**PARTNERING IN THE ESTABLISHMENT AND DEPLOYMENT OF AN OIL AND GAS COMMAND-AND-CONTROL CENTER: AN OPPORTUNITY FOR EATECH**

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| Date: | 8th of August, 2024 |

**Abstract**

In developed oil-producing countries, the production of oil and gas is managed via command-and-control centers. This has led to a boost in production, improved control on pollution and spillage, clamping on oil theft and vandalism etc.

For a long time now, Nigeria’s oil sector has been plagued with pollution and oil theft; therefore, requiring improvement in the oil and gas sector. In the year 2022, the NNPC established the Central Coordination, Data Integration and Activation Control Room. This and other factors led to a significant increase in oil production, however, production level decreased yet again this year, significantly below the OPEC quota for Nigeria; indicating that the NNPC command-and-control center alone, is not sufficient to ensure effective production management in the oil and gas sector.

The federal government has been expressive about its desire to see an increase in production level to yield about 2 million barrels per day. It has also called for more collaboration with the private sector in various industries in the country. The private sector is best suited to handle a command-and-control center in the country, as they will always strive to meet up with their set goals; which is in this case, optimized production.

This report gives a brief analysis on the benefits and opportunities available and obtainable in a partnership such as the establishment of a command-and-control center. It also delves deeper to point out some risks and threats that may be associated with this project, enumerating countering measures for the effective mitigation of these risks; thereby ensuring optimization.

**Contents**

Abstract …………………………………………………………………………………. 2

Contents ………………………………………………………………………………… 3

Background ……………………………………………………………………………. 4

SWOT Analysis …………………………………………………………………………. 7

Mitigating Risks and Threats……………………………………………………………. 9

Benefits of Partnership ………………………………………………………………….10

Conclusion ……………………………………………………………………………..…11

Glossary and Acronym……………….………………………………………………..…12

References ……………………………………………………………………….……….13

**Background**

In the oil and gas industry, it is important to properly manage heat, pressure and flow to ensure efficiency. Hence, various processes are refined constantly to achieve unrestricted flow, safe conditions (in terms of temperature and pressure) and in general, maximum efficiency in the system. An optimized command and control center helps to achieve this by remotely keeping track of these parameters, alerting officials and personnel in cases of abnormality, remotely shutting down flow lines in cases of emergency, remotely tracking illegal activities across lines etc.

The ideal control center would be one that allows large-scale and distributed (multi-site) deployment, configured as a multi-agency tool with flexible customization for each operational scenario and with native SIP nodes for scalable communication needs. In addition, it must guarantee the highest availability for continuous operation by incorporating redundant elements, and it must support new broadband services such as real-time video streaming [1].



Figure 1: An Example of a Command-and-Control Center

Many developed countries have relied heavily on technology in boosting their oil production. For example, the command-and-control center technology has helped Saudi Arabia to boost production to over 9 million barrels per day. They are able to manage production better due to information provided by the center.



Figure 2: SPF Design of Saudi Aramco Command-and-Control Center (Saudi Arabia) [2]

However, crude oil theft and vandalism has negatively affected upstream and downstream operations in many developing and under-developed oil-producing countries. As at early 2022, Nigeria was unable to meet its OPEC production quota of 1.99 million barrels per day, with the production level being 1.4 million barrels per day. This was due to the loss of about 700,000 barrels of crude daily to oil theft and production shut-in caused by pipeline vandalism [3]. The production level has improved to about 1.67 million barrels per day in 2023 after the NNPC established the Central Coordination, Data Integration and Activation Control Room [4], however as at 2024, it is at 1.5 million barrels per day. This shows that partnership with the private sector is needed.

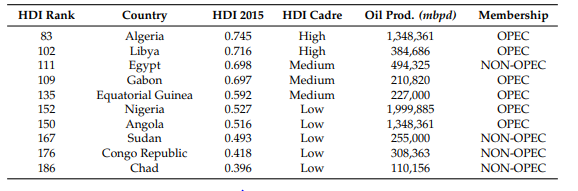


Table 1: World Bank HDI and Crude Oil Production Ranking (Primary source: World Development Index) [5]

The private sector will not give room for the lethargic attitude displayed by most civil servants in the oil and gas sector. They are rather goal-driven; hence, they will achieve so much with the backing of the government. Also, the prospect of having a significantly increased and detailed production will make companies spend as required to equip their respective command-and-control centers. The establishment of a well-equipped command-and-control center will aid the removal of illegal connections, detection and destruction of illegal refinery sites; thereby limiting vandalism.

Nigeria sits atop 36 billion barrels of crude oil reserves and 206 trillion cubic feet of proven gas reserves but has seen a steep decline in investments in the vital oil sector in recent years [6]. The command-and-control center will help improve production management, thereby boosting production, thereby become far more attractive again to foreign investors. When this happens, the first set of investors in this phase of production boosting will have more advantage, as they will have so much room to diversify; hence, **EATECH** can create a niche for itself in this promising industry by partnering with the frontiers of a project such as building a well-equipped command-and-control in Nigeria.

This report seeks to outline and advise towards mitigation of the possible risks in partnering in such a project, if there may be; and most importantly, expose the outweighing advantages of been a partner to a functioning well-equipped Oil & Gas Command-and-Control center.

**SWOT ANALYSIS**

SWOT analysis is used by many business entrepreneurs to query business ideas in order to know whether they should go through with the business idea or not. The acronym SWOT stands for: **S**trength **W**eakness **O**pportunity **T**hreat. This section of the report will analyze **EATECH** based on these groups.

***STRENGTH***

* The company has built a legacy of integrity and excellence; hence, it may not take much convincing to negotiate a fair deal for partnership; as the other party would want a company like **EATECH** in their team.
* The company has built a culture of a dedicated environment with appropriately skilled and dedicated staff. This is due to the standards and principles mandated and inculcated by the management to instill professionalism.

***WEAKNESS***

* The company has not been in this particular type of project before.
* The company may not have the specific number of highly skilled personnel required for this type of project

***OPPORTUNITY***

* The government has indicated interest in boosting oil production. The president has also affirmed it, that he wants the production level boosted to about 2 million barrels per day.
* Increase scope of activities, improve the skill level of staff.
* On completion of the command-and-control center, many oil and gas companies would seek for their flow lines to be monitored in order to manage production: hence, there will be massive return on investment.
* The company will have first-hand access to information on the state of the flow lines from the command-and-control center
* This information can tell which pipe, components, fittings, sensors etc. are faulty or require maintenance. These services are already been provided by the company; hence, early detection and early repair.
* The company will also provide flow management services, designing systems with the given information from the command-and-control center, to ensure optimal flow.
* A boost in oil & gas production will lead to a boost in company’s profit.
* This partnership if successful, will boost the company’s profile.

***THREAT***

* Government policies and government interference has sometimes been a problem in this part of the world; the policies sometimes appear to be inconsistent from one tenure to another.
* Corruption amongst government officials, traditional rulers, security personnel etc. in Nigeria. It is no secret in Nigeria that on top of the pyramid of oil theft in the country, there are prominent leaders; men of influence, who will try to fight a boost in production.
* Already, the NNPC has a command-and-control center in Nigeria. Any new one would have to better that of the NNPC in terms of services rendered.
* This project is not solely in control of **EATECH** as it involves other companies (partners); therefore, its success depends on the contributions and the quality participation of all parties involved.

**Mitigation of Risks and Threats**

The threats discussed in the previous can be countered effectively by planning and taking proactive measures before the commencement of the project. These includes;

1. Only formal agreements should be made between the parties involved in the project. These agreements must be revised and duly signed by the representatives of all parties. During this stage, order of activities, protocols and roles must be clearly defined. Avoid dwelling on verbal agreements.
2. The partnership with the NNPC will spring up jubilations among Nigerians; this is the best moment to reveal some information from the contract to the media, even if it is just the part that describes the roles and conduct of every party to the contract. This will ensure that the whole nation is kept abreast with the conduct of each party in the successful operation of the command-and-control center; hence, they act as witnesses. This will help during a tenure change or in the event of unfavorable government policies; as litigation will be backed by the media, stakeholders and the entire nation at large: influencing the government to amend its decision.
3. Day to day activities will be summarized and the revealable details will be posted on the company’s various social media handles, this will build the reputation of the company; so that in the event that lies are peddled by mischief makers, due to the center’s clamp on oil theft, the people are well informed.
4. The use of semi-automated valves especially along trunk lines, to stop the flow when there is detection of oil theft. In the event of oil theft detection, the lines will be closed and security personnel will be informed by direct contact from the center or by the alarm system. The lines will no longer be opened until the police or the military can confirm that there is no more threat to the lines. During this period, trucks and barges will be used to transport the product. All of these procedures will be summarized and posted on social media, updating the audience with which lines are shut and why they were shut automatically.
5. The NNPC command-and-control center still has not filled the gap the nation hopes it to fill; as we can see that day by day, production level is dwindling. Hence, partners in this project must strive to better the NNPC command-and-control center by proper planning, investment and professionalism.

**Benefits of the intended Partnership**

***Benefits of a company partnering with the Federal Government, Regulatory bodies and Industry stakeholders to build a state-of-the-art Oil & Gas Command and Control center***

Partnering with the Federal Government, regulatory bodies, and industry stakeholders to build a state-of-the-art Oil & Gas Command and Control Center can offer a range of significant benefits for a company. Here are some key advantages:

1. Enhanced Compliance and Regulatory Alignment

• Regulatory Guidance: Collaborating with regulatory bodies ensures that the command and control center adheres to the latest standards and regulations, reducing the risk of compliance issues.

• Streamlined Processes: Working with regulators can help streamline approval processes and facilitate smoother interactions with oversight agencies.

2. Improved Operational Efficiency

• Advanced Technology Integration: Partnering with stakeholders often brings in cutting-edge technologies and best practices, leading to improved operational efficiency and effectiveness.

• Optimized Resource Management: A state-of-the-art center can enhance real-time monitoring and management of resources, reducing operational downtime and improving response times.

3. Increased Safety and Risk Management

• Enhanced Safety Protocols: Regulatory bodies and industry experts can contribute to designing and implementing robust safety protocols and emergency response strategies.

• Risk Mitigation: Advanced command and control systems can help in better risk assessment and management, reducing the likelihood and impact of incidents.

4. Access to Funding and Incentives

• Government Grants and Support: Federal partnerships may provide access to grants, subsidies, or other financial incentives that can offset costs and encourage investment in innovative projects.

• Public-Private Partnerships: Collaborative efforts might open up additional funding opportunities and support from various public and private sector entities.

5. Enhanced Collaboration and Knowledge Sharing

• Industry Insights: Working with industry stakeholders can provide valuable insights into emerging trends, technologies, and best practices that can be integrated into the command center.

• Shared Expertise: Collaboration fosters knowledge sharing among experts from different sectors, enhancing the overall capability and performance of the center.

6. Boosted Reputation and Market Position

• Industry Leadership: Being involved in the development of a state-of-the-art facility can position the company as a leader and innovator in the Oil & Gas sector.

• Government Endorsement: Partnership with the federal government can enhance the company’s credibility and reputation, opening doors to new business opportunities.

7. Improved Environmental and Community Impact

• Sustainable Practices: Industry stakeholders and regulatory bodies can help incorporate sustainable practices and technologies, reducing the environmental footprint of operations.

• Community Engagement: Collaborative efforts can lead to better community relations through adherence to environmental and safety standards, as well as local economic benefits.

8. Enhanced Data Analytics and Decision-Making

• Advanced Analytics: State-of-the-art technology enables sophisticated data analytics, leading to better decision-making and strategic planning.

• Real-Time Monitoring: Improved monitoring capabilities can provide real-time insights into operations, facilitating quicker and more informed responses.

9. Future-Proofing the Business

• Adaptability: A modern command and control center can be more adaptable to future technological advancements and regulatory changes.

• Scalability: The facility can be designed with scalability in mind, allowing for future expansions and upgrades as the industry evolves.

10. Enhanced Security and Resilience

• Robust Security Measures: Collaborating with various stakeholders can ensure the implementation of cutting-edge security measures to protect against cyber and physical threats.

• Resilience Planning: The center can be equipped with comprehensive resilience planning to handle unexpected disruptions effectively.

By leveraging on these benefits, a company can significantly enhance its operational capabilities, ensure regulatory compliance, and strengthen its position in the industry.

***What benefits will come to EATECH for partnering with the Federal Government, Regulatory bodies and oil Industry stakeholders to build a state-of-the-art Oil & Gas Command and Control center***

For EATECH, partnering with the Federal Government, regulatory bodies, and oil industry stakeholders to build a state-of-the-art Oil & Gas Command and Control Center can bring several specific benefits:

1. Strategic Industry Positioning

• Market Leadership: By participating in such a high-profile project, EATECH can establish itself as a leading innovator in the Oil & Gas sector, demonstrating its commitment to cutting-edge technology and industry advancement.

• Enhanced Reputation: Collaboration with prominent stakeholders can significantly boost EATECH’s reputation, making it a preferred partner for future projects and contracts.

2. Access to Valuable Resources and Funding

• Government Support: EATECH may gain access to government grants, subsidies, or financial incentives specifically designed for projects that align with national priorities or regulatory requirements.

• Shared Costs: Partnership can help distribute the financial burden of developing the command center, reducing EATECH’s investment risk and improving project viability.

3. Advanced Technological Integration

• Cutting-Edge Solutions: Collaboration with stakeholders ensures that EATECH can integrate the latest technologies and best practices into the command center, enhancing its technological edge and operational capabilities.

• Innovative Development: Exposure to new technological advancements and innovative solutions from industry partners can lead to the development of more sophisticated and effective systems.

4. Regulatory Compliance and Support

• Streamlined Approvals: Working closely with regulatory bodies can facilitate smoother and faster approval processes, ensuring that the command center meets all required standards and regulations.

• Ongoing Compliance: EATECH can benefit from ongoing regulatory support and guidance, helping to maintain compliance and avoid potential legal or operational issues.

5. Enhanced Safety and Risk Management

• Robust Safety Measures: Collaboration with industry experts can lead to the development of comprehensive safety protocols and risk management strategies, enhancing the overall safety and reliability of the command center.

• Risk Reduction: Advanced systems and expert input can help minimize operational risks and improve the center’s resilience to emergencies and disruptions.

6. Increased Business Opportunities

• New Contracts and Partnerships: Successful completion of such a high-profile project can open doors to new business opportunities, including additional contracts and partnerships with government agencies and industry players.

• Expanded Network: Collaboration with key stakeholders can expand EATECH’s professional network, leading to future collaborations and business prospects.

7. Enhanced Data and Analytics Capabilities

• Improved Insights: A state-of-the-art command center will enhance EATECH’s ability to collect, analyze, and utilize data effectively, leading to better decision-making and strategic planning.

• Competitive Advantage: Advanced analytics capabilities can provide EATECH with a competitive edge by offering superior insights and operational efficiency.

8. Strengthened Security Measures

• Advanced Security: Partnering with industry experts and regulatory bodies can ensure the implementation of top-tier security measures, protecting the command center from potential cyber and physical threats.

• Resilience Planning: The facility can be equipped with robust resilience planning, enhancing EATECH’s ability to handle unexpected disruptions effectively.

9. Community and Environmental Benefits

• Positive Public Relations: Active participation in a high-impact project can lead to positive media coverage and enhance EATECH’s public image.

• Sustainable Practices: Collaboration can lead to the integration of sustainable practices and technologies, improving the environmental impact of operations and aligning with corporate social responsibility goals.

10. Future Growth and Scalability

• Scalable Solutions: The project’s success can position EATECH for future growth, allowing for scalable solutions and the potential for expanding its offerings and capabilities.

• Adaptability: The center can be designed to adapt to future technological advancements and industry changes, ensuring long-term relevance and competitiveness.

Overall, partnering with the Federal Government, regulatory bodies, and oil industry stakeholders on such a significant project can provide EATECH with numerous strategic, financial, and operational benefits, reinforcing its position as a key player in the industry.

***Benefits of partnership to the Niger Delta and the country at large.***

Beyond the opportunities available in the execution of this project, there are overall benefits to the company, the Niger Delta community and the nation as a whole. Some of these benefits are outlined below;

1. Detection of leaking pipelines, fittings and components will help reduce the problem of oil spillage, thereby helping to sanitize the environment.
2. Reduction in oil pollution will help the Niger Delta, as government will now be able to prioritize cleaning up the pollutants of years back. This will enable the farming soil to perform better and the rivers cleaner for fishes.
3. Boosting production will increase the country’s revenue, thereby aiding in development of schools, building of roads and hospitals etc.
4. Local refineries and petrochemical companies in the country will be able to receive more raw materials, leading to more production, thereby leading to more employment in the country.

**Conclusion**

This report has been able to expose the need of a well-functioning command-and-control center managed by the private sector in Nigeria. It has also highlighted the benefits and opportunities in partnering on such a project such as this. Effective risk mitigation measures have also been laid out in order to counter before-hand any future threat to the optimized performance of the center.

Overall, this report suggests that partnering in the establishment and deployment of a command-and-control center is an opportunity for **EATECH**.

**Glossary and Acronyms**

EATECH – Engineering Automation Technology Limited

NNPC – Nigerian National Petroleum corporation

SIP – Session Initiation Protocol

SPF – Specialized Furniture (specializes in design and supply of consoles for control centers)

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