

Strategic Management Environmental Pattern in National Iranian Oil Company

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ABSTRACT

Purpose and necessity of research: The main issue of this research emerged when a considerable amount of strategy formulation in various petroleum companies in Iran was considered, where documents followed the classical patterns such as the David model of strategy formulation in the prescriptive–consecutive paradigm, with no face of the environmental approaches to conducting the planning process of strategy formulation. In this article, we suggest the pattern of Reeves, Hannes, and Sinha (2015) to choose and execute the right approach for the strategy formulation of National Iranian Oil Company (NIOC). **Research methodology:** This research is developmental, explanatory, and quantifiable, and the research strategy is surveyed. By its application, the information needed to determine the degree of NIOC environmental strategic dimensions and the prioritization of different patterns of strategy formulation in NIOC were achieved. **Research findings:** The shared value strategy shaped NIOC as the oil and gas industry leader in the various domestic industries and, above all, into the international market as the OPEC joint partner. NIOC organizational culture adapted the shared value strategy according to creation, leadership, 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 (Hiriyappa, 2018). According to Mintzberg (1991), strategic management is a model for making decisions to achieve goals (Mintzberg and Quinn, 1991).

The idea stems from the research of Simon (1957), the veteran of decision-making science, who stated that strategies change the behavior of the organization. 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

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can identify the future directions of that organization (Mintzberg, 2017). The main difference between strategic management and strategic planning is that strategic planning includes only the strategy formulation phase, but strategic management adds two stages of strategic implementation and control to the formulation phase although more emphasis is still on the formulation phase. From a profound perspective, we distinguish between “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. It is superior and appropriate to the desired future performance. Nevertheless, 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 achieving that goal through planning (Harvard Business Review, 2005). Strategy is not war, and it is love (Hax, 1984). We provide a broad and constructive mindset by abandoning the idea that competition is a strategy with the ultimate goal of overcoming a competitor. Instead of considering himself/herself a strategist in opposition to his/her work activists, he/she should cooperate, understand, 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 most innovative way to do business.

The main issue of this research emerged while we looked at a considerable 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 (David, 2016), in the prescriptive–consecutive paradigm, with no face of the environmental approaches to conducting the planning process of strategy formulation. In this article, we suggest the pattern of Reeves, Hannes, and Sinha (2015) to choose and execute the right approach for the strategy formulation of National Iranian Oil Company (NIOC).

2. Strategic dimensions of environmental analysis

A review of texts and research in strategic management provides many models for organizational thinking. Most of the proposed strategic management models 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, changes in business conditions, and the diversity of companies. In general, strategic management models were classified under two groups: 1) prescriptive paradigm and 2) descriptive paradigm.

In the prescriptive paradigm, how the strategy is formed is considered as necessary as the strategy itself, so the strategy formation is step by step and defined. Due to their prescriptive nature, all the models presented in the prescriptive paradigm somehow advance and complete the strategic management process step by step. The industrial strategy model of Andrews (1980) evaluates external environmental conditions and internal competencies and capabilities, combines strengths and weaknesses, discovers 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 (Andrews, 1980). Hill (2001), in a research on a model based on strategic planning, considers the mission and goals in the context of the information system and declared the results of the study of goals, missions, and the internal and external environment at a crossroads as the inputs of the strategic management system. The models describes them as “creative and strategic intuitive minds” whose output through intuitive–logical analysis is strategy choice. It also 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. The model indicates the result of changing old and new strategies (Hill and Jones, 2001). This process hierarchy is presented in the patterns of Stoner (1995), Freeman (2010), Pierce and Robinson (2005), and the Mintzberg School of Design (1991), which differ only in some



factors. In addition to the mentioned process models, a group of strategic management models falls 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

the feedback input is postponed to the early stages of strategic planning (Hax, 1984). 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 in each stage. Thus, the strategist must review and evaluate the previous steps in each stage (formulation, implementation, and control) of the strategic management process.

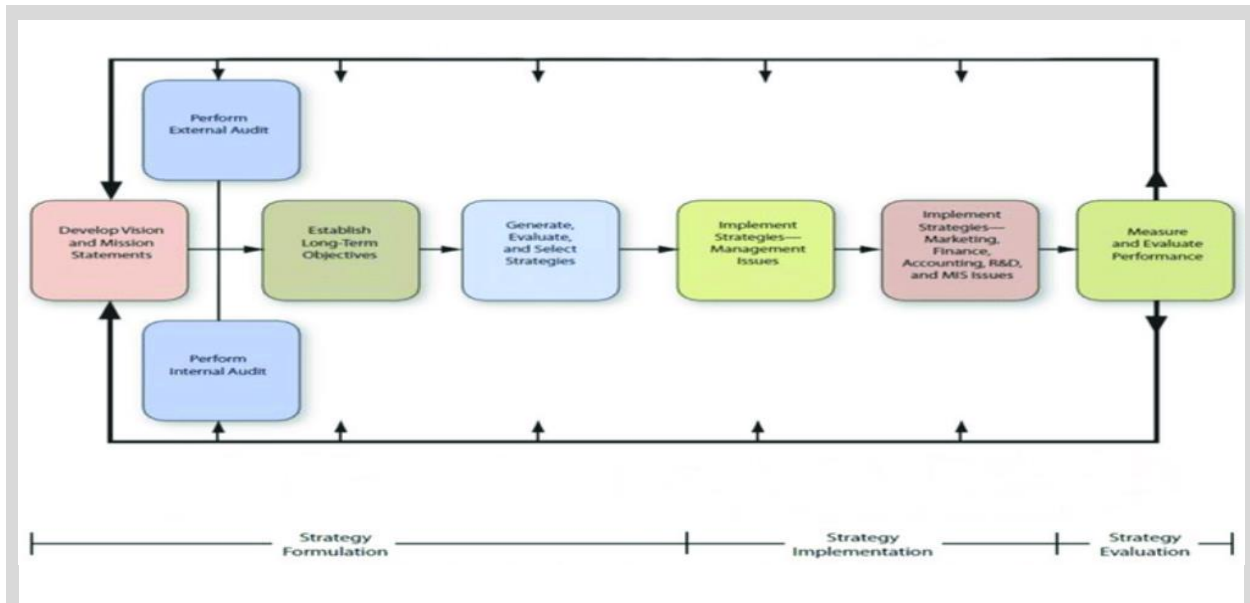


Figure 1. The strategic management model of Fred R. David (2016).

Source: Fred R. David, Strategic Management, 2016, “How Companies Define Their Mission”, Long Range Planning 22, No. 3 (June 1988).

In the descriptive paradigm, only a general concept 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 the Lawrence and Lorsh (1968) model, which considers the process of strategy development, including four hiring systems, incentive systems,

comprehensive tracking and control system, and strategic planning system. Other models in this area are those of Igor Ansoff (1958) and elements of strategic management. Michel Porter created the five forces model in 1985 to understand how five fundamental competitive forces affect the industry and the delta model of Hax (2010), as shown in Figure 2.

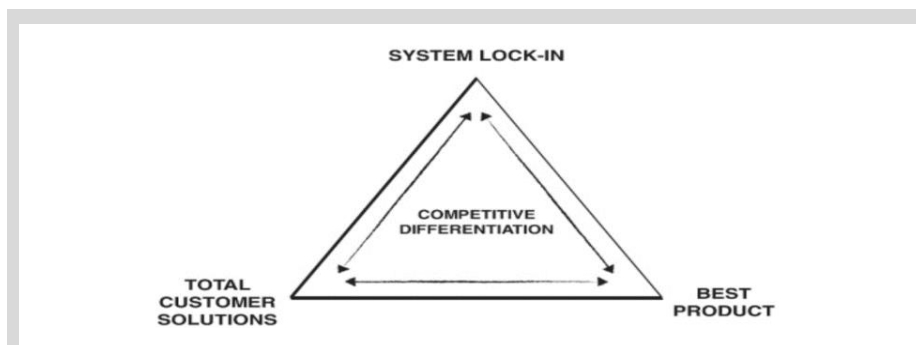


Figure 2. The delta model of Hax (2010).

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

The fundamental question in the Delta model, first developed at the MIT, is how to achieve a deep connection with the customer. This model expresses an entirely different view from the traditional view used by most managers. This model aims to help managers formulate, explain, and execute strategies more effectively; 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 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) suggest five environmental styles and categorized 81 approaches to strategy formulation that have evolved over several decades. The first question is how do know and be 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 more significant than ever for reasons such as globalization, rapid technological change, and economic turmoil. The increasing diversity and expansion of the business we face 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 the approach to strategy. One 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 the business environment be predicted?), malleability (can the business environment be shaped alone or in collaboration with others?), and harshness (can the business survive in the business environment?). According to the World Bank Business Environment Index (World Bank Group, 2020), 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 number 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.

Figure 3 shows the amount of Iranian crude oil production in the last two decades. As can be seen, production has been growing since 2015, according to the Joint Comprehensive Plan of Action (JCPOA), to about four million barrels per day. Afterward, Iran's production reached two million barrels per day, the lowest level in two decades. It is inferred that if the oil industry environment were highly predictable, more strategic reserves and longer-term contracts for crude oil exports would have to flow in the event of a boom, so the industry would continue to adhere to long-term contracts under the oil sanctions. Moreover, maybe it could have prevented the crisis and shaped the environment even by doing so. National Iranian Oil Company, according to its potential, can shape the environment provided that it has an excellent restructuring of its international affairs and international offices based on market niches, that is, there is good adaptability for this industry through which it can form a strategic alliance with global refining companies. In terms of resilience, with constructive measures in the environment and considering that approximately two million barrels per day of the products of this state-owned company are consumed domestically, NIOC can continue to survive by refineries and private companies. The amount of its resilience will be highly valued, and its hardship and fatigue will be low. Based on this, the approach of National Iranian Oil Company in formulating strategies appears to be in the group of shaping patterns, the orchestrator, according to Figure 4; the models and techniques of that strategic reference point should thus be used.

The first strategy emergence theories were based on the classical environment. It is a host to many foreseeable industries with solid brand images, high regulations and bureaucracy in process, and constricted technology change, where success means tremendous and efficient. A classical paradigm is an optimal choice for achievement in this foreseeable environment. The adaptive domain of the 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 innovative 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. By shaping the environment despite unpredictability, innovators create an ecosystem of many companies that change the industry. “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, the renewal environment is characterized by complex conditions. This strategy aims not to create a competitive advantage but to ensure the company’s survival 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.

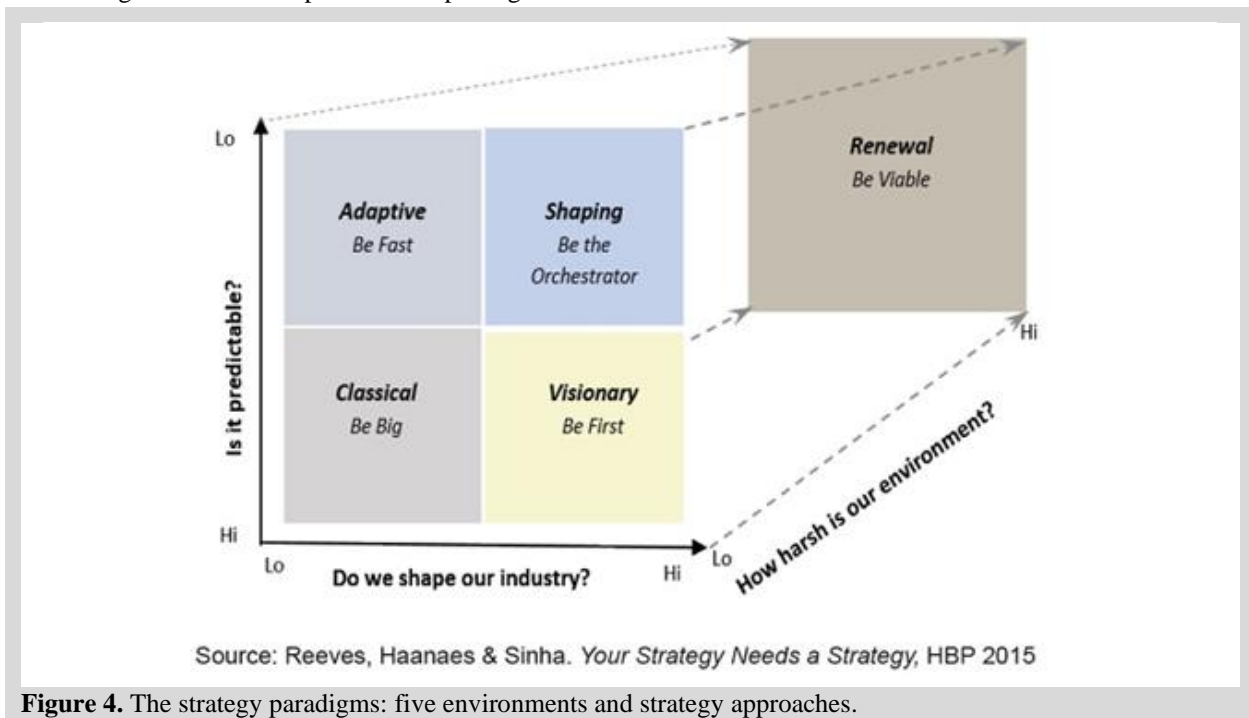
Table 1. Ranking of businesses in terms of supporting the economic laws of the environment.

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	São Tomé and Príncipe	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	Côte 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 Economics.



Figure 3. The amount of Iranian crude oil production during the last 20 years
Source: Organization of the petroleum exporting countries.



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

Figure 4. The strategy paradigms: five environments and strategy approaches.

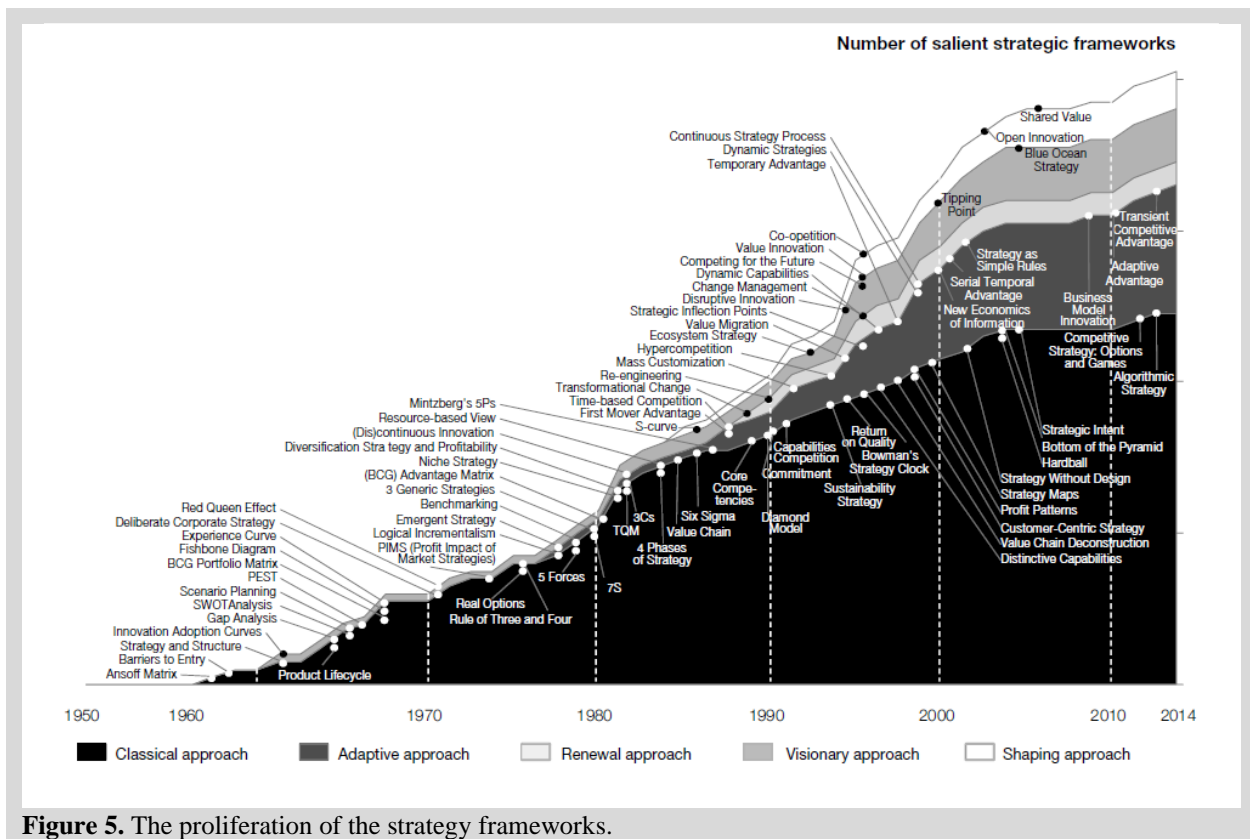


Figure 5. The proliferation of the strategy frameworks.

Source: Reeves, Haanaes and Sinha. *A Strategy Needs a Strategy*, HBP 2015.

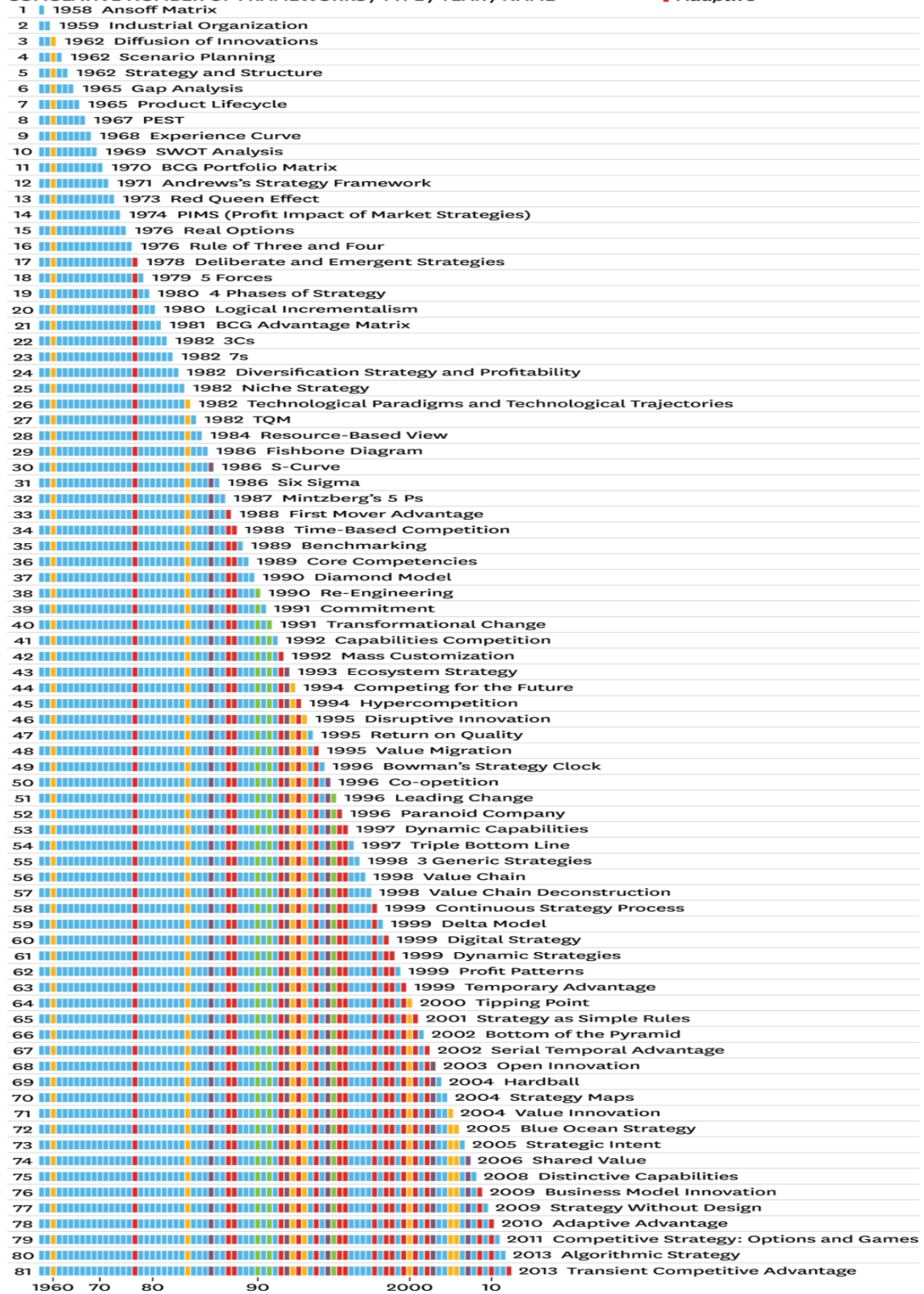
Classification based on the views expressed in management theories is a method of classification and typology of various approaches in organization and management. The six approaches proposed in this area are (1) the process approach to management, (2) the quantitative approach to management, (3) the behavioral approach to management, (4) the systemic approach to management, (5) the contingency approach to management, and (6) the strategic approach to management. In fact, the first three approaches are in the field of “management science”, and the following three approaches are in the field of “management art”. Hence, what is the criterion for separating the strategic approach as another approach? Is this a long-term or short-term criterion? Should attention be paid to the external

environment, whether big or small, general or partial, or concise or detailed? The examination of previous approaches shows that these criteria do not provide a suitable criterion for separating the strategic approach. However, 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. However, at the operational level, issues are stated objectively, operationally, practically, and quantitatively. Mental problems provide a clear pre-ception mindset and a theoretical or conceptual conclusion that forms the basis for operationalization.

The Number of Strategy Frameworks has Skyrocketed Over Time

CUMULATIVE NUMBER OF FRAMEWORKS / TYPE / YEAR / NAME

TYPE OF FRAMEWORK
 Classical Visionary Adaptive Shaping Renewal



SOURCE "COMPETITION AND BUSINESS STRATEGY IN HISTORICAL PERSPECTIVE," BY PANKAJ GHEMAWAT, BUSINESS HISTORY REVIEW 76 (SPRING 2002); STRATEGY: A HISTORY, BY LAWRENCE FREDMAN; RESEARCH BY THE BOSTON CONSULTING GROUP STRATEGY INSTITUTE © HBR.ORG

Figure 6. Eighty-one strategy framework during the ages.



Ansoff matrix was 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 a new type of strategy for each duality situation (Figure 7).

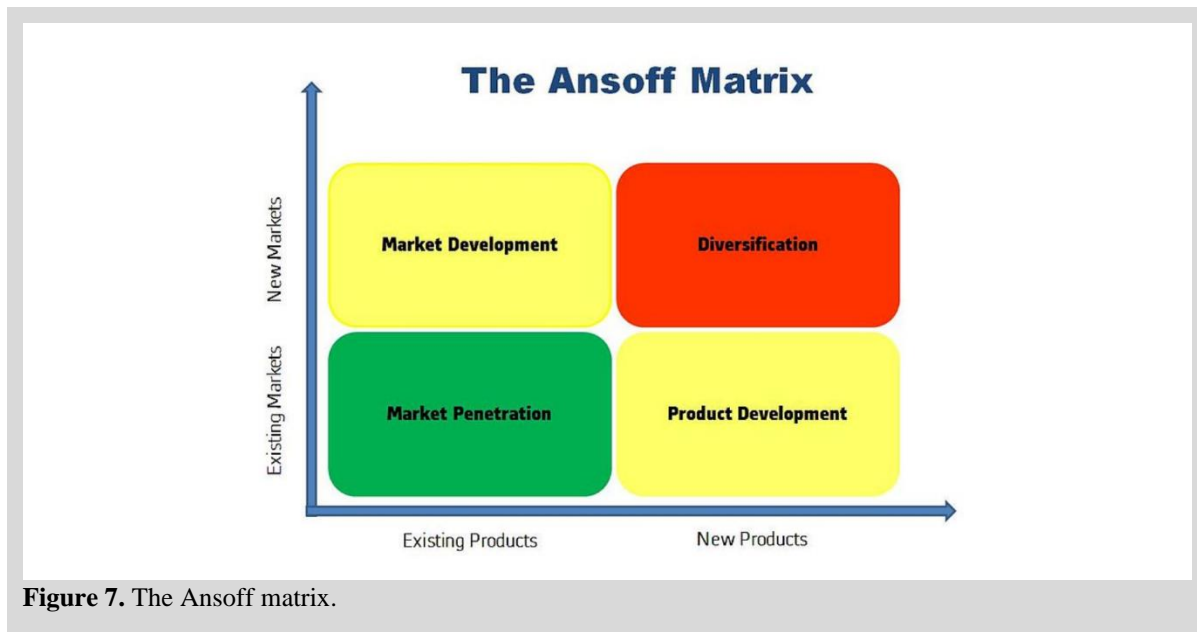


Figure 7. The Ansoff matrix.

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 massive development by holism as an approach to organizational theory that classified the organizational issues under the two levels: strategic points of view and operational points of view.

4. Research questions

- What are the environmental dimensions for NIOC in the current situation?
- Is the NIOC environment predictable?
- Does NIOC shape the industry?
- How harsh is the 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. According to the research domains

categorized on the positivism and independence of the researchers from this research, the research strategy was surveyed. By its application, the information needed to determine the degree of NIOC environmental strategic dimensions and the prioritization of different patterns of strategy formulation in NIOC were achieved. The reason for choosing this organization was to test the model presented by Reeves et al. in the upstream level of the oil industry and explain 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, of which 79 managers were identified in NIOC, and the same questionnaires were distributed. In addition, 72 participants completed the questionnaires: the rate of respondents was more than 90%. For the content validity of the questionnaire and the theoretical foundations, the views of the oil and gas elites were analyzed. 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's Alpha technique was applied for the existence of a distance scale. After the distribution, Cronbach's alpha was 0.86/1.0. Therefore, considering that the reliability coefficient was high, it could be concluded that the designed questionnaire had the necessary reliability to determine the degree of environmental reference point.

7. Research finding

Based on the results of the review of 72 responded questionnaires, the average score of each of the central questions of the respondents in the 5-point Likert scale is described in Table 2. As can be seen, the environment of National Iranian Oil Company in terms of predictability

is at the level of 1.89, which shows a small amount of predictability. The company is at a high level in shaping the industry, 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 small, Freeman's nonparametric test has been used to prioritize different methods of strategy crafting. According to running the test and the sig. under 0.05, the crafting strategy can be applied for NIOC based on the five environments and approaches to strategy, the paradigm of the strategy formulation can be classified in the shaping reference point, indicating the environment despite unpredictability, and 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 frameworks that are appropriate for NIOC strategy formulation. These approaches to the strategy are 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)	4.20
3	S-curve (1986)	3.00
4	Ecosystem strategy (1993)	2.80
5	Open innovation (2003)	1.70

8. Consequences

As the custodian of the world's vast oil and gas resources, National Iranian Oil Company must act in a way that preserves the shared values of Iran's allies by take appropriate strategic steps in its export share after

the section to reclaim the export share in markets. The shared value strategy shaped NIOC as the oil and gas industry leader in the various domestic industry and, above all, into the international market as the OPEC joint partner, that is, the tremendous goal to have the co-opetition 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, the recovery speed reaches its peak and then begins to slow down. All easy winners have been achieved, and the continuous improvement learning curve has been wholly rejected. Some fundamental technology barriers have been removed. Eventually, progress slows down, and the plateau of this technology is reached. This trend is an S-shaped curve. An economic community is 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 members of the ecosystem. The green strategy of the NIOC ecosystem would shape the level of the company's responsibility toward the surrounding 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 publishing the book entitled "Open Innovation: The New Imperative for Creating and Profiting from Technology" (Chesbrough, 2003). According to Chesbrough, open innovation uses internal and other companies' ideas to develop new businesses. It identifies five essential elements in the innovation process:

- Networking;
- Collaboration involving partners, competitors, universities, and users;
- Corporate entrepreneurship, primarily through corporate venturing, start-ups, and spin-offs;
- Proactive intellectual property management: to buy and sell the intellectual property and create markets for technology;
- Research and development (R & D): to obtain a competitive advantage in the marketplace.

In NIOC, the open innovation strategy has the lowest attraction among the other shaping strategies formulation in the environmental domain. It appears that the NIOC organizational culture adapts to the shared value according to creation, leadership, 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,

indicating that the planning hierarchy for strategic planning of NIOC based on a process approach has been 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. This environmental approach has not been used in strategy development at the level of NIOC.

9. Research limitations

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

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

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