

## **Flexibility In The Process Of Offshore Hydrocarbon Exploration-Exploitation in the Black Sea**

Sorin Mihai RADU<sup>1</sup>, Jamal KHAMIS<sup>2</sup>, Ioan Petru SCUTELNICU<sup>3</sup>, Ioan I. GÂF-DEAC<sup>4/\*1</sup>

1- Prof. Dr., University of Petrosani, Romania

2- Dr., Ministry of Health, Damascus, Syria

3- PhD St., Geological Institute of Romania (IGR) Bucharest, Romania

4- Dr., INCE, Romanian Academy, Bucharest, Romania

---

### **Abstract**

*The article shows that in the Black Sea area, in the agenda for the community of researchers, research groups, for Romania's offshore deposits, in our opinion it is necessary to focus innovative research on models and ways of conceptual, technical-technological and operational approach to exploitation, the recovery of marine oil and natural gas deposits. The authors find that the insufficiency or inaccuracy of a Strategy, compared to the tactical practices of offshore exploration-exploitation, are not characterized by irrationality, but they manifest themselves as appreciative eventualities, in the situation where the tools for "measuring" the Strategy in general are missing. The article examines performance and flexibility in the process of offshore exploration-exploitation in the Black Sea Basin. It is concluded that flexibility in the process of offshore exploitation is a techno-ecolegal "post-finality", in fact, with an acceptance of industrial-economic variability (mining / oil) allowed, including in the offshore field.*

**Keywords:** *flexibility, offshore, connection matrix, corporate management, knowledge based-technology*

---

Date of Submission: 14-07-2021

Date of Acceptance: 30-07-2021

---

### **I. Introduction**

Currently (2021), we are witnessing the change in the role of research in the field of offshore technical-technological, industrial-economic (mining / oil) and legal emergencies regarding the security or feasible, reliable flexibility of exploitation and capitalization of hydrocarbon natural energy resources, regardless the geological-geophysical area of the location of the deposits on a national or global level, globally.

Moreover, in the Black Sea area, in the agenda for the community of researchers, research groups, for Romania's offshore deposits, in our opinion it is necessary to focus innovative research on models and ways of conceptual, technical-technological and operational approach to exploitation. and the recovery of marine crude oil and natural gas deposits.

As such, we appreciate that it is necessary:

- 1) promoting the development of clearer, more significant offshore knowledge,
- 2) identification of actions and ways to develop the geo-eco-legal knowledge of the conditions and evolutions of the exploitation and offshore recovery of the hydrocarbons in question,
- 3) development of pre-models and symbolic mathematical models to serve in the action of creating programs and software, including for continuous information of decision makers engineers / technologists, economists and lawyers, developers of offshore strategies using information technologies and
- 4) obtaining reflections, reflections, respectively assertions for new theoretical, conceptual bases, networking of offshore exploitation projects and industrial-economic (mining / oil) exploitation of hydrocarbons (crude oil and natural gas).

In this way, we launch the idea, the thesis of formalization, of construction of knowledge-based technologies in the field of prospecting, exploration, exploitation and capitalization of mineral energy resources such as hydrocarbons - crude oil and natural gas, as a basis for flexibility in offshore.

---

<sup>1</sup> Corresponding author: ro\_affairs@yahoo.com

## **II. Research Methodology**

The research starts from the finding that in the "big industries-contemporary economies" in developed countries there are conceptual insertions related to investment management self-control.

The dynamism of strategic and tactical disengagement can also be reflected through the control generated by *independent managers / through corporate management*.

Observation of this nature becomes essential in defending the industrial and economic, mining and oil (offshore), uninhibited and innovative field and climate.

In this context, there is the general process of forming investment options that are essentially strategic, marking among multi-, transnational alternative companies, scenarios and variants aimed at decision-making for maximum profit.

Therefore, *mining / oil investment images* appear / are constructed that are carried, inserted in scenarios, variants, alternatives, offshore investment programs, etc.

It is not without interest to specify that the irrational use of the supremacy of a Strategy (be it the Black Sea Offshore Exploitation Strategy) can offer ratifications of non-strategic aspects, *meaning tactical slippages* (especially through manipulated fiscal facilities).

The strategy, from this perspective, represents a space, a common place reserved for investment materialization tactics, based on the expression of the interests of multi-, transnational companies in the area.

Tactical practices for offshore exploitation are also incidents and, therefore, their application sizes are differentiated, variable, causing passages through conventionally inappropriate conditions (lacking investment interest) in the field.

As such, a certain permissiveness of formal tactics is accepted, interpreted as a constitutive resource of the strategy.

Therefore, the basic conclusion (especially for the offshore field) is that there are no ultra-compact or perfectly compact strategies, unattainable in form and content. [9]

We find that the insufficiency or inaccuracy of a Strategy, compared to the tactical practices of offshore exploration-exploitation, are not characterized by irrationality, but they are manifested as appreciative eventualities, in the situation where the tools of "measurement" of the Strategy are missing.

The strategy does not measure or clarify tactics for offshore exploitation in the Black Sea.

Therefore, it cannot induce technical-technological normativity in relation to the eventual dimensions, qualities or contents of the tactics and, as a consequence, the investments, - as actions, approaches, in the field suffer from the same characterizations.

It proves, instead, the capacity of "normative and indicative coverage of the expressions of investment interest through Strategy of the existence, functioning, application of the policy and tactical practices in the researched area.

Therefore, we consider that it is a mistake to assume that, in a certain sense, the Strategy for the offshore exploitation of hydrocarbons in the Black Sea is / would be a "one-dimensional normative force".

## **III. Performance and flexibility in the process of offshore exploration-exploitation in the Black Sea Basin**

From the comparative research of the different situations generated by large offshore projects of exploitation and capitalization of hydrocarbon resources it can be deduced that, usually, in general, *the illustration of industrial-economic flexibility* (mining / oil), especially regarding the environmental impact indices, is difficult, due to the difficulties in knowing the risks, the uncertainties inherent in the "engineering, economic and legal attack" on nature.

"Shore relief" can often prove "complex" in the face of marine anthropogenic threats (usually physical, through fragmentation, erosion / erosion, etc.). [5]

Therefore, in front of any "industrial-economic performance (offshore mining / oil)) programming, the flexibility is different, and its opposite (rigidity) can make / determine the industrial-economic difference / mining (mining / oil).

In the management of mining industrial structures, in general, decision makers consider flexibility as a "supplement" of movement allowed at the end of any action, activity, etc.

We are therefore dealing with a certain "post-finality" techno-eco-legal, in fact, with an acceptance of industrial-economic variability (mining / oil) allowed, including in the offshore field.

We appreciate that it is important that this margin of *difference / differentiation* allowed to be in favor of additional industrial-economic performance (mining / oil), or to consolidate / sustain current performance, designed / achieved in offshore exploitation structures in the Black Sea.

In order to materialize the above assertion, *flexibility must be measured*.

We notice that science, the specialized literature, is not relevant enough in terms of procedures, ways, modalities, techniques, methods, etc. flexibility measurement.

In any case, any type / type of flexibility measurement shall take into account at least two alignments, namely:

- 1) disturbances, deviations, dynamics of the *procedural mass* and
- 2) the particularities, the specificity, the procedural uniqueness of the offshore exploitation and the capitalization of the geo-energetic accumulations of natural resources in question.

Flexibility, in a certain approach, is also a carrier of industrial-economic extensions (mining / oil), not only of performance, but also of impacts, including anthropic. [3]

For example, different operations of flexibility can affect costs, quality, etc. an offshore investment project. [7]

From the consulted statistics, it results that in the perimeters, the oil blocks in the Black Sea area, depending on the size of each concession area, the gases have a high, conventional good, CH<sub>4</sub>, i.e. > 99%, and contaminants are almost absent.

A general objective in the field is the research of complex offshore systems that generate the context in which it is possible to obtain improved investment regimes, with predictable profit, which ensure sustainable development from large - transnational companies.

In fact, in the Black Sea area, *strategic stagnation* is excluded, as the priority of the Strategy for offshore exploitation is applied on a dynamic societal - social body (Romania 's economy), in continuous objective change. [9]

It is possible, as such, The offshore strategy, to be a “matrix of connections”, without claiming to provide answers to all specific problems, but rather to answer the general problems for investment.

In some situations, a Strategy (including the offshore one) is not adequate to the imperatives and goals of the moment in the recent senses of the country's economic development.

This, in our opinion, does not mean that it declines its property of "superstructure".

Therefore, we consider that, in fact, the Strategy for offshore exploitation contributes almost - continuously to *the valorization of the riches of the soil and subsoil*.

We conclude that, in fact, the Offshore Strategy is non-genotropic, i.e. it, structurally, does not form a more complex superstructure subject, but on the contrary, simplifies, in fact, the investment functional complexity.

However, the tactics help to make the *insubordinate Offshore Strategy* even in the face of large-scale industrial-economic processes.

The decision-making system, in the case of actions for offshore exploitation, undergoes a permanent self-improvement, on which occasion the investment actions intertwine in a specific synchrony.

The strategy for offshore exploitation offers, generically, normative premises, regulations of free self-improvement, investment self-determination through open processing of tactics in the field. [2]

We advance the conclusion that the perfect objectivity, in itself, of the Offshore Strategy cannot be achieved and, therefore, one could not speak of the immutable investment spirit, because, as an example for Romania, the Strategy for offshore exploitation never has any property to extra-industrial-economic character.

In fact, we notice that the meaning found in the notion of "Offshore Strategy" has *predominantly qualitative properties*, while the orientation side is almost constant over sufficiently long time intervals.

#### IV. Conclusions

- Flexibility in the offshore exploitation process represents a techno-eco-legal “post-finality”, in fact, with an acceptance of industrial-economic variability (mining / oil) allowed, including in the offshore field.
- The literature is not sufficiently relevant in terms of procedures, modes, modalities, techniques, methods of measuring flexibility.
- Different operations of flexibility can affect the costs, the quality of an offshore investment project.
- In this context, it is proposed to operate with certain adjustment coefficients on the alignments of difficulties on the part of offshore investors.
- It is proposed to resort to the flexibility of the taxation system in the local hydrocarbon industry, mainly by reducing the costs of fiscal administration.
- By applying offshore projects, Romania can strengthen its internal resilience capacities, it can face the global challenges that affect the Romanian business.
- Romania must be an active part of the EU to shape the single energy market, by reducing the region's energy dependence on other oil areas in the world.
- The offshore strategy for the exploitation and capitalization of hydrocarbon deposits / resources in the Black Sea can be assimilated with a system of conceptualization of “strategic intelligence”.

### **Bibliographical References**

- [1]. Anton C., Rusu E., Mateescu R., - An analysis of the coastal risks in Romanian nearshore. *Journal of Mechanical Testing and Diagnosis*, Volume 1, pp. 18-27, 2017
- [2]. Daintith T., Chandler J., - Offshore petroleum regulation: theory and disaster as drivers for institutional change, Final .docx, University of Western Australia / Advanced Legal Studies in London; *Houston Journal of International Law*, 6/7/2017
- [3]. Dean E.T.R., - Offshore geotechnical engineering - Principles and practice, Thomas Telford Ltd., London, 2010
- [4]. Gazi F., - Mathematical Modeling for Measures of Supply Chain Flexibility. *Journal of Mechanical Engineering*. 45. 96. 10.3329/jme.v45i2.28977, 2016
- [5]. Gerwin D., - Manufacturing flexibility: a strategic perspective, *Management Science*, vol. 39, pp. 395-410, 1993
- [6]. Ioan Petru Scutelnicu, (col.) - *Super-Compact Structures of Quality Standards for Health and Security in the Sustainable Development of a Mining Basin in Romania*, IMPACT: International Journal of Research in Engineering & Technology ISSN(P): 2347-4599; ISSN(E): 2321-8843 Vol. 8, Issue 2, Feb 2020, 11-22, India, ([www.impactjournals.us](http://www.impactjournals.us), [http:// www.impactjournals.us/archives/ international-journals/](http://www.impactjournals.us/archives/international-journals/)), Impact Factor (JCC): 4.5366; NAAS Rating: 2.73 (col. R.R. Beloiu, I.I. Gâf-Deac, M.M.-Ch. Rostand, J. Khamis, A.A. Burian) (Abstracted and indexed in the major global databases including: Scribd, Mendeley, Google Scholar, IndexCopernicus, ResearchBible, Internet Archive, OAJI, SSRN)
- [7]. M.S. Nan, Ioan Petru Scutelnicu, A.A. Burian, C. Ciobanu, Ad. Bărbulescu - *Corporate managerial development: occurrences and synergies*, Romanian Academy, National Institute for Economic Research, The 6 th International Conference Economic Scientific Research – Theoretical, Empirical and Practical Approaches, ESPERA 2019, October 10 th -11 th, 2019, Bucharest, Romania, Conference Section: S(7) Development and improvement of economic and social forecasting tools, Peter Lang International Academic Publishing Group, New York / London/ Paris/ Amsterdam/ Sydney, 2020
- [8]. M.S. Nan, Ioan Petru Scutelnicu, Al. E. Flinker - *Conditionalities for the co-development of the exploitation of hydrocarbon resources in the Black Sea*, The 7th International Conference - ESPERA 2020 "30 Years of Inspiring Academic Economic Research – From the Transition to Market Economy to the Interlinked Crises of 21st Century", (EBSCO, Conference Proceedings Citation Index by Clarivate, Web of Science), The "Costin C. Kirițescu" National Institute for Economic Research (NIER), Romanian Academy, 26th -27th November, 2020
- [9]. Mandelbaum M., Buzacott J.A., - Flexibility and decision making, *European Journal of Operational Research*, vol. 44, pp. 17-27, 1990
- [10]. Ren J., Liang H., - Measuring the sustainability of marine fuels: a fuzzy group multicriteria decision making approach, *Transp. Res. D. Trans. Environ.*, 54, 12-29, 2017
- [11]. Shewchuk J.P., Moodie C.L., - Definition and classification of manufacturing flexibility types and measures, *Int. Journal of Flexible Manufacturing Systems*, vol. 10, pp. 325-349, 1998

Sorin Mihai RADU, et. al. "Flexibility In The Process Of Offshore Hydrocarbon Exploration-Exploitation in the Black Sea." *IOSR Journal of Applied Geology and Geophysics (IOSR-JAGG)*, 9(4), (2021): pp 57-60.