



## SAP-LAP Linkages Scenario Analysis of Financial/Accounting Functions Decision

**Kiomars Darabpour**

Department of Industrial Management, Masjed-Soleiman Branch, Islamic Azad University, Masjed-Soleiman, Iran  
Kiadarabpour@gmail.com

**Saber Molla-Alizadeh-Zavardehi**

Department of Industrial Engineering, Masjed-Soleiman Branch, Islamic Azad University, Masjed-Soleiman, Iran  
Saber.alizadeh@gmail.com  
(Corresponding Author)

**Allah Karam Salehi**

Department of Accounting, Masjed-Soleiman Branch, Islamic Azad University, Masjed-Soleiman, Iran  
A.k.salehi@iaumis.ac.ir

Submit: 06/06/2020 Accept: 30/10/2020

### ABSTRACT

The existence of financial flexibility is considered as one of the development strategies in the functional structures of companies in the face of market challenges and changes, which maximizes the company's values in a competitive market And gives the company the capability to respond appropriately to unforeseen events and situations around the company. The flexibility functions of financial acceptability can also play a role in strengthening the company's strategic capacity to finance and meet the expectations of stakeholders, making the company more dynamic in its decisions about capital structure composition. The Purpose of this research is SAP-LAP Scenario Analysis of Financial/Accounting Functions Decision. This research in terms of methodology, Is the mixed method studies, and in terms of results, It is part of developmental research, and in terms of purpose, in the category of descriptive research, it is separated with the aim of describing the phenomenon in question, finally, in terms of logic, data collection is inductive-deductive. The statistical population of this study consists of two parts. In the first part, 16 experts in the field of finance, accounting and management of Abadan Oil Refining Company participated. And in the second part of the study, 8 first-step specialists who had priority in terms of both academic education and experience participated in most of the focus groups. In this study, data collection tools were score and matrix checklists that were analyzed based on the SAP-LAP scenario analysis process. This analysis considers 6 approaches (Situation), (Actor), (Process) → SAP, and (Learning); (Action); (Performance) → LAP in identification to scenarioization. The results of the research were examined in the form of 4 Self-interaction Matrices; Cross-interaction Matrices; Assessment Matrices; Quantitative Strategic Planning Matrices and finally the results were determined the best scenario for the financial flexibility of Abadan Oil Refining Company is the effective scenario of financial flexibility as an actor-learning, and the lowest possible scenario in this field is the process-learning scenario.

**Keywords:** Functions of Financial Flexibility, Self-interaction Matrices; Cross-interaction Matrices; Assessment Matrices; Quantitative Strategic Planning Matrices

## 1. Introduction

Every coherent structure requires the formulation of a set of goals and plans to raise the level of its values in line with stakeholders' interests and demands, entailing flexibility regardless of any capability. Corporate liquidity is assessed based on financial flexibility because it determines the ability of a business entity to make payments such as suppliers of raw materials, financial expense, investment, repayment of facilities received, etc. (Lai et al., 2020). Usually, corporate financial flexibility involves losing some benefits at the expense of reaping some advantages, which can facilitate the development of the company's competitive operations in global markets while also removing constraints. Mora and Marchica (2012) acknowledged the significant impact of financial flexibility on capital structure and financing decisions of corporate executives. This is because companies will be able to significantly increase their funding capabilities as well as respond to environmental changes to react appropriately to unforeseen events to maximize firm value.

Moreover, Gamba and Trentis (2012) introduced financial flexibility as a missing link in the theory of capital structure and considered its application as necessary under today's unbalanced economic conditions. Numerous other researchers, such as Booth et al. (2019), Jung et al. (2015), Rapp et al. (2014), and Ang and Smidima (2011), have also emphasized financial flexibility because it creates a competitive advantage, based on which capacity is built to equip financial resources to respond to future opportunities. There are two policies in line with the theories that will bring more value to companies through financial flexibility. Financial flexibility can mitigate investment problems by limiting the accessibility of capital, on the one hand, and facilitate the avoidance of bankruptcy costs, on the other. The level of financial flexibility is primarily determined by financial decisions, those that have both perceptual and professional aspects, as well as other aspects, such as political and even cultural ones.

Using the two approaches above, the present study seeks to investigate possible approaches resulting from financial flexibility functions in the Abadan Refinery using scenario planning. According to its financial needs, the company seeks to improve its financial flexibility based on a series of circulars. They are Circular 68118/100 approved on November 11, 2012,

entitled "Financial Discipline Guideline," Circular 393-2/20, passed on August 17, 2019, entitled "Strengthening financial monitoring (control)," Circular 120128/T57268H ratified on December 10, 2019. These have been approved to save and discipline financially in line with paragraph (16) of the general resistance economy policies as per the sixth five-year development plan and reduce financial costs and investment development in profitable projects. Accordingly, the present study seeks to better identify financial flexibility by understanding the need for financial flexibility in the Abadan Refinery to theoretically develop its functions in the future operations of the company using SAP-LAP scenario analysis. Section I of this study is devoted to determining the most likely probable scenarios for the firm by identifying probable elements affecting the firm's financial flexibility functions, both within and outside the firm. It seeks to answer the following question: "What is the most effective scenario for financial flexibility functions in the Abadan Refinery based on SAP-LAP scenario planning analysis?" This paper, considering the fact that based on the level of scenario analysis, has undertaken analysis in financial decision analysis, while it can help increase a company's potential returns, at the same time, it should become an increasingly coherent framework in the field of financial decision research. Therefore, examining such an issue for the purpose of scenario analysis causes the company's goals and strategies to be closer to the predicted realities and strengthens the company's profits. Section II seeks to gain a better understanding of the field to reinforce the level of future conclusions through the theoretical expression of financial flexibility concepts by understanding the concept and content of the question. Section III outlines a coherent framework of analytical methods and approaches by presenting the methodology of their objectives. Section V examines these analytical approaches in the target population. Finally, Section VI discusses the theoretical reasoning of the results obtained, states the limitations of the research, and offers several practical suggestions.

## 2. Literature Review

### 2.1. Financial Flexibility

Financial flexibility usually refers to a company's ability to restructure its financing at a low cost. It can

also be defined as a company's financing capacity to respond appropriately to unforeseen events (Bayon, 2011). Financial flexibility integrates corporate capabilities with environmental processes and innovations, leading to enhanced corporate effectiveness capacity in meeting stakeholders' needs and expectations (Sharma et al., 2010). According to the theoretical concepts of accounting standards, financial flexibility refers to the ability of a business entity to take effective measures to change the amount and timing of cash flows, so that it can respond appropriately to unexpected events and opportunities. Financial flexibility will also allow the entity to reap unexpected investment opportunities and survive conditions under which operating cash flows are low or negative due to a steep decline in demand for products produced by the entity. Welberda (1998) defines financial flexibility as the ability to implement profitable activities following changes in the business environment and the consistency of anticipating modifications that involve the company's goals. He has considered two perspectives for financial flexibility as follows:

- Internal financial flexibility: such as the company's capacity to adapt to the needs of the environment;
- External financial flexibility: such as the company's capacity to influence the environment and ultimately reduce vulnerability.

Internal financial flexibility consists of the debt capacity and cash held by the company as critical components (Welberda, X). It is vital to determine the relationship between the elements of a firm's internal financial flexibility because it allows corporate executives to prioritize maintaining the firm's internal financial flexibility through their ideal control and management. In this way, they can optimally manage unexpected crises and problems and harvest investment opportunities, ultimately leading to increased corporate value (Piri and Barzegari Sadaghiani, 2015). Creating internal and external flexibility and striking the optimal balance between the two in the company is of particular importance.

## **2.2. Theoretical development of financial flexibility**

The 1950s marked the beginning of fundamental changes in corporate finance. Durand (1952) pioneered two perspectives on capital structure: net profit and net operating profit (Hassani and Misaghi, 2014). Equilibrium and preference models were based on the Modigliani-Miller theorems (1977) presented following them. According to the equilibrium model, companies determine the optimal leverage based on the balance between debt benefits and costs (Fama and French, 2002). Taxes and financial distress and agency costs are the significant benefits and costs of debt financing. A competing theory, the preference model, however, is based on conservatism that can pose challenges to financial flexibility (Haqiqat and Bashiri, 2012). According to this model, corporate executives prefer internal financing over external financing to strengthen their financial flexibility. That is to say, they primarily finance through accumulated profits. Accordingly, if domestic resources are insufficient, they will be financed through low-risk debts and then high-risk debts. Furthermore, if the financial needs of the company are not met by borrowing, they will seek financing through entering the capital markets or partnering with other companies (Khaleghi Moghaddam et al., 2017). This theory will indeed prevent the development of the company in a competitive environment because accessibility and use of financial resources can facilitate the strengthening of the company's profitability capabilities and solve the problems of financing in the company's future projects. In other words, financial flexibility refers to a company's ability to finance and control costs and risk to respond timely to unexpected future events and maximize firm value. Table 1 presents the theories of financial flexibility:

**Table 1: Theories of Accounting/Financial Functions Decision**

Theories of Financial Flexibility	Description
<b>Agency theory</b>	Agency problems suggest that one of the basic preferences of managers is access to more cash (Jensen, 1986). On the other hand, managers are expected to try to use less debt and hold more cash in the company by giving them more authority (especially in larger companies) to avoid oversight by creditors, lack of complete control over debt capacity, and probably high debt financing costs (Bates et al., 2009).
<b>Equilibrium theory</b>	According to this theory, companies strike a balance between the costs and benefits of cash holdings. Companies with higher cash holdings have reduced risk. However, more cash holdings can lead to lost benefits of investment opportunities that could be reaped by the firm. Companies should also evaluate the benefits of tax savings and the bankruptcy costs of debt in financing through them (Khaleghi Moghaddam et al., 2018).
<b>Hierarchy theory</b>	According to this theory, companies tend to accumulate internal resources and hold cash. Under such circumstances, they usually avoid financial leverage and stocks because of their high cost (capital) (Appler et al., 1999). Companies also prefer to borrow to issue shares (stocks) if they use external sources.

### 3. Methodology

It is a descriptive research project aimed at explaining the phenomenon in terms of purpose and developmental in terms of results because it seeks to expand the theoretical foundations of financial flexibility, and the concepts of financial flexibility functions theoretically lack a coherent framework in accounting, especially in the target population. Finally, it is an inductive-deductive study in terms of data collection rationale because the desired components and dimensions are determined by the internal analysis of the Abadan Refinery with the participation of its experts based on the nature of the interpretive analysis of this research, finally developed in a functional model. In other words, a framework of linkages between the dimensions and the concept of this

research is developed using SAP-LAP interpretive analysis, which stands for six approaches: Situation, Actor, Process → **SAP**, Learning, Action, and Performance → **LAP** (Chalander and Singh, 2014). According to this framework as an analytical framework, each analytical field contains a "situation" that must be managed. There is/are "actor(s)" therein containing "process(s)" that react to and reconstruct the "situation." Proper interaction and integration of Situation-Actor-Process (SAP) lead to Learning-Action-Performance (LAP) (Sony & Chadhari, 2013). The components of this analysis are first identified by considering its six dimensions through the analysis of corporate performance. In other words, this analysis is a combination of six main components as defined below:

**Table 2: Model obtained by combining the six dimensions of SAP-LAP interpretive analysis**

Dimension	Symbol	Description
Situation	Situation	It refers to a situation in which the target population (i.e., the Abadan Refinery) is located, both internally and externally.
Actor	Actor	It refers to the actor(s) in the target population who are in this situation (i.e., financial flexibility), internal or external, depending on the organization under study.
Process	Process	It refers to the situation processes of the target population (i.e., financial reporting mechanisms), internal or external, depending on the organization under study.
Learning	Learning	It refers to the key issues related to the goal, which can lead to the achievement of goals (i.e., gaining maximum benefits).
Action	Action	It refers to actions performed based on learning, which affects the achievement of goals.
Performance	Performance	It refers to the realization of part or all of the set goals, which affects the increased efficiency of the target population (i.e., the Abadan Refinery).

The purpose of this analysis is to identify the three elements of "SAP," which ensure the proper

functioning of the system and the company if they have the correct condition and performance. In other

words, to facilitate the achievement of their predetermined goals, companies should provide the right conditions to carry out activities, employ competent human resources and competent experts, and design appropriate processes to achieve the desired output (Mangala et al., 2014). Three "LAP" elements are also included to make changes for improvement that allows for a more accurate understanding of the goal outcome. This understanding

is achieved by examining the key factors of the system, namely learning, action, and performance (Saho et al., 2011). Necessary corrective measures can then be defined that contribute to optimal work efficiency. Figure 1 shows the relationship between the two criteria of interpretive analysis.

Financial flexibility functions are examined by identifying these dimensions in the "SAP-LAP" interpretive analysis.

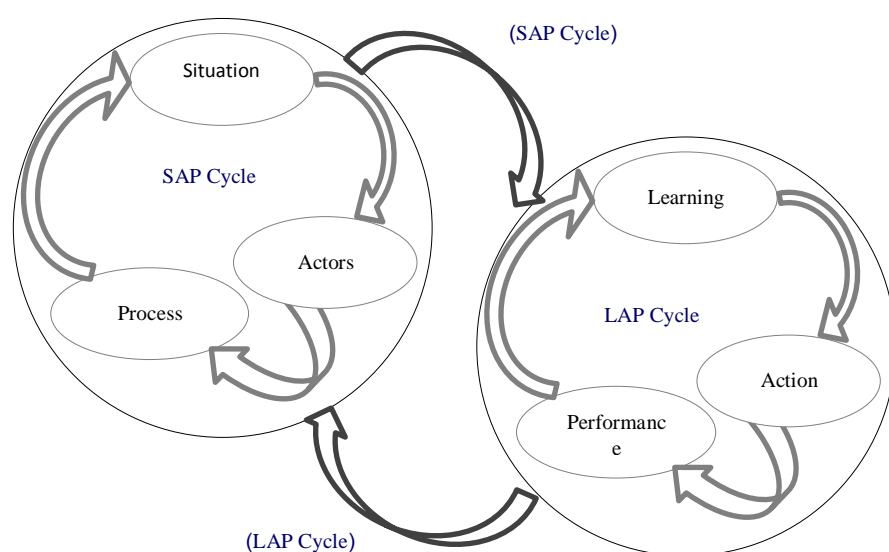


Figure 1: Interpretive analysis model of SAP-LAP linkages

### 3.1. Target Population

The statistical population consists of financial and managerial specialists in the Abadan Refinery, specialized and experienced in the field of financial strategies and policies. Because this study was looking for specialized and experienced people, purposive nonprobability sampling was used. Since this is an analytical study, the target population participated in two parts of the analysis. In the first part, identifying the components and dimensions of the areas of financial flexibility, sixteen experts in the field of finance and accounting collaborated with researchers. They had the experience of participating in the company's training groups so that they could determine the criteria affected by financial flexibility inside and outside the company. In the second part,

eight experts participating in the first step, prioritized in terms of both academic education and experience, were selected based on the analytical process and guidelines of this analytical field, which confirmed that the target population consists of 5-15 people (Singh and Chalander, 2014). In this step, matrix scenario planning questionnaires were distributed among the panel members alternately based on the nature of the analysis to examine possible financial flexibility scenarios in the Abadan Refinery.

### 3.2. The Tools for Collection

To analyze the interpretive scenarios, several checklists and matrix questionnaires were developed, distributed, and collected alternately. The interaction of each component with the other components was

investigated in pairwise and binary (0 and 1). These checklists were examined separately based on internal and external components defined as 4.4, 5.5, and 3.3 matrices. The effect of the relative level on the corresponding column was investigated in each cell of the mentioned matrices. This research is formulated in the form of a one-way matrix (i.e., row by column), unlike other matrix analyses such as interpretive/structural cross-analysis. These matrices are examined in four forms (i.e., self-interaction matrix, interpretive matrix, evaluation matrix, and quantitative strategic planning matrix (QSM)). Hence, they do not ultimately seek to determine the most effective interpretive scenarios and merely examine the limited relationship between the two components (Sochail, 2009).

**4. Results**

Since this study has examined only a specific target population, namely the Abadan Refinery, the method of interpretive analysis "SAP-LAP" was used to develop a framework for linkages between the components of the research. As explained in the Methodology section, corporate strategic performance

(internal and external) is initially analyzed, it was attempted to illustrate internal and external elements based on the situation, actors, and processes "SAP" for maximum benefit in terms of financial flexibility in the form of "LAP," based on the six components of this analysis and with the participation of corporate experts. Table 3 shows the most critical internal and external elements in terms of these characteristics in the Abadan Refinery based on the participation of corporate experts, common in the company context in terms of theoretical adequacy. The list of elements presented in this list does not, in any way, indicate all possible dimensions of influence. However, in this section, participants are asked to choose the most influential dimension in terms of financial flexibility. "SAP-LAP" is a generic model that can be used in various fields, such as problem-solving, change management, strategy formulation, supply chain management, marketing management, technology management, human resource management, and so on. In this study, the level of financial flexibility functions in the Abadan Refinery has been investigated using the model.

**Table 3: SAP-LAP flexibility functions**

Dimension	Internal/External	Elements
Situation	Internal	Financial agility
		Dynamics of financial ratios
		Reduction of production costs
		Cash flow
	External	Reduction of financial constraints
		Strengthening the mechanisms of the competitive arena
		Dynamics of project selection with positive NPV
		Flexibility against environmental changes such as laws and sanctions
Actor	Internal	Senior executives
		Supervisors
		Employees
		Financial decision-making units
	External	Competitors
		Raw material suppliers
		Business partners
		Governance system and supervisory bodies
		Internal and external customers
Process	Internal	More agile production
		Effective distribution of resources
		Strategic planning to attract external investments
		Creating IT capabilities in the areas of financial decision-making
		Resource productivity management

Dimension	Internal/External	Elements
	External	Dynamic supply chain management
		Free flow of financial information
		Reduce costs through outsourcing
		Developing business with other companies such as mergers or consortia
		Reduction of financial intermediation
Learning		Improvement of financial education level in the human resources sector
		Identification of financial weaknesses and strengths
		Improvement of the effectiveness of internal audit committees
		Improvement of freedom of action of internal auditors
		Increasing interactions with external stakeholders
		Identification of environmental opportunities and threats
		Strengthening communication channels with external stakeholders
		Strengthening R&D teams in identifying external markets
Action		Changing rough and inflexible structures
		Reduction of management layers
		Reduction of hierarchy
		Delegation of more authority in decision-making areas
		Timely provision of information to external stakeholders in the form of financial statements
		Provision of honest information to external stakeholders in the form of financial statements
		Provision of more disclosed informative content to stakeholders
		Creation of equality and symmetry in the information disclosed to external stakeholders
performance		Getting the most out of your resources
		Recognizing possible fluctuations in the market
		Improvement of forecasting macroeconomic variables
		Assessment of the impact of international sanctions on corporate operations
		Increasing customer satisfaction
		Attraction of the largest number of external investors
		Accessible dedicated and free financial resources

As it turned out, the elements of SAP and LAP were determined based on internal and external functions with the participation of company experts. This research has considered the elements that have the most impact on the company at a broader level. LAP-based analyses help integrate the main learning issues

of the research topic, namely, financial flexibility functions. Learning involves paying attention to a fresh look at the process operation in detail. At this stage, the identified elements should be analyzed to achieve a level of equal perception in the participants in the research using Delphi analysis.

**Table 4:** Delphi analysis to create perceptual coherence with the elements of financial flexibility

Dimension	Internal/External	Elements	Mean	Coefficient of Contingency	Confirmed?	Combined?	Removed?
Situation	Internal	Financial agility	5	0.65	Confirmed	-	-
		Dynamics of financial ratios	4.97	0.49	-	Combined	-
		Reduction of production costs	4	0.40	-	-	Removed
		Cash flow	4.99	0.51	-	Combined	-

Dimension	Internal/External	Elements	Mean	Coefficient of Contingency	Confirmed?	Combined?	Removed?
	External	Reduction of financial constraints	5.20	0.75	Confirmed	-	-
		Strengthening the mechanisms of the competitive arena	3	0.35	-	-	Removed
		Dynamics of project selection with positive NPV	4	0.40	-	-	Removed
		Flexibility against environmental changes such as laws and sanctions	5.10	0.70	Confirmed	-	-
Actor	Internal	Senior executives	5	0.65	Confirmed	-	-
		Supervisors	2.50	0.20	-	-	Removed
		Employees	5.10	0.70	Confirmed	-	-
		Financial decision-making units	5.20	0.75	Confirmed	-	-
	External	Competitors	4	0.40	-	-	Removed
		Raw material suppliers	2.50	0.20	-	-	Removed
		Business partners	4	0.45	-	-	Removed
		Governance system and supervisory bodies	6	0.90	Confirmed	-	-
		Internal and external customers	4.50	0.45	-	-	Removed
Process	Internal	More agile production	4	0.40	-	-	Removed
		Effective distribution of resources	5	0.65	Confirmed	-	-
		Strategic planning to attract external investments	3	0.35	-	-	Removed
		Creating IT capabilities in the areas of financial decision-making	2	0.15	-	-	Removed
	External	Resource productivity management	3	0.35	-	-	Removed
		Dynamic supply chain management	4	0.40	-	-	Removed
		Free flow of financial information	3.50	0.38	-	-	Removed
		Reduce costs through outsourcing	6	0.90	Confirmed	-	-
		Developing business with other companies such as mergers or consortia	5.50	0.85	Confirmed	-	-
		Reduction of financial intermediation	5.20	0.75	Confirmed	-	-
Learning		Improvement of financial education level in the human resources sector	3	0.35	-	-	Removed
		Identification of financial weaknesses and strengths	5	0.65	Confirmed	-	-
		Improvement of the effectiveness of internal audit committees	5.20	0.75	Confirmed	-	-
		Improvement of freedom of action of internal auditors	5.10	0.70	Confirmed	-	-
		Increasing interactions with external stakeholders	4	0.40	-	-	Removed
		Identification of environmental opportunities and threats	5.20	0.75	Confirmed	-	-
		Strengthening communication channels with external stakeholders	3	0.35	-	-	Removed
		Strengthening R&D teams in identifying external markets	5.20	0.75	Confirmed	-	-
Action		Changing rough and inflexible structures	2.50	0.20	-	-	Removed
		Reduction of management layers	5	0.65	Confirmed	-	-
		Reduction of hierarchy	5.50	0.85	Confirmed	-	-
		Delegation of more authority in decision-making areas	4	0.40	-	-	Removed
		Timely provision of information to external stakeholders in the form of financial statements	4	0.40	-	-	Removed
		Provision of honest information to external stakeholders in the form of financial statements	3	0.35	-	-	Removed
		Provision of more disclosed informative content to stakeholders	5.50	0.85	Confirmed	-	-
		Creation of equality and symmetry in the information disclosed to external stakeholders	5.20	0.75	Confirmed	-	-
performance		Getting the most out of your resources	6	0.90	Confirmed	-	-
		Recognizing possible fluctuations in the market	3	0.35	-	-	Removed



Dimension	Internal/External	Elements	Mean	Coefficient of Contingency	Confirmed?	Combined?	Removed?
		Improvement of forecasting macroeconomic variables	5.10	0.70	Confirmed	-	-
		Assessment of the impact of international sanctions on corporate operations	4	0.40	-	-	Removed
		Increasing customer satisfaction	2.50	0.20	-	-	Removed
		Attraction of the largest number of external investors	2.50	0.20	-	-	Removed
		Accessible dedicated and free financial resources	6	0.90	Confirmed	-	-

To create matrix structures, each element must first be coded based on the six dimensions of SAP-LAP interpretive analysis following the identification of confirmed and integrated elements.

**Table 5: Confirmed elements**

Dimension	Internal/External	Elements	Mean
Situation	Internal	Financial agility	S1
		Financial agility helps strengthen the financial dynamics of assessment ratios	S2
	External	Reduction of financial constraints	S3
		Flexibility against environmental changes such as laws and sanctions	S4
Actor	Internal	Senior executives	A1
		Employees	A2
		Financial decision-making units	A3
	External	Governance system and supervisory bodies	A4
Process	Internal	Effective distribution of resources	P1
	External	Reduce costs through outsourcing	P2
		Developing business with other companies such as mergers or consortia	P3
		Reduction of financial intermediation	P4
Learning	Identification of financial weaknesses and strengths		L <sub>1</sub> <sup>*</sup>
	Improvement of the effectiveness of internal audit committees		L <sub>3</sub> <sup>*</sup>
	Improvement of freedom of action of internal auditors		L <sub>4</sub> <sup>*</sup>
	Identification of environmental opportunities and threats		L <sub>5</sub> <sup>*</sup>
	Strengthening R&D teams in identifying external markets		A <sub>1</sub> <sup>*</sup>
Action	Reduction of management layers		A <sub>2</sub> <sup>*</sup>
	Reduction of hierarchy		A <sub>4</sub> <sup>*</sup>
	Provision of more disclosed informative content to stakeholders		P <sub>1</sub> <sup>*</sup>
	Creation of equality and symmetry in the information disclosed to external stakeholders		P <sub>2</sub> <sup>*</sup>
Performance	Getting the most out of your resources		P <sub>3</sub> <sup>*</sup>
	Improvement of forecasting macroeconomic variables		L <sub>1</sub> <sup>*</sup>
	Accessible dedicated and free financial resources		L <sub>2</sub> <sup>*</sup>

Once coded, the matrix structure of linkages among elements was formulated in pairwise form. Relationships between elements can be demonstrated by using different matrices as the simplest way. This research uses the main matrices in "SAP-LAP" relationships, namely self-interaction matrix, interpretive matrix, evaluation matrix, quantitative strategic planning matrix (QSPM).

**A) Self-interaction matrix and interpretive matrix**

The relationships between elements of a component can be represented using a self-interaction matrix. This process involves a pairwise comparison that shows a binary (0 and 1) relation, as shown in the table below. Input "1" in the cell means the interaction between the components of an element (for example, the components of the "actor" element), and input "0"

means the lack of interaction. In addition, due to its interactive nature, the interpretive self-interaction matrix can understand interactions in a more conceptual way (Table 1 (b)) (Souri and Sochel, 2017). Accordingly, participants were asked to rate the relationships between the dimensions of interpretive analysis according to their experience and expertise using 1 and 0.

According to Table 6<sup>b</sup>, due to the interpretive relationships between financial flexibility functions in the Abadan Refinery in terms of "situation," financial agility created by financial flexibility can lead to more dynamic financial assessment ratios and a more flexible response to environmental changes. Moreover, these financial flexibility functions can reduce the firm's financial constraints in terms of external financing.

**Table 6<sup>a</sup>: Pairwise comparison of elements of the "situation" dimension**

Elements	Codes	Internal		External	
		S1	S2	S3	S4
Financial agility	S1	-	1	0	0
The dynamics of financial ratios toward cash flow	S2	-	-	0	1
Reduction of financial constraints	S3	-	-	-	1
Flexibility against environmental changes such as laws and sanctions	S4	-	-	-	-

**Table 6<sup>b</sup>: Interpretive comparison of elements of the "situation" dimension**

Position	Code	Internal		External	
		S1	S2	S3	S4
Internal	S1	-	Financial agility helps strengthen the financial dynamics of assessment ratios.	0	0
	S2	-	-	0	The dynamics of financial ratios contribute to a firm's financial flexibility to environmental changes.
External	S3	-	-	-	The reduction of financial constraints contributes to a firm's financial flexibility to environmental changes.
	S4	-	-	-	-

**Table 7<sup>a</sup>: Pairwise comparison of elements of the "actor" dimension**

Elements	Codes	Internal			External
		A1	A2	A3	A4
Senior executives	A1	-	1	1	1
Employees	A2	-	-	0	0
Financial decision-making units	A3	-	-	-	0
Governance system and supervisory bodies	A4	-	-	-	-

**Table 7<sup>b</sup>: Interpretive comparison of elements of the "actor" dimension**

Position	Code	Internal			External	
		A1	A2	A3	A4	
Internal	A1	-	Senior executives, as the main actors, determine what direction the employees should take.	Senior executives determine the strategies of the financial decision-making units.	Senior executives are accountable to supervisory bodies.	
	A2	-	-	0	0	
External	A3	-	-	-	0	
	A4	-	-	-	-	

According to the analysis of self-interaction matrix and interpretive matrix of "actor" dimension in interpretive analysis, senior executives are the main actors, both in terms of internal and external causes, who can determine the direction of employees and corporate financial strategies and act as more responsible and committed to supervisory bodies through financial flexibility functions. They are considered as the most effective function of financial flexibility on internal causes in the Abadan Refinery.

According to the analysis of the self-interaction matrix and interpretive matrix of the "process" dimension in interpretive analysis, elements related to external causes are the most critical processes affected by financial flexibility functions. Outsourcing and business development are two external processes affected by financial flexibility functions, which can reduce costs, expand the business, and also reduce financial intermediation. Accordingly, they are considered as the most effective function of financial flexibility on external causes in the Abadan Refinery.

**Table 8<sup>a</sup>: Pairwise comparison of elements of the "process" dimension**

Elements	Codes	Internal		External	
		P1	P2	P3	P4
Efficient resource distribution	P1	-	0	0	0
Reduction of costs through outsourcing	P2	-	-	1	0
Development of a business with other companies, such as mergers or consortia	P3	-	-	-	1
Reduction of financial intermediation	P4	-	-	-	-

**Table 8<sup>b</sup>: Interpretive comparison of elements of the "process" dimension**

Position	Code	Internal			External	
		P1	P2	P3	P4	
Internal	P1	-	-	0	0	
External	P2	-	-	Outsourcing some projects can reduce costs and also pave the way for the development of interactive strategies, such as consortia or mergers with other companies.	0	
	P3	-	-	-	The development of business areas will reduce financial intermediation and impose high costs on the company.	
	P4	-	-	-	-	

#### 4.1. Evaluation Matrix

An evaluation matrix estimates the state of the elements of a component from two aspects, namely the comparison of two dimensions (or elements) (Trividi et al., 2015). It has a two-dimensional structure based on the vertical axis (i.e., SAP dimensions) and the horizontal axis (i.e., LAP dimensions). A situation

evaluation matrix identifies the position of different situational elements with scores as a qualitative assessment and may consider multiple situations (Ravi, 2014). Based on the matrix analysis process, the following table is used to score to use the mode index because several experts have participated.

**Table 9: Defined indices of the evaluation matrix**

Defined symbols	Concepts
V	<i>i</i> leads to <i>j</i> (row leads to column).
O	There is no valid relationship.

By identifying two scoring symbols to use the mode index, the following table provides a pairwise evaluation matrix of interpretive analysis dimensions.

Then, the final evaluation matrix is formed and interpreted based on the relationships defined in Table 11.

This section provides the evaluation matrix that determines future scenarios.

**Table 10: Defined symbols of SAP-LAP interpretive analysis based on internal and external causes**

Performance			Action				Learning					Code	Internal/External	Dimension
P <sub>3</sub> <sup>*</sup>	P <sub>2</sub> <sup>*</sup>	P <sub>1</sub> <sup>*</sup>	A <sub>4</sub> <sup>*</sup>	A <sub>3</sub> <sup>*</sup>	A <sub>2</sub> <sup>*</sup>	A <sub>1</sub> <sup>*</sup>	L <sub>5</sub> <sup>*</sup>	L <sub>4</sub> <sup>*</sup>	L <sub>3</sub> <sup>*</sup>	L <sub>2</sub> <sup>*</sup>	L <sub>1</sub> <sup>*</sup>			
V	V	V	V	V	V	V	0	V	0	0	V	S1	Internal	Situation
0	0	V	V	V	0	0	0	V	0	0	V	S2		
0	0	V	V	V	0	0	V	V	0	0	V	S3		
V	V	V	0	0	V	V	V	V	0	0	V	S4		
V	0	V	V	V	V	V	V	V	V	V	V	A1	Internal	Actor
0	0	V	0	0	0	0	0	0	0	0	0	A2		
0	V	V	V	V	0	0	0	V	0	0	V	A3		
0	V	0	V	V	0	0	0	V	V	V	0	A4		
V	0	V	0	0	V	0	V	V	0	0	0	P1	External	Process
0	0	V	0	0	V	0	0	V	0	0	0	P2		
V	V	V	0	V	V	V	V	V	0	0	0	P3		
V	0	0	0	0	V	0	V	V	0	0	0	P4		

**Table 11: Conversion of conceptual relations to numbers**

Conceptual symbol	Conversion of conceptual symbols to quantitative numbers
V	1 is placed in the cell corresponding to this pair in the evaluation matrix.
O	0 is placed in the cell corresponding to this pair in the evaluation matrix.

**Table 12: Evaluation matrix of dimensions of SAP-LAP interpretive analysis based on internal and external causes**

Performance			Action				Learning					Code	Internal/External	Dimension
P <sub>3</sub> <sup>*</sup>	P <sub>2</sub> <sup>*</sup>	P <sub>1</sub> <sup>*</sup>	A <sub>4</sub> <sup>*</sup>	A <sub>3</sub> <sup>*</sup>	A <sub>2</sub> <sup>*</sup>	A <sub>1</sub> <sup>*</sup>	L <sub>5</sub> <sup>*</sup>	L <sub>4</sub> <sup>*</sup>	L <sub>3</sub> <sup>*</sup>	L <sub>2</sub> <sup>*</sup>	L <sub>1</sub> <sup>*</sup>			
1	1	1	1	1	1	1	0	1	0	0	1	S1	Internal	Situation
0	0	1	1	1	0	0	0	1	0	0	1	S2		
0	0	1	1	1	0	0	1	1	0	0	1	S3		
1	1	1	0	0	1	1	1	1	0	0	1	S4		
1	0	1	1	1	1	1	1	1	1	1	1	A1	Internal	Actor
0	0	1	0	0	0	0	0	1	0	0	0	A2		
0	1	1	1	1	0	0	0	0	0	0	1	A3		
0	1	0	1	1	0	0	0	1	1	1	0	A4		
1	0	1	0	0	1	0	1	0	0	0	0	P1	External	Process
0	0	1	0	0	1	0	0	0	0	0	0	P2		
1	1	1	0	1	1	1	1	0	0	0	0	P3		
1	0	0	0	0	1	0	1	0	0	0	0	P4		

According to the table above, the situation, actor, and process were scored 0 and 1 in a pairwise manner based on three dimensions, namely learning, action,

and performance, to interpret the financial flexibility functions presented in Table 13.

As can be seen, 28 interactive modes are created in the "situation" dimension with dimensions of learning,

action, and performance, resulting from financial flexibility functions. As indicated, the "situation-learning" and "situation-action" interpretive matrices have the largest number of matrix levels.

As can be seen, 24 interactive modes have been created in the "actor" dimension with dimensions of learning, action, and performance, resulting from financial flexibility functions.

As can be seen, 20 interactive modes are created in the "process" dimension with the dimensions of learning, action, and performance, resulting from financial flexibility functions. Now, the best financial flexibility function in the Abadan Refinery should be determined based on a quantitative evaluation matrix.

**Table 13: Interpretive situation matrix, S relative to LAP**

Dimension	Internal/External	Codes	Learning			
			L <sub>1</sub> <sup>*</sup>	L <sub>2</sub> <sup>*</sup>	L <sub>3</sub> <sup>*</sup>	L <sub>4</sub> <sup>*</sup>
Situation	Internal	S1	S1 - L <sub>1</sub> <sup>*</sup>	S1 - L <sub>2</sub> <sup>*</sup>	S1 - L <sub>3</sub> <sup>*</sup>	S1 - L <sub>4</sub> <sup>*</sup>
		S2	S2 - L <sub>1</sub> <sup>*</sup>	S2 - L <sub>2</sub> <sup>*</sup>	S2 - L <sub>3</sub> <sup>*</sup>	S2 - L <sub>4</sub> <sup>*</sup>
	External	S3	S3 - L <sub>1</sub> <sup>*</sup>	S3 - L <sub>2</sub> <sup>*</sup>	S3 - L <sub>3</sub> <sup>*</sup>	S3 - L <sub>4</sub> <sup>*</sup>
		S4	S4 - L <sub>1</sub> <sup>*</sup>	S4 - L <sub>2</sub> <sup>*</sup>	S4 - L <sub>3</sub> <sup>*</sup>	S4 - L <sub>4</sub> <sup>*</sup>
	Internal/External	Codes	Action			
	Internal	S1	A <sub>1</sub> <sup>*</sup>	A <sub>2</sub> <sup>*</sup>	A <sub>3</sub> <sup>*</sup>	A <sub>4</sub> <sup>*</sup>
		S2	S1 - A <sub>1</sub> <sup>*</sup>	S1 - A <sub>2</sub> <sup>*</sup>	S1 - A <sub>3</sub> <sup>*</sup>	S1 - A <sub>4</sub> <sup>*</sup>
	External	S3	-	-	S2 - A <sub>3</sub> <sup>*</sup>	S2 - A <sub>4</sub> <sup>*</sup>
		S4	-	-	S3 - A <sub>3</sub> <sup>*</sup>	S3 - A <sub>4</sub> <sup>*</sup>
	Internal/External	Codes	Performance			
	Internal	S1	P <sub>1</sub> <sup>*</sup>	P <sub>2</sub> <sup>*</sup>	P <sub>3</sub> <sup>*</sup>	
		S2	S1 - P <sub>1</sub> <sup>*</sup>	S1 - P <sub>2</sub> <sup>*</sup>	S1 - P <sub>3</sub> <sup>*</sup>	-
	External	S3	S2 - P <sub>1</sub> <sup>*</sup>	-	-	-
		S4	S2 - P <sub>1</sub> <sup>*</sup>	S4 - P <sub>2</sub> <sup>*</sup>	S4 - P <sub>3</sub> <sup>*</sup>	-

**Table 14: Interpretive matrix of "actor," A relative to LAP**

Dimension	Internal/External	Codes	Learning				
			L <sub>1</sub> <sup>*</sup>	L <sub>2</sub> <sup>*</sup>	L <sub>3</sub> <sup>*</sup>	L <sub>4</sub> <sup>*</sup>	L <sub>5</sub> <sup>*</sup>
Actor	Internal	A1	A1 - L <sub>1</sub> <sup>*</sup>	A1 - L <sub>2</sub> <sup>*</sup>	A1 - L <sub>3</sub> <sup>*</sup>	A1 - L <sub>4</sub> <sup>*</sup>	A1 - L <sub>5</sub> <sup>*</sup>
		A2	-	-	-	-	-
		A3	A3 - L <sub>1</sub> <sup>*</sup>	-	-	A3 - L <sub>4</sub> <sup>*</sup>	-
	External	A4	-	A4 - L <sub>2</sub> <sup>*</sup>	A4 - L <sub>3</sub> <sup>*</sup>	A4 - L <sub>4</sub> <sup>*</sup>	-
	Internal/External	Codes	Action				
	Internal	A1	A <sub>1</sub> <sup>*</sup>	A <sub>2</sub> <sup>*</sup>	A <sub>3</sub> <sup>*</sup>	A <sub>4</sub> <sup>*</sup>	-
		A2	A1 - A <sub>1</sub> <sup>*</sup>	A1 - A <sub>2</sub> <sup>*</sup>	A1 - A <sub>3</sub> <sup>*</sup>	A1 - A <sub>4</sub> <sup>*</sup>	-
		A3	-	-	A3 - A <sub>3</sub> <sup>*</sup>	A3 - A <sub>4</sub> <sup>*</sup>	-
	External	A4	-	-	A4 - A <sub>3</sub> <sup>*</sup>	A1 - A <sub>4</sub> <sup>*</sup>	-
	Internal/External	Codes	Performance				
	Internal	A1	P <sub>1</sub> <sup>*</sup>	P <sub>2</sub> <sup>*</sup>	P <sub>3</sub> <sup>*</sup>		
		A2	A1 - P <sub>1</sub> <sup>*</sup>	A1 - P <sub>2</sub> <sup>*</sup>	A1 - P <sub>3</sub> <sup>*</sup>	-	-
		A3	A2 - P <sub>1</sub> <sup>*</sup>	-	-	-	-
	External	A4	A3 - P <sub>1</sub> <sup>*</sup>	A3 - P <sub>2</sub> <sup>*</sup>	-	-	-

**Table 15: Interpretive matrix of "process," P relative to LAP**

Dimension	Internal/External	Codes	Learning				
			L <sub>1</sub> <sup>*</sup>	L <sub>2</sub> <sup>*</sup>	L <sub>3</sub> <sup>*</sup>	L <sub>4</sub> <sup>*</sup>	L <sub>5</sub> <sup>*</sup>
Process	Internal	P1	-	-	-	P1 - L <sub>4</sub> <sup>*</sup>	P1 - L <sub>5</sub> <sup>*</sup>
		P2	-	-	-	P2 - L <sub>4</sub> <sup>*</sup>	-
	External	P3	-	-	-	P3 - L <sub>4</sub> <sup>*</sup>	P3 - L <sub>5</sub> <sup>*</sup>
		P4	-	-	-	P4 - L <sub>4</sub> <sup>*</sup>	P4 - L <sub>5</sub> <sup>*</sup>
	Internal/External	Codes	Action				
			A <sub>1</sub> <sup>*</sup>	A <sub>2</sub> <sup>*</sup>	A <sub>3</sub> <sup>*</sup>	A <sub>4</sub> <sup>*</sup>	
	Internal	P1	-	P1 - A <sub>2</sub> <sup>*</sup>	-	-	
		P2	-	P2 - A <sub>2</sub> <sup>*</sup>	-	-	
	External	P3	P3 - A <sub>1</sub> <sup>*</sup>	P3 - A <sub>2</sub> <sup>*</sup>	P3 - A <sub>3</sub> <sup>*</sup>	-	
		P4	-	P4 - A <sub>2</sub> <sup>*</sup>	-	-	
	Internal/External	Codes	Performance				
			P <sub>1</sub> <sup>*</sup>	P <sub>2</sub> <sup>*</sup>	P <sub>3</sub> <sup>*</sup>		
	Internal	P1	P1 - P <sub>1</sub> <sup>*</sup>	-	P1 - P <sub>3</sub> <sup>*</sup>		
		P2	P2 - P <sub>1</sub> <sup>*</sup>	-	-		
	External	P3	P3 - P <sub>1</sub> <sup>*</sup>	P3 - P <sub>2</sub> <sup>*</sup>	P3 - P <sub>3</sub> <sup>*</sup>		
		P4	-	-	P4 - P <sub>3</sub> <sup>*</sup>		

**4.2. Quantitative Strategic Planning Matrix**

The Quantitative Strategic Planning Matrix (QSPM) is one of the most common techniques and tools for

evaluating strategic options and determining the relative attractiveness of the strategies used in decision-making. It determines and prioritizes the possible strategic options (Palanissami, 2012).

**Table 16: Evaluation matrix of all dimensions of SAP-LAP interpretive analysis**

Situation-Learning Dimension		SAP-LAP Matrix	Importance Factor	Rank	Score (Factor * Rank)
Internal	Financial agility – identification of strengths and weaknesses	S1 - L <sub>1</sub> <sup>*</sup>	0.188	1	0.188
	Financial dynamics - identification of strengths and weaknesses	S1 - L <sub>4</sub> <sup>*</sup>	0.087	3	0.261
	Financial agility - identification of opportunities and threats	S2 - L <sub>1</sub> <sup>*</sup>	0.128	2	0.256
	Financial dynamics - identification of opportunities and threats	S2 - L <sub>4</sub> <sup>*</sup>	0.118	1	0.118
External	Reduction of financial constraints - identification of strengths and weaknesses	S3 - L <sub>1</sub> <sup>*</sup>	0.078	3	0.234
	Financial flexibility - identification of strengths and weaknesses	S4 - L <sub>1</sub> <sup>*</sup>	0.088	2	0.176
	Reduction of financial constraints - identification of opportunities and threats	S3 - L <sub>4</sub> <sup>*</sup>	0.032	2	0.064
	Financial flexibility - identification of opportunities and threats	S3 - L <sub>4</sub> <sup>*</sup>	0.067	3	0.201
	Reduction of financial constraints - Strengthening R&D teams	S3 - L <sub>5</sub> <sup>*</sup>	0.098	1	0.098
	Financial flexibility - Strengthening R&D teams	S4 - L <sub>5</sub> <sup>*</sup>	0.116	2	0.232
<b>Total</b>			<b>1.00</b>		<b>1.828</b>
Situation-Action Dimension			Importance Factor	Rank	Score (Factor * Rank)
Internal	Financial agility – reduction of management layers	S1 - A <sub>1</sub> <sup>*</sup>	0.093	2	0.186
	Financial agility – reduction of hierarchy	S1 - A <sub>2</sub> <sup>*</sup>	0.165	1	0.165
	Financial agility – provision of informative content	S1 - A <sub>3</sub> <sup>*</sup>	0.108	2	0.216
	Financial agility - information symmetry	S2 - A <sub>3</sub> <sup>*</sup>	0.066	2	0.132

Situation-Learning Dimension		SAP-LAP Matrix	Importance Factor	Rank	Score (Factor * Rank)
	Financial dynamics – provision of informative content	S1 – A <sub>4</sub> <sup>*</sup>	0.105	3	0.315
	Financial dynamics - information symmetry	S2 – A <sub>4</sub> <sup>*</sup>	0.172	1	0.172
External	Financial flexibility – reduction of management layers	S3 – A <sub>3</sub> <sup>*</sup>	0.114	1	0.114
	Financial flexibility - reduction of hierarchy	S3 – A <sub>4</sub> <sup>*</sup>	0.053	2	0.106
	Reduction of financial constraints – provision of informative content	S4 – A <sub>1</sub> <sup>*</sup>	0.079	3	0.237
	Reduction of financial constraints - information symmetry	S4 – A <sub>2</sub> <sup>*</sup>	0.045	2	0.090
<b>Total</b>			<b>1.00</b>		<b>1.733</b>
Situation-Performance Dimension			Importance Factor	Rank	Score (Factor * Rank)
Internal	Financial agility - increasing productivity	S1 – P <sub>1</sub> <sup>*</sup>	0.111	1	0.111
	Financial dynamics - increasing productivity	S2 – P <sub>1</sub> <sup>*</sup>	0.283	1	0.283
	Financial agility - forecasting	S1 – P <sub>2</sub> <sup>*</sup>	0.163	2	0.326
	Financial agility - accessible free financial resources	S1 – P <sub>3</sub> <sup>*</sup>	0.095	4	0.380
External	Reduced financial constraints – increasing productivity	S2 – P <sub>1</sub> <sup>*</sup>	0.101	3	0.303
	Financial flexibility - increasing productivity	S2 – P <sub>1</sub> <sup>*</sup>	0.076	3	0.228
	Financial flexibility - forecasting	S4 – P <sub>2</sub> <sup>*</sup>	0.117	2	0.234
	Financial flexibility - accessible free financial resources	S4 – P <sub>3</sub> <sup>*</sup>	0.054	4	0.216
<b>Total</b>			<b>1.00</b>		<b>2.036</b>
Actor-Learning Dimension			Importance Factor	Rank	Score (Factor * Rank)
Internal	Senior executives – identification of strengths and weaknesses	A1 – L <sub>1</sub> <sup>*</sup>	0.090	3	0.270
	Senior executives - effectiveness of internal audit committees	A1 – L <sub>2</sub> <sup>*</sup>	0.116	3	0.348
	Senior executives-independence of internal audit	A1 – L <sub>3</sub> <sup>*</sup>	0.104	2	0.208
	Senior executives - opportunities and threats	A1 – L <sub>4</sub> <sup>*</sup>	0.075	3	0.225
	Senior executives - Strengthening R&D teams	A1 – L <sub>5</sub> <sup>*</sup>	0.049	4	0.196
	Decision-making financial units – identification of strengths and weaknesses	A3 – L <sub>1</sub> <sup>*</sup>	0.113	1	0.113
	Decision-making financial units – identification of opportunities and threats	A3 – L <sub>4</sub> <sup>*</sup>	0.071	3	0.213
External	Supervisory bodies - effectiveness of internal audit committees	A4 – L <sub>2</sub> <sup>*</sup>	0.093	4	0.372
	Supervisory bodies - independence of internal audit	A4 – L <sub>3</sub> <sup>*</sup>	0.115	1	0.115
	Supervisory bodies - opportunities and threats	A4 – L <sub>4</sub> <sup>*</sup>	0.174	1	0.174
<b>Total</b>			<b>1.00</b>		<b>2.234</b>
Actor-Action Dimension			Importance Factor	Rank	Score (Factor * Rank)
Internal	Senior executives – reduction of management levels	A1 – A <sub>1</sub> <sup>*</sup>	0.143	1	0.143
	Senior executives – reduction of hierarchy	A1 – A <sub>2</sub> <sup>*</sup>	0.155	1	0.155
	Senior executives - informative content	A1 – A <sub>3</sub> <sup>*</sup>	0.106	2	0.212
	Senior executives - information symmetry	A1 – A <sub>4</sub> <sup>*</sup>	0.219	1	0.219
	Decision-making financial units - informative content	A3 – A <sub>3</sub> <sup>*</sup>	0.081	2	0.162
	Decision-making financial units - informative content	A3 – A <sub>4</sub> <sup>*</sup>	0.119	1	0.119
External	Supervisory bodies - informative content	A4 – A <sub>3</sub> <sup>*</sup>	0.095	3	0.285
	Supervisory bodies - information asymmetry	A1 – A <sub>4</sub> <sup>*</sup>	0.082	3	0.246
<b>Total</b>			<b>1.00</b>		<b>1.541</b>

Situation-Learning Dimension		SAP-LAP Matrix	Importance Factor	Rank	Score (Factor * Rank)
Actor-Performance Dimension			Importance Factor	Rank	Score (Factor * Rank)
Internal	Senior executives - increasing resource productivity	A1 – P <sub>1</sub> <sup>*</sup>	0.218	1	0.218
	Company employees - increasing resource productivity	A2 – P <sub>1</sub> <sup>*</sup>	0.157	1	0.157
	Company employees - increasing resource productivity	A3 – P <sub>1</sub> <sup>*</sup>	0.136	2	0.272
	Senior executives - accessible free financial resources	A1 – P <sub>3</sub> <sup>*</sup>	0.146	1	0.146
	Financial decision-making units - forecasting	A3 – P <sub>2</sub> <sup>*</sup>	0.183	1	0.183
External	Financial decision-making units - forecasting	A4 – P <sub>2</sub> <sup>*</sup>	0.160	2	0.320
<b>Total</b>			<b>1.00</b>		<b>1.296</b>
Process-Learning Dimension			Importance Factor	Rank	Score (Factor * Rank)
Internal	Effective distribution of resources - opportunities and threats	P1 – L <sub>4</sub> <sup>*</sup>	0.172	1	0.172
	Effective distribution of resources - strong R&D teams	P1 – L <sub>5</sub> <sup>*</sup>	0.153	1	0.153
External	Reduction of costs through outsourcing - opportunities and threats	P2 – L <sub>4</sub> <sup>*</sup>	0.204	1	0.204
	Business development - opportunities and threats	P3 – L <sub>4</sub> <sup>*</sup>	0.118	2	0.236
	Reduction of intermediation – identification of opportunities and threats	P4 – L <sub>4</sub> <sup>*</sup>	0.143	1	0.143
	Development of business areas - strong R&D teams	P3 – L <sub>5</sub> <sup>*</sup>	0.109	1	0.109
	Reduction of intermediation - strong R&D teams	P4 – L <sub>5</sub> <sup>*</sup>	0.101	2	0.202
<b>Total</b>			<b>1.00</b>		<b>1.219</b>
Process-Action Dimension			Importance Factor	Rank	Score (Factor * Rank)
Internal	Effective resource distribution – reduction of hierarchy	P1 – A <sub>2</sub> <sup>*</sup>	0.170	2	0.340
External	Development of business areas – reduction of management layers	P2 – A <sub>2</sub> <sup>*</sup>	0.211	1	0.211
	Reduced costs through outsourcing – reduction of hierarchy	P3 – A <sub>1</sub> <sup>*</sup>	0.186	1	0.186
	Development of business areas – reduction of hierarchy	P3 – A <sub>2</sub> <sup>*</sup>	0.168	1	0.168
	Reduced mediation – reduction of hierarchy	P3 – A <sub>3</sub> <sup>*</sup>	0.183	1	0.183
	Development of business contexts – provision of informative content	P4 – A <sub>2</sub> <sup>*</sup>	0.082	3	0.246
<b>Total</b>			<b>1.00</b>		<b>1.688</b>
Process-Performance Dimension			Importance Factor	Rank	Score (Factor * Rank)
Internal	Effective resource distribution - increasing resource productivity	P1 – P <sub>1</sub> <sup>*</sup>	0.115	2	0.230
	Effective distribution of resources - accessible free financial resources	P1 – P <sub>3</sub> <sup>*</sup>	0.147	1	0.147
External	Reduction of costs through outsourcing - increasing resource productivity	P2 – P <sub>1</sub> <sup>*</sup>	0.136	1	0.136
	Development of business areas - increasing resource productivity	P3 – P <sub>1</sub> <sup>*</sup>	0.149	1	0.149
	Development of business areas - forecasting	P3 – P <sub>2</sub> <sup>*</sup>	0.204	1	0.204
	Business development - accessible free financial resources	P3 – P <sub>3</sub> <sup>*</sup>	0.113	2	0.226
	Reduction of intermediation - accessible free financial resources	P4 – P <sub>3</sub> <sup>*</sup>	0.136	1	0.136
<b>Total</b>			<b>1.00</b>		<b>1.228</b>



The internal factor evaluation (IFE) matrix should be formed now according to the coefficient and rank score, provided by ScenarioWizard software, to

determine the best financial flexibility function in the Abadan Refinery from among nine interpretive analysis situations of SAP-LAP.

**Table 17:** Scenarios related to financial flexibility function

SAP	Evaluation	LAP	Learning						Action						Performance					
			Weak		Medium		Strong		Weak		Medium		Strong		Weak		Medium		Strong	
			1	2	2.5	3	4	1	2	2.5	3	4	1	2	2.5	3	4	1	2	2.5
Situation	Weak	1	1.828						1.733						2.036					
		2																		
	Medium	2.5																		
	Strong	3																		
		4																		
SAP	Assessment	LAP	Learning						Action						Performance					
			Weak		Medium		Strong		Weak		Medium		Strong		Weak		Medium		Strong	
			1	2	2.5	3	4	1	2	2.5	3	4	1	2	2.5	3	4	1	2	2.5
Actors	Weak	1	1.434						1.541						1.296					
		2																		
	Medium	2.5																		
	Strong	3																		
		4																		
SAP	Assessment	LAP	Learning						Action						Performance					
			Weak		Medium		Strong		Weak		Medium		Strong		Weak		Medium		Strong	
			1	2	2.5	3	4	1	2	2.5	3	4	1	2	2.5	3	4	1	2	2.5
Process	Weak	1	1.219						1.688						1.228					
		2																		
	Medium	2.5																		
	Strong	3																		
		4																		
Fourth effective scenario			Third effective scenario						Second effective scenario						First effective scenario					

As demonstrated, the best and worst performance scenarios of financial flexibility in the Abadan Refinery are the financial flexibility impact scenario called actor-learning and process-learning scenarios, respectively. Accordingly, with the increasing level of corporate financial flexibility, the company's actors, i.e., senior executives, employees, and internal decision-making units and external supervisory bodies are expected to strive to achieve goals and success to provide the most important achievements for companies by formulating a set of policies and specific strategies to enhance learning. Based on the above matrix, the theoretical framework is presented based on the highest scores obtained in effective financial flexibility scenarios in the Abadan Refinery as follows.

As illustrated, four interpretive scenarios more affected by financial flexibility functions in the Abadan Refinery based on QSPM analysis scores were presented in the form of a matrix framework.

According to this framework, in the first possible interpretive scenario of financial flexibility, the set of internal and external factors affected by the company's financial strategies based on disclosed information will be more agile, and dynamics based on financial assessment ratios will have higher decision-making power. Additionally, credit institutions cooperate indefinitely with the company to finance it by improving financial transparency levels. By identifying these factors, the Abadan Refinery is also trying to formulate a series of goals and programs to achieve higher productivity in production, competitive market, and so on. Accordingly, companies should review their management structures and hierarchy by enhancing financial flexibility level to strengthen the level of goals set. Finally, based on the probable actor-learning scenario, senior executives and supervisory bodies move it to the situation dimension, i.e., to recognize the situations in which the company is

involved internally and externally by gaining information from the cycle of objectives and strategies developed. Information process feedback helps formulate corporate financial strategies, especially

under economic conditions, in a more realistic way in line with market changes and to review and correct any deviations in the pursuit of developed strategies.

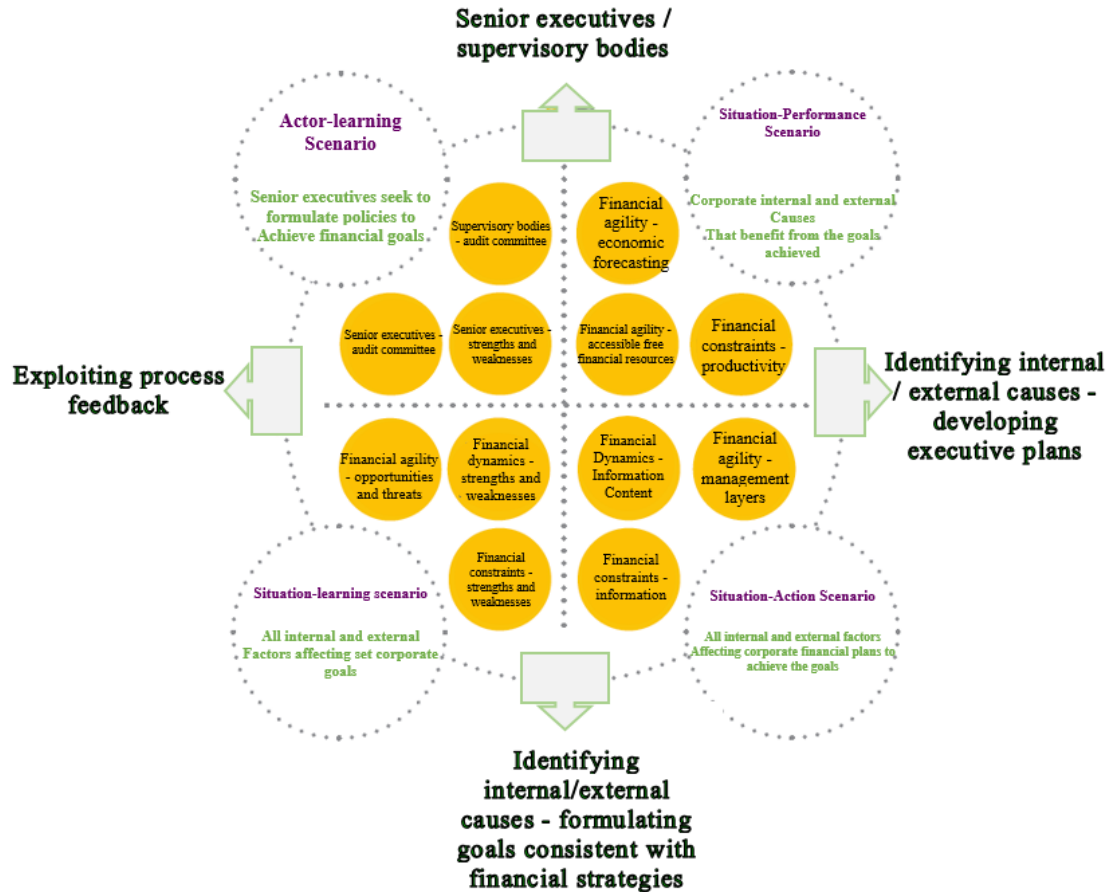


Figure 2: Theoretical framework based on SAP-LAP scenario-interpretive analysis

## 5. Conclusion

This study aimed to identify financial flexibility functions based on SAP-LAP scenario planning analysis. It initially identified the components related to internal and external causes affected by financial flexibility functions by providing the opportunity for participation of panel members (specialists in the Abadan Refinery). At this stage, 51 elements were identified in the form of six approaches: Situation, Actor, Process (SAP) and Learning, Action, and Performance (LAP), based on internal and external factors. Then, to create perceptual coherence in matrix

analysis, the selected elements were screened in the form of focus groups to confirm the reliability of the research. Then, the research entered the matrix analysis phase by determining 24 elements. The matrices were first examined as self-interaction, i.e., the pairwise relationship between one-dimensional elements because the identification of this part could help develop interpretive financial flexibility scenarios in the Abadan Refinery. Then, the evaluation matrices determined 72 interactive modes between Situation, Actor, Process (SAP) and Learning, Action, and Performance (LAP) approaches based on internal and external factors.

Eight experts participating in the second part of the target population set coefficients and priorities to select the best strategies through focus groups based on these relationships. The matrix score scale (1 to 4) was used to select priorities. The results showed that the best and worst financial flexibility scenarios in the Abadan Refinery are the financial flexibility impact scenario as actor-learning and process-learning scenarios, respectively. Accordingly, with the increasing level of corporate financial flexibility, the company's actors, i.e., senior executives, employees, and internal decision-making units and external supervisory bodies are expected to strive to achieve goals and success to provide the most important achievements for companies by formulating a set of policies and specific strategies to enhance learning. This scenario refers to a possible situation of desirable financial flexibility functions, according to which the presence of an experienced and specialized actor in the senior management of companies, as well as the institutions supervising their functions, can pave the way for the development of investment projects in line with macro strategies. The absence of effective decision-makers can lead to increased opportunism and ambition, and the company fails to achieve its desired goals in a challenging competitive market. This is because the company has a reduced level of learning and willingness to accept change, thereby increasing the flexibility of market recognition functions and, consequently, the company's failure to achieve set goals. Therefore, this study showed that the company's actors believe in a more prominent role for senior executives and help increase the dynamism of internal supervisory practices such as audit committees by identifying internal strengths and weaknesses. External supervisory practices also lead to higher independence of audit committees, which facilitates the development of information disclosure policies. Moreover, interpretive scenarios of financial flexibility functions will allow internal and external stakeholders to make the most of successful financial programs. They also help the company to reduce its financial constraints, both in terms of accessible free financial resources and economic analysis, and to act more effectively to identify future changes. Finally, it should be noted that one of the most important scientific achievements of this study is the link between investment strategies and environmental changes to increase the level of potential profits due to economic

sanctions, it has caused companies to face serious challenges in terms of financing and profitability. The results of this study also led to increased sustainable market development in the petrochemical industry and the focus on new technologies as a factor for success in such markets.

According to the results, the Abadan Refinery is recommended to plan four possible interpretive scenarios for the coming years by improving its financial flexibility and trying to eliminate any deviations from the plans and strategies by upgrading its supervisory practices. It is also proposed to formulate coherent financial development goals and programs to maximize capacity to reduce external financial constraints, as well as to develop financial relationships and strategies with other companies in the form of strategies such as consortia. Scenario planning technique, as a tool of future studies, can facilitate the development of macro functions of the Abadan Refinery and formulate the best goals and strategies in accordance with its capabilities by forming focus groups, brainstorming techniques, etc. Among the limitations of this study was the unfamiliarity of panel members with scenario planning and matrix analysis and resistance to completing the questionnaire based on the specified scales. Due to the time-consuming meetings of the focus groups, the experts were first consulted separately and then asked to comment on the elements at a specific time. These meetings were sometimes delayed due to administrative problems or faced with a decreased number of group members due to the absence of a specialist.

## Reference

- 1) Amer, M., Daim, T. U., & Jetter, A. (2013). A review of scenario planning. *Futures*, 46, 23-40.
- 2) Ang, J., Smedema, A. (2011). Financial flexibility: Do firms prepare for recession? *Journal of Corporate Finance*, 17(3): 774-787
- 3) Piri, P., Barzegari Sadaghiani, S. (2015). A review of the relationship between components of internal financial flexibility at Tehran Stock Exchange (TSE) listed companies. *Accounting and Auditing Review*, 22(3): 319-336 (In Persian)
- 4) khalegimoghaddam, H., Amiri, M., Shirazadeh, J. (2018). Measuring of Financial Flexibility. *Empirical Studies in Financial Accounting*, 15(59): 35-57 (In Persian)

- 5) Haghghat, H., Bashiri, V. (2012). Relationship between Financial Flexibility and Capital Structure. , 3(8), 49-71 (In Persian).
- 6) Haraghi, M., Bahreinizadeh, M., Haraghi, M. (2015). The Structural Model of Knowledge Management and Organizational Resilience (Given the role of organizational culture and innovation). *Organizational Behaviour Studies Quarterly*, 4(1): 177-147. (In Persian)
- 7) Hassani, M., Misaghi, M. (2014). Investigating the Behavioral Impact of Intellectual Capital on Financial Flexibility. *Journal of Financial Accounting Research*, 6(3): 67-84. (In Persian)
- 8) Anser, M., Yousaf, Z., Usman, M., Yousaf, S., Fatima, N., Hussain, H. and Waheed, J. (2020). Strategic business performance through network capability and structural flexibility, *Management Decision*, <https://doi.org/10.1108/MD-06-2019-0741>
- 9) Bates, T. Kahle, K., Stulz, R. (2009). Why Do U.S. Firms Hold so Much More Cash than They Used to? *The Journal of Finance*, 64(5): 1985-2021.
- 10) Booth, L., Wang, M., Zhou, J. (2019). Import competition and financial flexibility: Evidence from corporate payout policy, *International Review of Economics & Finance*, 63(4): 382-396 <https://doi.org/10.1016/j.iref.2019.05.001>
- 11) Byoun, S. (2011). Financial flexibility, leverage, and firm size. Waco, TX. January, 3.
- 12) Fama, E. F., French, K. R. (2002). Testing Trade off and Pecking Order Predictions about Dividends and Debt, *Review of Financial Studies*, 15(1): 102-138.
- 13) Gamba, A; Triantis, A, (2008). The Value of Financial Flexibility, *Journal of Finance*, 63(5): 263-296.
- 14) Jensen, M. (1986). Agency Costs of Free Cash Flow, *Corporate Finance and Takeovers*, *The American Economic Review*, 26(2): 37-51.
- 15) Lai, K., Prasad, A., Wong, G., Yusoff, L. (2020). Corporate deleveraging and financial flexibility: A Chinese case-study, *Pacific-Basin Finance Journal*, 61(3): 101-119. <https://doi.org/10.1016/j.pacfin.2020.101299>
- 16) Mangla, S. K., Kumar, P., & Barua, M. K. (2014). A flexible decision framework for building risk mitigation strategies in green supply chain using SAP-LAP and IRP approaches. *Global Journal of Flexible Systems Management*, 15(3): 203–218
- 17) Modigliani, F., Miller, M. (1977). Corporate Income Taxes and the Cost of Capital: A Correction. *The American Economic Review*, 53(3): 433-443.
- 18) Mura, R; Marchica, T, (2010). Financial Flexibility, Investment Ability and Firm Value: Evidence from Firm Swith Spare Debt Capacity". *Financial Management*, 39(4): 1339–1365.
- 19) Opler, T., Pinkowitz, L., Stulz, R., Williamson, R. (1999). The determinants and implications of corporate cash holdings, *Journal of Financial Economics*, 52(1): 3-46. [https://doi.org/10.1016/S0304-405X\(99\)00003-3](https://doi.org/10.1016/S0304-405X(99)00003-3)
- 20) Palanisamy, R. (2012). Building information systems flexibility in SAP-LAP framework: A case study evidence from SME sector. *Global Journal of Flexible Systems Management*, 13(1): 57–74.
- 21) Rapp, M, S., Schmid, Th., Urban, D. (2014). The value of financial flexibility and corporate financial policy, *Journal of Corporate Finance*, 29(3): 288-302. <https://doi.org/10.1016/j.jcorpfin.2014.08.004>
- 22) Ravi, V. (2014). Reverse logistics operations in automobile industry: A case study using SAP-LAP approach, *Global Journal of Flexible Systems Management*, 15(4): 295–303.
- 23) Sahoo, T., Banwet, D, K., Momaya, K. (2011). Strategic technology management in practice: SAP-LAP hills analysis of an automobile manufacturer in India. *International Journal of Business Excellence*, 4(5): 519–543
- 24) Shalender, K., & Singh, N. (2014). Understanding product flexibility using SAP-LAP approach. *Journal of Strategic Marketing*, 22(2): 104–116.
- 25) Sharma, M., Sushil, K., Jain, P, K. (2010). Revisiting Flexibility in Organizations: Exploring its Impact on Performance. *Global Journal of Flexible Systems Management*, 11(51): 51–68. <https://doi.org/10.1007/BF03396587>
- 26) Singh, N., & Shalender, K. (2014). Success of Tata Nano through marketing flexibility: A SAP-LAP matrices and linkages approach. *Global Journal of Flexible Systems Management*, 15(2), 145–160.
- 27) Soni, A., & Choudhary, V. K. (2013). Exploration and optimizing of internal supply chain management for manufacturing industry using SAP-LAP. *International Journal of Enhanced*

- Research in Science Technology and Engineering, 2(10): 54–59.
- 28) Suri, P. K., & Sushil, (2017). Strategic planning and implementation of e-governance, Flexible systems management. Singapore: Springer
- 29) Sushil, A. (2009). SAP-LAP Linkages – A Generic Interpretive Framework for Analyzing Managerial Contexts, Global Institute of Flexible Systems Management; 10(2): 11-20.
- 30) Trivedi, A., Singh, A., & Chauhan, A. (2015). Analysis of key factors for waste management in humanitarian response: An interpretive structural modelling approach. *International Journal of Disaster Risk Reduction*, 14(4): 527–535.
- 31) Volberda, H. W. (1998). Building the Flexible Firm: How to remain Competitive. Oxford, Oxford University Press, 2(1): 94-96.
- 32) Weimer-Jehle, W. (2006). Cross-impact balances: A system-theoretical approach to cross-impact analysis. *Technological Forecasting & Social Change*, (73), 334-361.
- 33) Yung, K., Li, D. D., Jian, Y. (2015). The value of corporate financial flexibility in emerging countries, *Journal of Multinational Financial Management*, 32/33: 25-41. <https://doi.org/10.1016/j.mulfin.2015.07.001>