world for a standardized solution for all business entities, with strong feasibility on the continuance bridging to Medium Term plan for SaaS built-in packaged (TAS score 4.93) incorporate the expertise and known best practice in the block would benefit to the next block acquisitions, with Long-term goal compliance aiming to move to autonomous SAP S/4 HANA (TAS score 3,50).

The key success factors of having SAP on SaaS (Software as a Service) supported by the Shared Service organization with strong expertise and experience on the known Oil & Gas best practice operating the block, where the efficiency comes from routinizing the non-routine so that people able to develop useful habits that drive their behavior and able to fully deploy their resources under challenging conditions (develop behavioral resilience) therefore fully overcoming weakness taking advantage of opportunities & minimize the threats, while to consider the limitation to the given recommendation, may only at the extent of Stakeholders' acknowledgment in new PSC Block 405A in Algeria, the system implementation decision may subject to the new PSC organization decision, so forth acknowledged points for further study, whereby:

- On how to establish the SAP Built-In package, which would be beneficial for further site acquisition embedded expertise & experience handling business processes in the region.
- On how the ultimate compliance can be achieved to move to autonomous SAP R/4 HANA as the impact of SAP Business Suite 7 end of support, which includes SAP ECC 6 by 2027 with an optional extension to 2030 as if to remain at existing version with no maintenance support, remains with premium (extended) maintenance or move to HANA.

REFERENCES

1. Aguilar, F. J. (1967). Scanning the Business Environment. New York: MacMillan Co.
2. Cunningham, P. (2004). Back-to-basic in ERP HR implementations. World Review of Science, Technology and Sustainable Development.
3. Czachorowski et al., K. (2022). Minding the gap between the front and back offices: A systemic analysis of the offshore oil and gas upstream supply chain for framing digital transformation. Systems Engineering. doi:https://doi.org/10.1002/sys.21652
4. Darusulistyo et al., S. (2022). Agile Transformation Framework in Oil and Gas Company Operations: Proposing a Conceptual Framework. Research Square.
5. David et al., M. E. (2016). The quantitative strategic planning matrix: a new marketing tool. Journal of Strategic Marketing, p.342-352.
6. Elragal, A., & Kommos, M. (2013). In-House versus In-Cloud ERP Systems: A Comparative Study. Journal of Enterprise Resource Planning Studies, 1-13.
7. Gulledge, T. R. (2005). The evolution of SAP implementation environments. Industrial Management & Data Systems, Vol. 105 Iss 6 pp. 714 - 736.
8. Helms, M., & Nixon, J. (2010). Exploring SWOT analysis - where are we now? Journal of Strategy and Management, 215-251.
9. iea.org. (2022, June 28). Law No. 19-13 – Law governing hydrocarbon activities. iea.org: https://www.iea.org/policies/11809-law-no-19-13-law-governing-hydrocarbon-activities
10. Jasiński, M. (2023). INTERNATIONAL SAP ROLLOUTS. https://www.all-for-one.pl/en/whitepapers/wdrozenia-i-rollouty-sap/
11. Kaushik, S., Bharadwaj, A., & Awasthi, V. (2015). Need for Blending Agile Methodologies and Lean Thinking for ERP Implementation: An Industry Point of View. 1st International Conference on Next Generation Computing Technologies (NGCT-2015). Dehradun, India.

International Journal of Current Science Research and Review
ISSN: 2581-8341
Volume 07 Issue 06 June 2024
DOI: 10.47191/ijcsrr/V7-i6-57, Impact Factor: 7.943
IJCSRR @ 2024
www.ijcsrr.org

12. Kunze, M. (2007). SAP ROLLOUTS: OPPORTUNITIES AND THREATS. The Specifics of SAP Implementations in International Companies. https://www.all-for-one.pl/en/whitepapers/sap-roll-outs-opportunities-and-threats/
13. Lewandowski et al., J. (2013). SaaS Enterprise Resource Planning Systems: Challenges of their adoption in SMEs. IEEE 10th International Conference on e-Business Engineering, (hal. 56-61).
14. Lim et al, T. (2016). User Acceptance of SaaS ERP Considering Perceived Risk, System Performance and Cost. Information Science and Applications (ICISA). 376, hal. 53-63. Singapore: Information Science and Applications (ICISA). doi:https://doi.org/10.1007/978-981-10-0557-2_6
15. Murcia et al., N. N. (2022). Enhancing strategic management using a "quantified VRIO": Adding value with the MCDA approach. Technological Forecasting and Social Change.
16. PIEP Annual Report. (2022). Annual report. Jakarta: PT Pertamina Internasional Explorasi dan Produksi. https://piep.pertamina.com/Assets/Annual%20Report/FINAL_AR_PIEP_2022.pdf
17. Porter, M. E. (1979). How Competitive Forces Shape Strategy. Harvard Business Review.
18. Porter, M. E. (1980). Competitive Strategy: Techniques for Analyzing Industries and Competitors. New York: Free Press.
19. PWC. (2020). Oil and Gas in Indonesia - Investment and Taxation Guide. Jakarta: PWC.
20. Saini et al., S. (2011). Cloud computing and enterprise resource planning systems. Proceedings of the World Congress on Engineering. London,UK.
21. Varad. (2022, February 18). SAP Projects. https://www.softat.co.in/sap-projects/: https://www.softat.co.in/sap-projects/
22. Wardhana et al., M. Y. (2021). Palm sugar production from Palm tree in Gerenggam village environment. IOP Conf. Ser.: Earth Environ. Sci. 644 012018. Aceh. doi:10.1088/1755-1315/644/1/012018
23. Wijaya et al., S. (2023). An Evaluation of Integrating ERP System to Develop a Strategy Business. International Conference on Information Management and Technology, ICIMTech 2023. Malang: IEEE Indonesia.
24. Wijaya, S. F., Prabowo, H., & Kosala, R. R. (2019). an Agile Implementation Model for ERP. International Conference on Information Management and Technology (ICIMTech). IEEE.

Cite this Article: Roni Rahadian, Prawira Fajarindra Belgiawan (2024). Agile Establishment of ERP System Roll Out in Maintaining Production Sustainability during the PSC Transition & Liquidation Phase Case Study a Site Acquisition in the Oil & Gas Industry. International Journal of Current Science Research and Review, 7(6), 4061-4075