

# Strategic Management Environmental Pattern in National Iranian Oil Company

Seyyed Abdollah Razavi<sup>a\*</sup>, Iman Mohammadali Tajrishi<sup>b</sup>, and Mohammad Hossein Mahdavi Adeli<sup>c</sup>

<sup>a</sup>Assistant Professor, Petroleum University of Technology-Tehran Faculty of Petroleum, Tehran, Iran, Email: srazavi@put.ac.ir

<sup>b</sup>PhD Student, Business Management and Insurance Expert at POGC, Tehran, Iran, Email: imantajrishi@gmail.com

<sup>c</sup>Professor, Faculty of Economics and Political Science, Beheshti University, Tehran, Iran, Email: mh-mahdavi@um.ac.ir

## ARTICLE INFO

### Keywords:

Environmental paradigms  
Strategic management  
Strategy formulation  
Strategic implementation  
Strategic control

**Received:** 29 April 2021

**Revised:** 14 July 2021

**Accepted:** 24 August 2021

DOI:10.22050/pbr.2021.303655.1223

## ABSTRACT

**Purpose and necessity of research:** The main issue of this research emerged when we looked a huge amount of strategy formulation in various petroleum companies in Iran, in which, those documents followed the classical patterns (such as David model) of strategy formulation, on the prescriptive-consecutive paradigm, with no face of the environmental approaches to conduct the planning process of strategy formulation. In this article, we suggest the pattern of Reeves, Hannes and Sinha (2015), in order to choose and execute the right approach for National Iranian Oil Company's strategy formulation.

**Research Methodology:** This research is developmental, explanatory and quantifiable research. The research strategy was survey and by its application, the information needed to determine the degree of NIOC environmental strategic dimensions and prioritization of different patterns of strategy formulation in NIOC, were achieved.

**Research Findings:** The shared value strategy, shaped NIOC as the leader of oil and gas industry in the various domestic industry and above all into the international market as the OPEC joint partner. It seems that NIOC organizational culture adapt with the shared value strategy according to creation, lead, and membership in the share of crude export with OPEC and non-OPEC collaboration during the ages. Therefore, NIOC should craft the shared value strategy for the niches of oil and gas markets.

## 1. Introduction

Strategic management is a stream of guidelines and orientations for decision making with a developmental

view of effective long-term and short-term plans of the organization [1]. According to Mintzberg (1991), strategic management is a model for making decisions to achieve goals [2]. The idea for this professor at McGill University in Canada stems from the research of Simon

(1957), the veteran of decision-making science, who stated that; "strategies change the behavior of the organization" and therefore Mintzberg (2017), concluded that if the strategy leads to the behavior and performance of the organization, the strategy can be achieved by tracking organizational performance, that is, by tracking time horizons. The macro and the circle of the organization can identify the future directions of that organization [3]. The main difference between strategic management and strategic planning is that; the strategic planning includes only the strategy formulation phase, but strategic management adds two stages of strategic implementation and strategic control to the formulation phase, although more emphasis is still on the formulation phase. From a profound perspective, we distinguish between the terms "strategic management" and "strategy management". Strategic management means planning to achieve a strategy or exploratory research to discover a strategy, change and lay the groundwork for better strategy implementation by aligning organizational elements and controlling the plan with continuous or erratic environments to ensure that strategies are in place. Superior and appropriate to the desired future performance, but strategy management means planning to implement that strategy, defining operational objectives and organizational projects according to the structure of strategy failure, project execution and organizational and project controls. Strategy is a program that aims to give the organization a competitive advantage over competitors through differentiation; Understand what the organization needs to do, what it needs to achieve, and more importantly focus on how to achieve that goal through planning [4]. Strategy is not really war; it is love [5]. By abandoning the idea that competition is a strategy with the ultimate goal of overcoming a competitor, we provide a broad and constructive mindset. Instead of considering himself a strategist in opposition to his work activists, he should work with cooperation, understanding and love. This behavior establishes better and more effective management. Being compassionate and committed to the customer with a high sense of empathy is the smartest way to do business. The main issue of this research emerged while we looked a huge amount of strategy formulation in various petroleum companies in Iran, in which, they just followed the classical patterns such as David model of strategy formulation [6], on the prescriptive-consecutive paradigm, with no face of the environmental approaches to conduct the planning process of strategy formulation. In this article, we suggest the pattern of Reeves, Hannes and Sinha (2015)

[7], in order to choose and execute the right approach for NIOC strategy formulation.

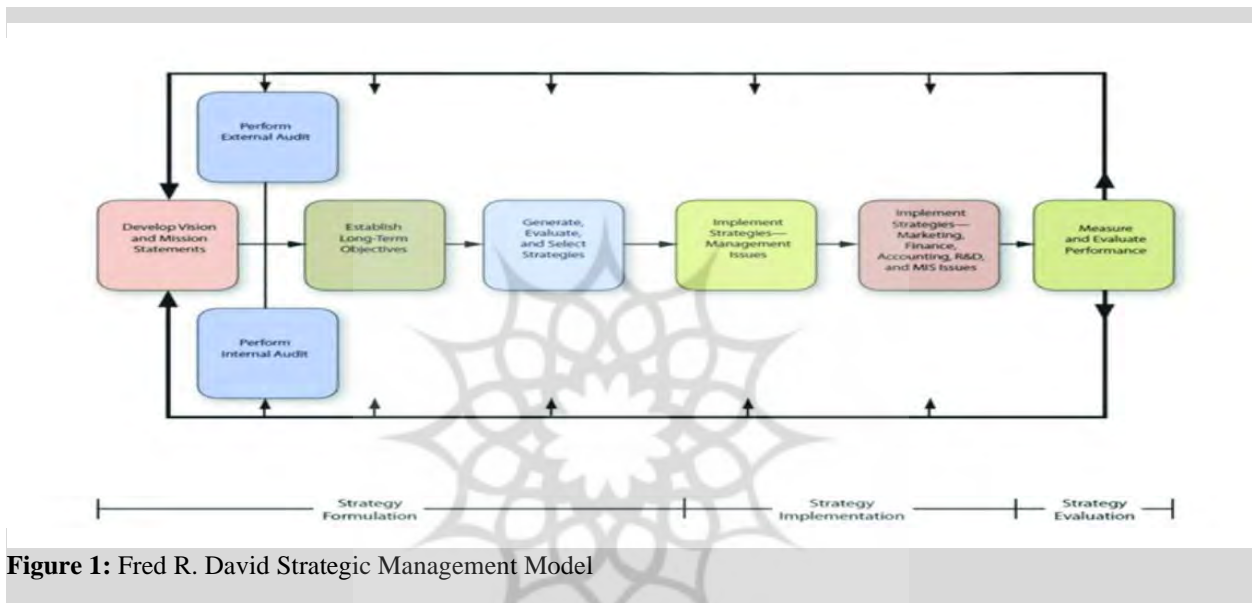
## **2.Strategical dimensions of environmental analysis**

A review of texts and researches in the field of the strategic management provides many models in this way of organizational thinking. Most of the proposed models of strategic management include similar stages and are classified into two general parts: environmental research and conceptual research. However, there are also differences in the number of stages and arrangements and how these stages interact. Differences can be found in factors such as the evolution of the concept and application of strategy, different interpretations of the concepts of this topic, especially the concept of strategy, as well as changes in business conditions and the diversity of companies. In general, strategic management models were classified in two groups: 1) Prescriptive paradigm and 2) Descriptive paradigm.

In the prescriptive paradigm, how the strategy is formed is considered as important as the strategy itself, so that the steps of strategy formation are step by step and defined. All the models presented in the prescriptive paradigm, due to their prescriptive nature, somehow advance and complete the strategic management process step by step. Andrews (1980), Industrial Strategy Model process-evaluates external environmental conditions and internal competencies and capabilities, and during this study combines strengths and weaknesses, and discovered opportunities and threats, and examines and selects the appropriate strategy. This model is at the level of strategy formulation and does not consider the issues of strategic implementation and control [8]. Hill (2001), in a research on a model based on his strategic planning, considers the mission and goals in the context of the information system and declared the results of the study of goals, missions, internal and external environment at a crossroads as inputs of the strategic management system. He describes them as "creative and strategic intuitive minds" whose output through intuitive-logical analysis is strategy choice. This model addresses strategic implementation and control issues by considering the industry strategy in the current conditions of the company, selecting control criteria, selecting the appropriate organizational structure, adapting the structure and control system to the new strategy, and addressing conflict resolution issues. Indicates the result of changing old and new strategies [9]. This process hierarchy is presented in the patterns

of Stoner (1995), Freeman (2010), Pierce and Robinson (2005), the pattern of the Mintzberg School of Design (1991) [13], which differ only in some factors. In addition to the mentioned process models, a group of strategic management models fall into the category of rotational and sequential models of the prescribed paradigm. There are countless patterns in this area; The Hax (1984) model places the sequence and rotation in the strategic management process between organizational mission, environmental factors (internal and external), and strategy, while some other models begin the

feedback process after the follow-up phase and feedback input is postponed to the early stages of strategic planning (Hax, Arnoldo C.). The most famous and perhaps the most complete model related to the prescriptive-consecutive view is the model of Fred R. David (2016), which considers the rotation of feedback at each stage. Thus, the strategist must review and evaluate the previous steps in each stage (formulation, implementation and control) of the strategic management process [15].



**Figure 1:** Fred R. David Strategic Management Model

**Source:** Fred R. David, Strategic Management, 2016 - Fred R. David, "How Companies Define Their Mission," Long Range Planning 22, no. 3 (June 1988)

In the descriptive paradigm, only a general concept of the process of strategy development and implementation is shaped, and its purpose is to provide more guidelines for the organization's strategists. One of the well-known models in this field is Lawrence and Lorsh (1968) model, which considers the process of strategy development including four hiring systems, incentive system,

comprehensive tracking and control system and strategic planning system [16]. Other models in this area are: Igor Ansoff (1958), Elements of Strategic Management [17], Five forces model was created by Michel Porter in 1985 to understand how five key competitive forces are affecting an industry [18], and the delta model of Hax (2010) [19] as shown in the figure 2.

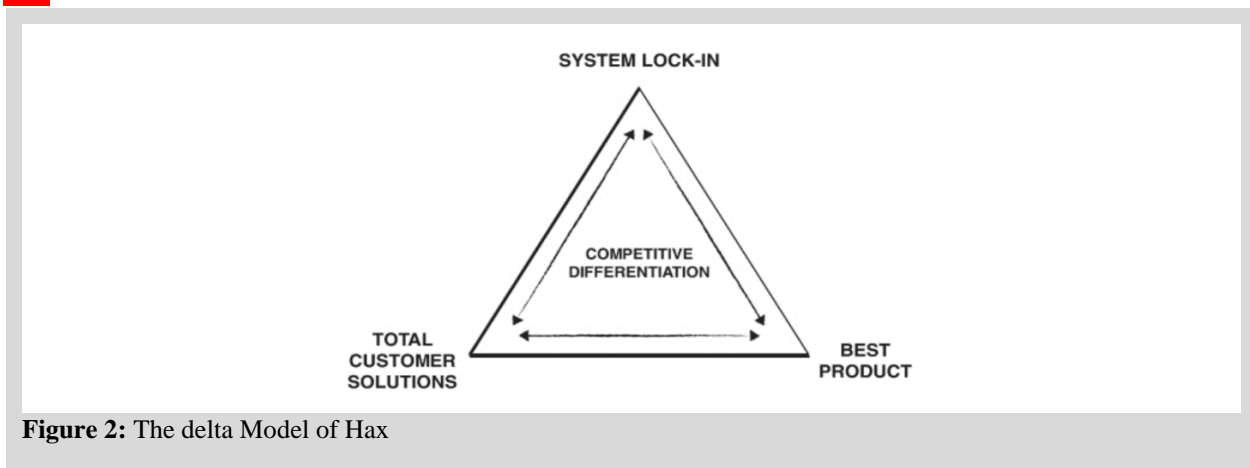


Figure 2: The delta Model of Hax

Source: Hax, Arnaldo and Dean Wilde II, the Delta Model- discovering new sources of profitability in a networked economy

<https://www.sciencedirect.com/science/article/abs/pii/S026323730100041X>

The fundamental question in the Delta model, first developed at MIT, is how to achieve a deep connection with the customer. This model expresses a completely different view from the traditional view used by most managers. This model aims to help managers formulate, explain and execute strategies more effectively, and as a result, they achieve sustainable financial performance and long-term profitability. The basic premise of the creator of the Delta model, Hax, is that the essence of the strategy is to achieve a deep connection with the customer. The core of this link is customer acquisition, satisfaction and retention. This model, which is similar to the delta letter, meaning three-dimensional and three strategic options of the best product, a total customer solution and the system lock-in.

### 3.Strategic reference point on formulating a strategy

Reeves, Haanaes and Sinha (2015), suggests five environmental styles and categorized 81 approaches to strategy formulation that have evolved over several decades [20]. In fact, the first question is; How do you know and you are sure about the strategy formulation method, selected from the right strategy? What broader set of strategies can be used to achieve the strategy, and which approach is most effective for which situation? Today we face an environment where the speed of changes and the intensity of its uncertainty are greater

than ever for reasons such as globalization, rapid technological change, and economic turmoil. The increasing diversity and expansion of the business we are facing is another factor that is less considered. Specifically, the scope of activity of large oil and gas companies has expanded to a larger number of business environments, where the speed of change in them increases over time. It is essentially the environment that determines your approach to strategy. You must first evaluate the environment and then choose and implement the appropriate approach to it. Different business environments are distinguished by three aspects that can be easily identified; Predictability (can you predict the business environment?), Malleability (can you shape the business environment alone, or in collaboration with others?), And Harshness (Can you survive in the business environment?). According to the World Bank Business Environment Index [21], the laws supporting the business and simplifying the business environment and the implementation of the organization's activities, a criterion for review predictability will be the business environment, so the report of the Islamic Republic of Iran ranks 127th with a score of 58.5 out of 190 economies under the study in 2020 (Table 1). The greater the amount of rules and regulations (the more directive the implementation of the activities of public and private oil and gas companies), the more difficult it will be to predict the business environment.

**Table 1:** Ranking of businesses in terms of supporting the economic laws of the environment.

TABLE O.1 Ease of doing business ranking								
Rank	Economy	DB score	Rank	Economy	DB score	Rank	Economy	DB score
1	New Zealand	86.8	65	Puerto Rico (U.S.)	70.1	128	Barbados	57.9
2	Singapore	86.2	66	Brunei Darussalam	70.1	129	Ecuador	57.7
3	Hong Kong SAR, China	85.3	67	Colombia	70.1	130	St. Vincent and the Grenadines	57.1
4	Denmark	85.3	68	Oman	70.0	131	Nigeria	56.9
5	Korea, Rep.	84.0	69	Uzbekistan	69.9	132	Niger	56.8
6	United States	84.0	70	Vietnam	69.8	133	Honduras	56.3
7	Georgia	83.7	71	Jamaica	69.7	134	Guyana	55.5
8	United Kingdom	83.5	72	Luxembourg	69.6	135	Belize	55.5
9	Norway	82.6	73	Indonesia	69.6	136	Solomon Islands	55.3
10	Sweden	82.0	74	Costa Rica	69.2	137	Cabo Verde	55.0
11	Lithuania	81.6	75	Jordan	69.0	138	Mozambique	55.0
12	Malaysia	81.5	76	Peru	68.7	139	St. Kitts and Nevis	54.6
13	Mauritius	81.5	77	Qatar	68.7	140	Zimbabwe	54.5
14	Australia	81.2	78	Tunisia	68.7	141	Tanzania	54.5
15	Taiwan, China	80.9	79	Greece	68.4	142	Nicaragua	54.4
16	United Arab Emirates	80.9	80	Kyrgyz Republic	67.8	143	Lebanon	54.3
17	North Macedonia	80.7	81	Mongolia	67.8	144	Cambodia	53.8
18	Estonia	80.6	82	Albania	67.7	145	Palau	53.7
19	Latvia	80.3	83	Kuwait	67.4	146	Grenada	53.4
20	Finland	80.2	84	South Africa	67.0	147	Maldives	53.3
21	Thailand	80.1	85	Zambia	66.9	148	Mali	52.9
22	Germany	79.7	86	Panama	66.6	149	Benin	52.4
23	Canada	79.6	87	Botswana	66.2	150	Bolivia	51.7
24	Ireland	79.6	88	Malta	66.1	151	Burkina Faso	51.4
25	Kazakhstan	79.6	89	Bhutan	66.0	152	Mauritania	51.1
26	Iceland	79.0	90	Bosnia and Herzegovina	65.4	153	Marshall Islands	50.9
27	Austria	78.7	91	El Salvador	65.3	154	Lao PDR	50.8
28	Russian Federation	78.2	92	San Marino	64.2	155	Gambia, The	50.3
29	Japan	78.0	93	St. Lucia	63.7	156	Guinea	49.4
30	Spain	77.9	94	Nepal	63.2	157	Algeria	48.6
31	China	77.9	95	Philippines	62.8	158	Micronesia, Fed. Sts.	48.1
32	France	76.8	96	Guatemala	62.6	159	Ethiopia	48.0
33	Turkey	76.8	97	Togo	62.3	160	Comoros	47.9
34	Azerbaijan	76.7	98	Samoa	62.1	161	Madagascar	47.7
35	Israel	76.7	99	Sri Lanka	61.8	162	Suriname	47.5
36	Switzerland	76.6	100	Seychelles	61.7	163	Sierra Leone	47.5
37	Slovenia	76.5	101	Uruguay	61.5	164	Kiribati	46.9
38	Rwanda	76.5	102	Fiji	61.5	165	Myanmar	46.8
39	Portugal	76.5	103	Tonga	61.4	166	Burundi	46.8
40	Poland	76.4	104	Namibia	61.4	167	Cameroon	46.1
41	Czech Republic	76.3	105	Trinidad and Tobago	61.3	168	Bangladesh	45.0
42	Netherlands	76.1	106	Tajikistan	61.3	169	Gabon	45.0
43	Bahrain	76.0	107	Vanuatu	61.1	170	Sao Tomé and Principe	45.0
44	Serbia	75.7	108	Pakistan	61.0	171	Sudan	44.8
45	Slovak Republic	75.6	109	Malawi	60.9	172	Iraq	44.7
46	Belgium	75.0	110	Cote d'Ivoire	60.7	173	Afghanistan	44.1
47	Armenia	74.5	111	Dominica	60.5	174	Guinea-Bissau	43.2
48	Moldova	74.4	112	Djibouti	60.5	175	Liberia	43.2
49	Belarus	74.3	113	Antigua and Barbuda	60.3	176	Syrian Arab Republic	42.0
50	Montenegro	73.8	114	Egypt, Arab Rep.	60.1	177	Angola	41.3
51	Croatia	73.6	115	Dominican Republic	60.0	178	Equatorial Guinea	41.1
52	Hungary	73.4	116	Uganda	60.0	179	Haiti	40.7
53	Morocco	73.4	117	West Bank and Gaza	60.0	180	Congo, Rep.	39.5
54	Cyprus	73.4	118	Ghana	60.0	181	Timor-Leste	39.4
55	Romania	73.3	119	Bahamas, The	59.9	182	Chad	36.9
56	Kenya	73.2	120	Papua New Guinea	59.8	183	Congo, Dem. Rep.	36.2
57	Kosovo	73.2	121	Eswatini	59.5	184	Central African Republic	35.6
58	Italy	72.9	122	Lesotho	59.4	185	South Sudan	34.6
59	Chile	72.6	123	Senegal	59.3	186	Libya	32.7
60	Mexico	72.4	124	Brazil	59.1	187	Yemen, Rep.	31.8
61	Bulgaria	72.0	125	Paraguay	59.1	188	Venezuela, RB	30.2
62	Saudi Arabia	71.6	126	Argentina	59.0	189	Eritrea	21.6
63	India	71.0	127	Iran, Islamic Rep.	58.5	190	Somalia	20.0
64	Ukraine	70.2						

Source: World Bank Group (2020), Comparing Business Regulation in 190 Economies.

<https://documents1.worldbank.org/curated/en/688761571934946384/pdf/Doing-Business-2020-Comparing-Business-Regulation-in-190-Economies.pdf>

Figure 3 shows the amount of Iranian crude oil production in the last two decades. As you can see, production has been growing since 2015, according to the Joint Comprehensive Plan of Action (JCPOA), to about 4 million barrels per day. And then, Iran's production reached 2m barrels per day, the lowest level in two decades. It is inferred that if the oil industry

environment was highly predictable, more strategic reserves and longer-term contracts for crude oil exports would have to flow in the event of a boom so that the industry would continue to adhere to long-term contracts under the oil sanctions. And maybe even by doing so it could have prevented the crisis and shaped the environment.

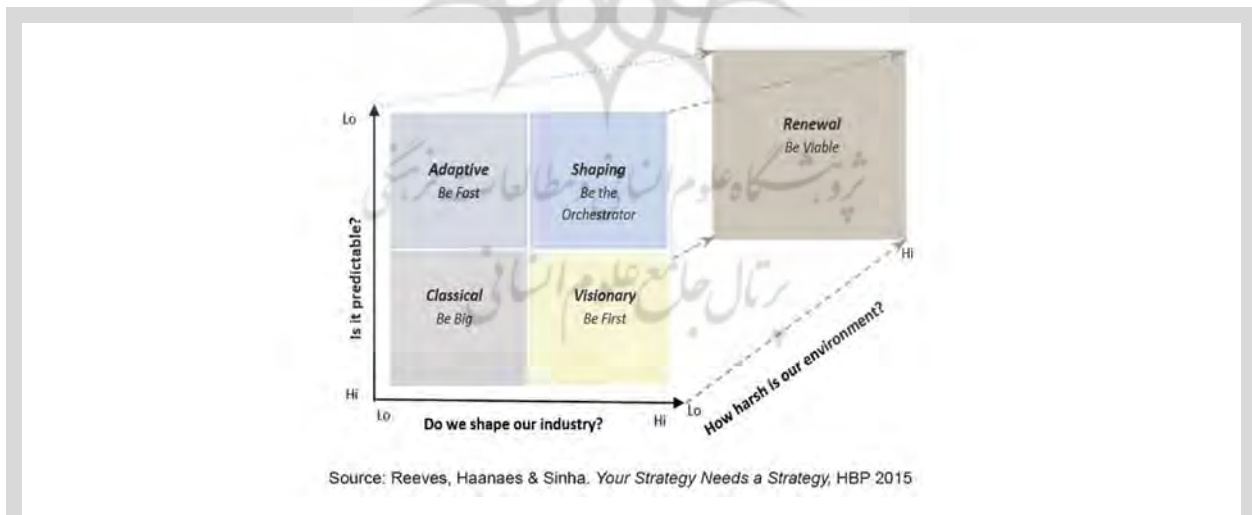


**Figure 3:** The amount of Iranian crude oil production during the last 20 years

**Source:** TRADINGECONOMICS.COM/ Organization of the Petroleum Exporting Countries. <https://tradingeconomics.com/iran/crude-oil-production>

The National Iranian Oil Company, according to its potential, has the ability to shape the environment (i.e., there is a good adaptability for this industry through which it can form a strategic alliance with global refining companies), provided that have a good restructuring of its international affairs and international offices based on market niches. In terms of resilience, with constructive measures in the environment and considering that approximately 2m b/d of the products of this state-owned

company are consumed domestically and by refineries and private companies, NIOC can continue to survive and the amount of its resilience will be highly valued and the company's hardship and fatigue will be low. Based on this, the approach of the National Iranian Oil Company in formulating strategies seems to be in the group of shaping patterns (Be the Orchestrator) according to Figure 4, and the models and techniques of that strategic reference point should be used.



**Figure 4:** The strategy paradigms: Five environments and strategy approaches

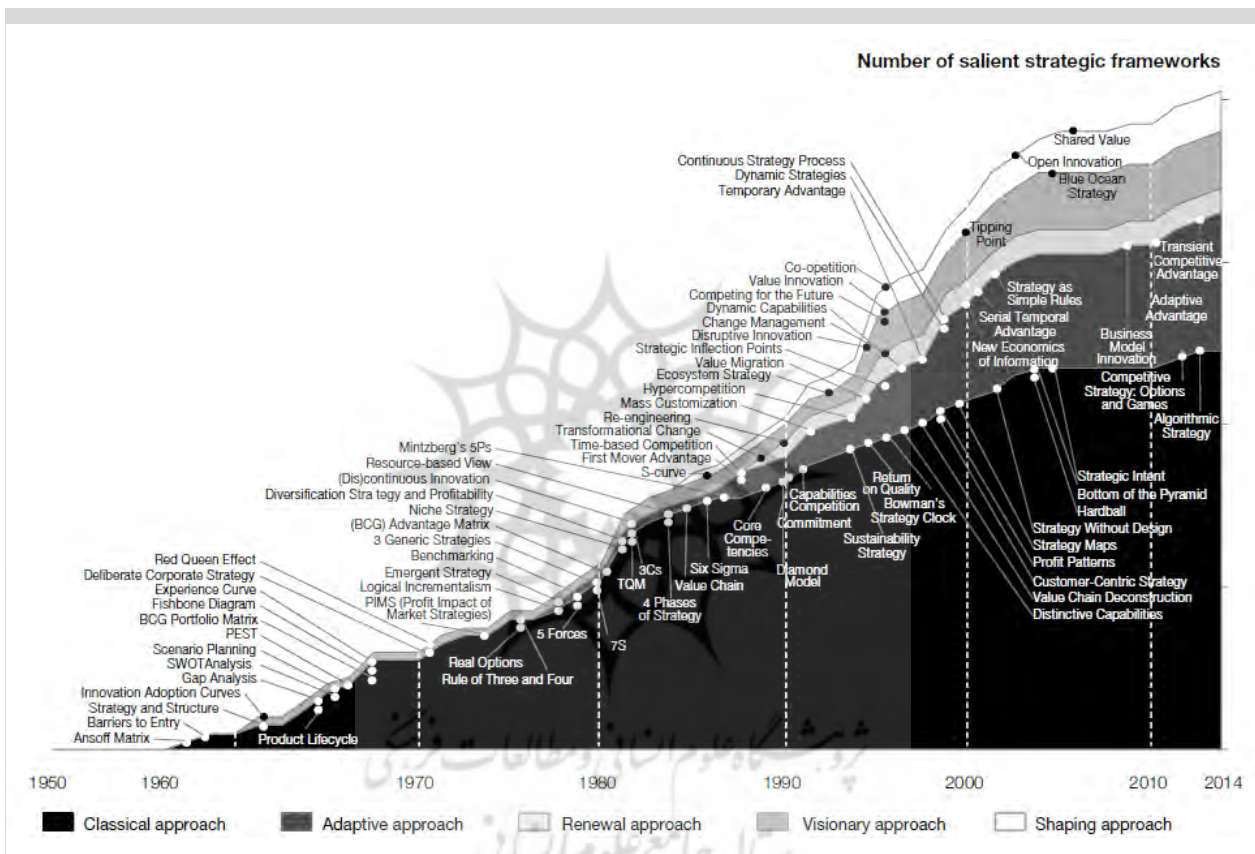
The first strategy emergence theories were based on classical environment, what if, it is a host to lots of foreseeable industries with strong brand images, high regulations and bureaucracy in process and constricted technology change, where success means being tremendous and efficient. A classical paradigm is the

optimal choice for achievement in this foreseeable environment. Adaptive domain of environment is characterized by unpredictability, unmalleability, low harshness and technological disruption. Due to high ambiguity, classical planning becomes inefficient and companies can achieve performance only by being



flexible and experimentation-oriented. The visionary environment is for companies and entrepreneurs operating in predictable industries while focusing on innovation, using a strategy that emphasizes insight and execution is an example of this environment. Shaping environment despite unpredictability, innovators create an ecosystem of many companies that change the industry as a whole. "We cannot predict the future, but we can create the game" is the mentality that prevails in such companies, and their strategy is all about influence,

regulation and synergy. When a company needs to change, renewal environment is characterized by difficult conditions. The goal of this strategy is not to create a competitive advantage but to ensure the survival of the company by restructuring to liberalize and redistribute resources. Only when the survival goal is achieved should the company struggle to apply a different strategy from the previously mentioned strategies.



**Figure 5:** Proliferation of strategy frameworks

**Source:** Reeves, Haanaes & Sinha. Your Strategy Need a Strategy, HBP 2015.

Classification based on the views expressed in management theories is a method of classification and typology of various approaches in the field of organization and management. The six approaches proposed in this area are; (1) process approach to management, (2) quantitative approach to management, (3) behavioral approach to management, (4) systemic approach to management, and (5) contingency approach to management and (6) strategic approach to management. In fact, the first three approaches are in the field of "management science" and the next three approaches are in the field of "management art". So what is the criterion for separating the strategic approach as

another approach? Is this a long-term or short-term criterion? Paying attention to the external environment; Being big or small; Being general and partial; Or is it concise and detailed? Examination of previous approaches shows that these criteria do not provide a suitable criterion for separating the strategic approach, but the main criterion is that "the strategic approach addresses all issues raised in management or any science at both strategic and operational levels." That is, the main criterion is "leveling" issues by a strategic approach. At the strategic level, issues are expressed mentally, conceptually, theoretically (qualitatively) and qualitatively, but at the operational level, issues are

stated objectively, operationally, practically and quantitatively. Mental problems provide a clear pre-

action mindset and provide a theoretical or conceptual conclusion that forms the basis for operationalization.

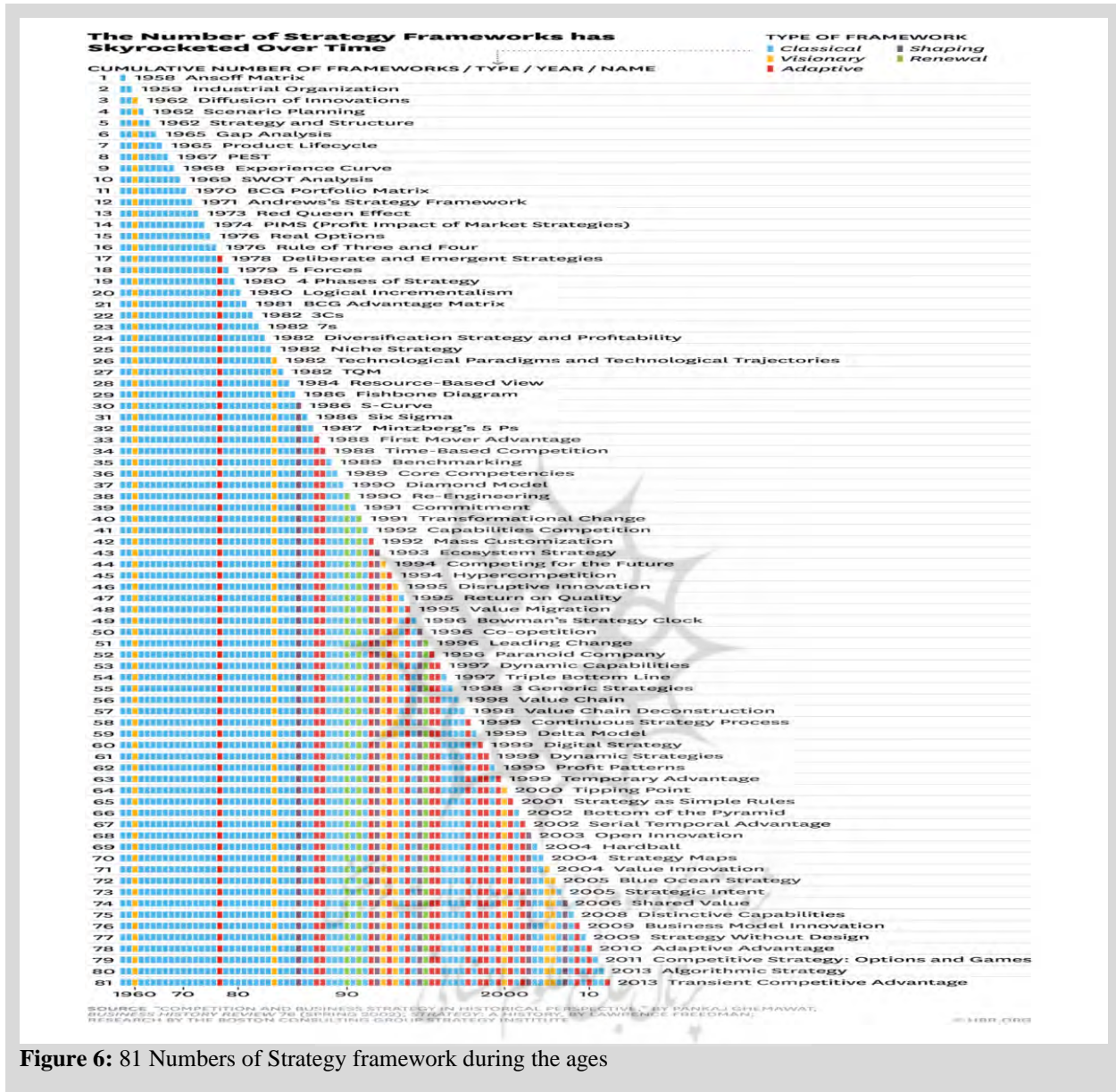
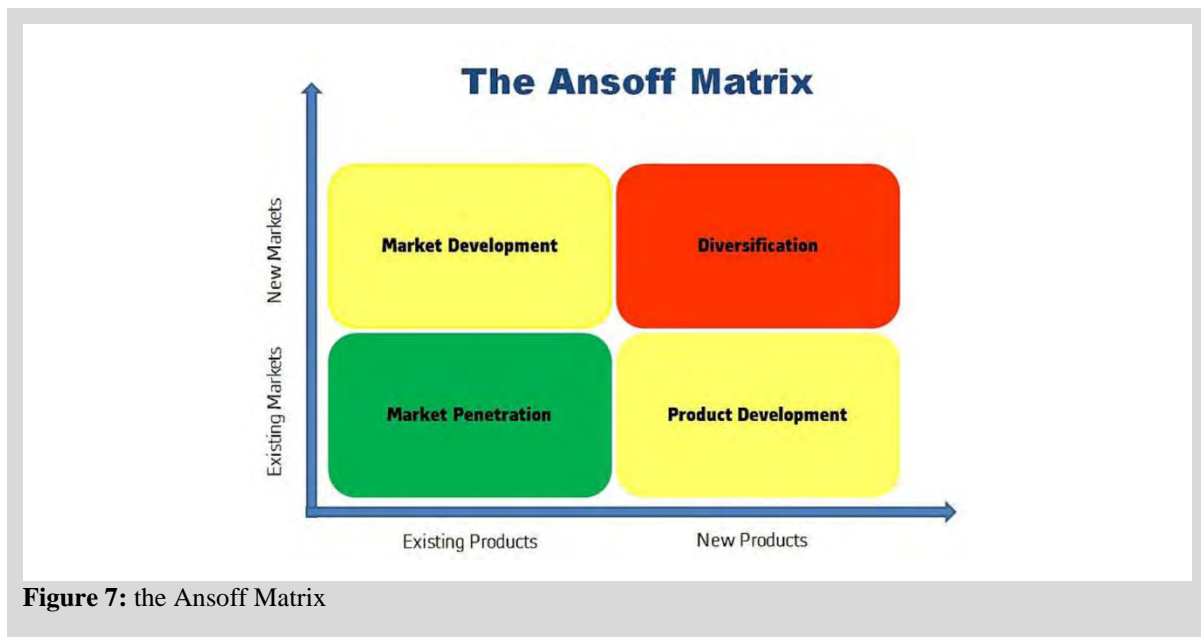


Figure 6: 81 Numbers of Strategy framework during the ages

Ansoff matrix evaluated in 1958 as the first strategic point of view to the markets and products which vary these dimensions from existing to new markets and

products and drives for each of duality situation a new type of strategy (Figure 7).





**Figure 7:** the Ansoff Matrix

**Source:** Ansoff, H. Igor (1958). Corporate Strategy. New York: McGraw-Hill.

From that time on, the styles of thinking about the organizational aspects have got huge development by holism as an approach to organizational theory that classified the organizational issues into the two levels strategic points of view and operational points of view.

#### 4. Research questions

What are environmental dimensions for NIOC in the current situation? (Is NIOC environment predictable? Do NIOC shape the industry? How harsh is NIOC environment?)

What is the strategic reference point of NIOC on strategy formulation?

What are the priorities of the different strategy methods for NIOC strategy formulation?

#### 5. Research variables

The research variables include the dimensions of predictability, malleability and harshness in the environments as the independent variables and the various patterns of strategy crafting as the dependent variables.

#### 6. Research methods

This research is developmental, explanatory and quantifiable research. According to the research domains necessary reliability to determine the degree of environmental reference point.

which categorized on the positivism and independence of the researchers from this research, the research strategy was survey and by its application, the information needed to determine the degree of NIOC environmental strategic dimensions and prioritization of different patterns of strategy formulation in NIOC, were achieved. The reason for choosing this organization was in fact testing the model presented by Reeves et al. In the upstream level of the oil industry and explaining the form of the future strategy in selling and shaping the oil markets. The statistical population included the group of deputies, senior managers and managers and chiefs of staff units, of which 79 managers were identified in the NIOC and the same questionnaires was distributed. In addition, 72 participants completed the questionnaires (the rate of responds is more than 90%). For content validity of the questionnaire, in addition to the theoretical foundations, the views of the oil and gas elites were analyzed and the validity of the questionnaire was confirmed through the opinions of experts and university professors aware of the issue of strategic management. The internal consistency method was used to calculate the reliability coefficient, and the Cronbach Alpha technique was applied for the existence of a distance scale. After the distribution, Cronbach's alpha was 0.86/1. Therefore, considering that the reliability coefficient was high, it could be concluded that the designed questionnaire had the

#### 7. Research finding

Based on the results of the review of 72 responded questionnaires, the average score of each of the main

questions of the respondents in the 5-point Likert scale is described in Table 2. As can be seen, the environment of the National Iranian Oil Company in terms of predictability is at the level of 1.89, which shows a small amount of predictability. In terms of shaping the

industry, the company is at a high level and the average response is 4.21. In terms of survival and continuation of the activity, the company is in good condition and the hardness in the environment has been calculated with an average of 1.05.

**Table 2:** Descriptive statistical of the questionnaires.

Strategic References	Number	Minimum	Maximum	Mean	Standard Deviation (SD)
Environmental Predictability	72	1	4	1.89	1.68
Environmental Malleability	72	3	5	4.21	2.12
Environmental Harshness	72	2	5	1.05	2.34

Since the sample size is low, Freeman nonparametric test has been used to prioritize different methods of strategy crafting and according to running the test and the sig. under 0.05, the crafting strategy can be applied for the NIOC based on the five environments and approaches to strategy, the paradigm to the strategy formulation classified in the shaping reference point which means environment despite unpredictability, innovators create an ecosystem of many companies that

change the industry as a whole. "We cannot predict the future, but we can create the game" is the mentality that prevails in such companies, and their strategy is all about influence, regulation and synergy. The s-curve (1986), ecosystem strategy (1993), co-opetition (1996), open innovation (2003), shared value (2006) are all the framework which are appropriate for NIOC strategy formulation. These approaches to the strategy were prioritized in table 3.

**Table 3:** Average responses by strategy framework prioritization.

No.	Strategy framework	Mean Rank
1	shared value (2006)	4.85
2	co-opetition (1996)	4.2
3	s-curve (1986)	3
4	ecosystem strategy (1993)	2.8
5	open- innovation (2003)	1.7



---

## 8. Consequences

The National Iranian Oil Company, as the custodian of the world's vast oil and gas resources, must act in a way that preserves the common values of Iran's allies. Take appropriate strategic steps in its export share after the section to reclaim the share of export in markets. The shared value strategy shaped NIOC as the leader of oil and gas industry in the various domestic industry and above all into the international market as the OPEC joint partner. That is tremendous goals to have the co-competition in the international crude market by having the share of petroleum in various refineries. The S curve is a strategic concept that describes how old methods mature and excel with new methods. In the early days of new technology, performance improvements take a long time. People are working on technology, its applications, troubleshooting and ecosystem building; Gradually, over time, performance increases. After a certain period of time, the speed of recovery reaches its peak and then begins to slow down. All easy winners have been achieved and the learning curve for continuous improvement has been completely rejected. Some basic technology barriers have been removed. Eventually, progress slows down and we reach the plateau with this technology. This is an "S" shaped curve. An economic community supported by a foundation of interacting organizations and individuals—the organisms of the business world. The economic community produces goods and services of value to customers, who are themselves members of the ecosystem. The green strategy of NIOC ecosystem would shaped the level of company's responsibility toward the surround g environment by risk management and health, safety and environmental (HSE) factors to perform. The term open innovation was first developed by Henry Chesbrough in 2003, when he published his book named "Open Innovation: The New Imperative for Creating and Profiting from Technology" [22]. According to Mr. Chesbrough, Open Innovation is the use of internal and other companies' ideas to develop new businesses. He identifies five key elements in the new innovation process, i.e.:

1. Networking
2. Collaboration involving partners, competitors, universities, and users
3. Corporate Entrepreneurship, especially through corporate venturing, start-ups and spin-offs

4. Proactive Intellectual Property Management: to buy and sell intellectual property and so create markets for technology

5. Research and Development (R&D): to obtain competitive advantage on the marketplace

In NIOC the open innovation strategy has the lowest attraction among the other shaping strategies formulation in the environmental domain. It seems that NIOC organizational culture adapt with the shared value according to creation, lead, and membership in the share of crude export with OPEC and non-OPEC collaboration during the ages.

The research innovation stems from the fact that this paper for the first time considered the choice of strategy to achieve strategy based on environmental patterns, which means that the planning hierarchy for strategic planning of the NIOC based on a process approach has considered. In addition, the issue of placing organizations based on the research of Reeves et al. (2015), includes the dimensions of predictability, malleability and harshness that this environmental approach has not been used in strategy development at the level of the NIOC.

---

## 9. Research limitations include:

1. Since not all factors, in accordance with the strategy environment, have been examined in this study, the necessary analysis of the shaping position of the NIOC should not be performed with complete confidence, in other words, the analysis would always accompany by a percentage of error.

2. Since it is necessary to identify the environmental situation in addition to the company and the main companies in the subsidiaries of the oil industry environment ecosystem and this realm of data in this research is not possible, in this respect the research results are limited and the field of future research will be open on this issue.

---

## References

- Hiriyappa, B. (2018); Strategic Management and Business Policy: For Managers and Consultant. PublishDrive.
- Mintzberg, H. and, J.B. Quinn (1991). The Strategy Process: Concepts, Contexts, Case. 2nd Edition. Englewood Cliffs N.J., Prentice-Hall.

- Mintzberg, Henry (2017). *Tracking Strategies: Toward a General Theory*. Oxford University Press.
- Harvard Business Review (2005). *Strategy: Create and Implement the Best Strategy for Your Business*. Harvard Business Press, M06 16.
- Hax, Arnaldo C. (1984). *Reading on Strategic Management*. Ballinger Pub Co.
- David, Fred R. (2016). *Strategic Management*. 16th Edition. New York: Prentice-Hall Inc.
- Reeves, Martin, Haanes Knut and Sinha Janmejaja (2015), *Your Strategy Needs a Strategy; How to Choose and Execute the Right Approach*, Harvard Business Review Press and The Boston Consulting Group.
- Andrews, Kenneth R. (1980). *The Concept of Corporate Strategy*. Reuedn, Home wood, IL: Irwin.
- Hill, C.W.L. and Jones, G. R. (2001). *Strategic Management*. 5th edition. Boston: Houghton Mifflin.
- Stoner, Charles R. et.al. (1995). *Strategic Planning for New and Small Businesses*. Upstart Pub Co.
- Freeman, R. Edward (2010). *Strategic Management: A Stakeholder Approach*. Cambridge University Press.
- Pearce, John A. & Robinson, JR., Richard B, (2005). *Strategic management: Formulation, Implementation and Control*, 9th Ed., McGraw-Hill.
- Mintzberg, H. and, J.B. Quinn (1991). *The Strategy Process: Concepts, Contexts, Case*. 2nd Edition. Englewood Cliffs N.J., Prentice-Hall.
- Hax, Arnaldo C. (1984). *Reading on Strategic Management*. Ballinger Pub Co.
- David, Fred R. (2016). *Strategic Management*. 16th Edition. New York: Prentice-Hall Inc.
- Lawrence, Paul R. and Jay W. Lorsh (1968). *Organization and Environment*. Cambridge, MA: Harvard University Press.
- Ansoff, H. Igor (1958). *Corporate Strategy*. New York: McGraw-Hill.
- Porter, Michel E. (1985). *Competitive Advantage: Creating & Sustaining Superior Performance*. New York: Free Press.
- Hax, Arnaldo C. (2010). *The Delta Model; Reinventing your Business Strategy*. Springer- Verlag New York.
- Reeves, Martin, Haanes Knut and Sinha Janmejaja (2015), *Your Strategy Needs a Strategy; How to Choose and Execute the Right Approach*, Harvard Business Review Press and The Boston Consulting Group.
- World Bank Group (2020), *Comparing Business Regulation in 190 Economics*. [www.worldbank.org](http://www.worldbank.org).
- Chesbrough, Henry (2003), *Open Innovation: The New Imperative for Creating and Profiting from Technology*. HBS Press.