



The future of the audit profession in Iran with a scenario approach

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ABSTRACT

In this research, using two methods of foresight, namely, interaction analysis (passing) and scenario planning, first identify and strategic factors affecting the future of the audit and then the main scenarios for the future of the audit are reviewed and analyzed.

Preliminary research data were analyzed using Mick Mac software. Finally, the results of using cross-impact analysis method indicate that 9 key factors of network integration and business intelligence, cloud computing related businesses, forecasting and caution using sensitivity analysis and social network data, marketing and E-commerce, expanding the application of new science and technology in business, investing in the global and national infrastructure of the economy, expanding business opportunities related to augmented and virtual reality and valuing digital assets, increasing competition with the entry of outsiders Profession and performing audit duties by other fields such as computer, industry, financial engineering, etc.

Demand for several skills from auditors has been identified among the factors that will have the greatest impact on the future of auditing. Then these factors were used as the main basis in screenwriting.

In order to write a scenario, expert experts were consulted at this stage.

With the analysis performed by Wizard scenario software, 3 strong scenarios, 27 believable scenarios and 153 weak scenarios related to 9 key drivers were extracted. According to the research results, it is suggested that activists and actors influencing the profession, make long-term and accurate planning to lead to the flourishing and promotion of the profession in the future.

Keywords: Future of Auditing, Propulsion, Information Technology, Scenario Planning and Interaction Analysis

1. Introduction

Rising changes and the emergence of new issues in the international community, relying on planning methods for forecasting, did not meet the country's top management, and the heavy shadow of uncertainty and the emergence of discontinuous and surprising events, the situation in a different way. . It has changed that predicting the future in a changing world seemed difficult for planners (Zali, 2009).

Drastic changes in various fields in the coming years can make businesses undergo serious changes and transformations; In a way that ineffective the current strategies and policies that are designed in the context of current thinking angles (Mills and Kenan, 2002). Political, economic, social and technological changes are making fundamental and rapid changes in human life every day.

These daily updates have caused man to feel a constant need to change his position in order to adapt to external changes and adapt to these changes (Guide River Back and Licorice, 2016).

In such a situation where predicting and visualizing the trend tries to ignore the uncertainties and only provide a forecast for managers, there is a need for a way that actually confronts managers with different perspectives on the future.(Our Post and Label, 2005).

In the strategic planning process, time and uncertainty play an important role (Barsley et al., 1996). Organizations are unpredictably confronted with new technologies, new products and new markets, and the strategies developed do not meet their needs in such a dynamic and changing environment. These pressures will increase in the future; Because technological, economic and social changes are still expanding (Hanafizadeh et al., 2006); Thus, the inability to accurately predict the future, as well as the complexities of increasing change, led researchers to take advantage of the emerging knowledge capabilities of futurology and bring futurism into the heart of planning and predicting scientific and technological developments (Zali, 2009).)

It should be noted that active presence in the process of future developments, reducing threats and increasing opportunities and options, requires a futuristic approach that allows action in future events (Khazaei, 2007). In fact, it should be said that the current problems of human society are due to two factors; The first is the lack of intelligent knowledge of

the future in the past and the second is the astonishing developments in the field of technology with the accelerating trend of globalization (Nazemi Ghadiri, 2006).

Therefore, today, due to rapid environmental changes and the resulting uncertainty, the need for strategic planning and future research to deal with possible future changes is becoming more apparent (Hoover, 2009). The appropriate effectiveness of today's decisions is fully related to understanding the future situation and how planners deal with it (Scharr, 2009).

Today, with traditional planning methods, including outsourcing the past trend, it seems very unlikely to produce reliable foresight in the medium and long term (Goodwin and Wright, 2001). Today, the theoretical texts of planning have gone beyond the concepts of forecasting and futurism and have reached the field of futurology and futurism, whose task is the architecture of the future (Khazaei, 2007).

One of the suitable tools of future architecture in conditions of uncertainty and in a situation where our progressive world is full of wonders of different instruments, is scenario-based planning. Scenario-based planning is a systematic way of thinking creatively about uncertain and possible futures (Patterson et al., 2003). The purpose of this study is to introduce a method that enables organizations to develop sound strategies in conditions of uncertainty and guides them to protect their strategies against environmental changes; Therefore, identifying future drivers and trends is a concern of the auditing profession.

The results of research on drivers and macro trends and the range of effects of these trends are such that in many cases, they include common issues and issues in human life (Bushehri and Nazarizadeh, 2009).

On the other hand, the inherent problems of accounting and auditing, both financially and in terms of time that remain unresolved for long periods, such as poor quality of financial statements, high financial and audit costs, lack of shareholder control over the company, insufficient data security Finance (Putkhina Verium Kane, 2017), Providing Retrospective Assurance Services (After the Transaction) (Dern, 2018, Lon B. & Sahlin & Broby et al., 2017), Fraud, Profit Management, Accounting, Inefficiency of Existing Processes And Audit Turning Chain (Abrou et al., 2018 and Lon Bee and Sahlin, 2018) , Non-

return of some submitted confirmations and their low reliability (Deloitte, 2016) and correspondence and spending time and high cost are the audit of the parent company and the auditors of affiliated and subsidiary companies (Davani, 2019). One of the major errors that calls into question the accuracy of the audit is the detection of fraud, which is a difficult audit task. Futurism, as the newest tool to meet these challenges, has rushed to the aid of today's managers.

Foresight knowledge should be planned as a learning process in managers' strategic activities and decisions in situations of uncertainty to enable them in turbulent situations and to react in a timely manner to environmental threats (Veschiato). , 2012). Since the external environment is constantly changing and the direct impact of these changes and its strategy on managers is not hidden, and on the other hand, future conditions can not be easily predicted; Thus, the use of foresight can address these shortcomings to some extent (Bryson, 2006).

Whereas research to determine the future scenarios of the auditing profession and to determine the preferred scenario has not yet been considered; Therefore, this research will answer these Main questions:

- 1) What are the drivers and key factors driving the future of auditing?
- 2) What are the possible, probable and desirable futures and scenarios of auditing in the next 20 years?

Sub-questions:

- 1) Actors influencing the audit In order to keep pace with the country's progress, such as visions and other strategic plans, what strategies, plans and executive measures should be developed for the audit in the next 20 years?
- 2) What are the personal and personality traits and skills, knowledge and talents needed for auditors in the next 20 years?

This study aims to identify the strategic factors affecting the future of the auditing profession and also analyze the effects of these factors on each other to identify key uncertainties in the future of the auditing profession to determine the optimal and critical scenarios for the advancement of the auditing profession. It is based on long-term and medium-term planning so that a small step can be taken to improve the status of audit scenarios.

In general, the objectives of the research are: key factors for the future of auditing in the next 20 years in the field of science and technology, providing an executive plan for the future of auditing in Iran on effective propulsion and information technology, helping managers and managers. Professional Accounting and Auditing Associations A long-term plan for the future of auditing with an emphasis on information science and technology and helping auditors to adapt to changes in the profession and achieve the skills needed in the future.

2. Fundamentals and theoretical framework of research

Futurism

Foresight is one of the most powerful and useful tools in decision making and policy making (Maliki, 2006). The program has turned the science of futurology into scattered and incoherent theoretical foundations in planning for the future into a codified science with sound principles and foundations whose task, in addition to analyzing past trends, is to discover, innovate and evaluate the possible future, probable and desirable. . (Zali, 1390). Future studies is a field of research that covers all areas of theoretical knowledge and scientific endeavor of man (Maliki, 2006).

The field of futures studies is still young and growing, and some writers fearfully say that this field is so scattered and incoherent that it can not yet be considered a field (Hamidizadeh, 2014). Futurism of science and art is to discover the future and shape the desirable world of tomorrow (Ahrensman, 2013).

Its heavy mission continues with "decoding" and "discovering" the knowledge of futurology only [building the future] (Khazaei, 2007); Therefore, it is necessary for organizations and companies to face the changing future and pride in the future competitive environment, to have an understanding of the future that is sufficiently prepared to apply strategies appropriate to the various circumstances (Saeedpour et al., 2015).

The driving forces have uncertainty

In futures studies, it is assumed that several alternative futures can be realized. That is why the future is not completely predetermined, so the future is open, without borders and evolution (Bell, 1997). Uncertainties refer to situations from the future in

which two or more different alternatives to the advancement of the subject are discussed, and the possibility of the realization of each alternative can be estimated with a more or less equal probability.

Predeterminators and major related uncertainties are identified in futuristic studies, and in particular in trend analysis and scenario planning studies around the world. These identified items can be used to make a list of drivers.

-Using the opinions of experts: Different interactive and creative methods are used to identify the drivers.

-Trend analysis: Trends are the main component of shaping predetermined propellants.

Cross-analysis and impact matrices

Cross-analyses are methods that help us see how different trends and functions affect each other and what the relationships between variables are in a system. This method, sometimes called structural analysis, is useful for identifying relationships between trends, variables, and behaviors (Tisheh Yar, 2011). Impact matrices can be divided into three categories with the aim of examining systems and their dynamics: Structural analysis, actors' strategies and possible matrix of interaction (Arkad et al., 2010); The Process Impact Analysis (TIA) method also provides a systematic tool for integrating non-surprise extrapolation with judgments about possible future events and Impacts of their occurrence effects (Taka et al., 2006).

Scenario and Scenario Making

Planners need a tool by which they can express the future in the form of predictable elements and uncertainties, these tools are the same scenarios.

A scenario is a narrative description of the future that focuses on the cause-and-effect processes that influence decision making. According to Porter, scenarios are a coherent inward view of possible futures; scenarios are not predictions; Rather, they indicate a possible result (Ringland, 2010).

Managers and decision makers use scenarios to facilitate overcoming uncertainties in the long run (Raford, 2014). Relatively specific elements and uncertainties of the future can be explained by a set of scenarios and based on it to take a position and plan for the future (Fahi and Robert, 2011). The scenario must be clear enough to understand the difficulties,

challenges, and opportunities that the environment will pose (Gordon and Glenn, 1993).

The goal of scenario-based planning is to help leaders and bring as close as possible the "fact-finding" perspective of "managers to change attitudes towards" the current emergence of "or existing facts" to scenario-based planning (Arcade Et al., 2010). In the scenario process, after identifying the key factors influencing a system, it is necessary to identify independent and dependent organizations (Schwartz, 1996).

In order to identify the influencing factors and impressive factors, it is necessary to use methods to determine the status of the system used (Zahedi and Khanlou, 2011). This is how Peter Schwartz describes the steps in the scenario construction process (Schwartz, 1996).

Step 1: Identify the main topic;

Step 2: Identify key environmental factors and processes;

Step 3: Propulsive forces;

Step 4: Ranking based on importance and uncertainty;

Step 5: Select the logic of the scenario or motion map;

Step 6: Complete the scenario and Step 7: Examine the consequences and results of each scenario In drawing visions and scenarios, three levels of possible futures, believable futures and probable futures are evaluated (Goodet, 1991)

Possible futures: includes all possible situations that can be realized in the future and are mainly interpreted and depict the human mind.

Believable futures: Includes cases where real human knowledge is likely to emerge in the future, and believable futures are a subset of possible futures.

Possible futures: Refers to futures that are likely to be realized. These futures are subsets of believable futures

Scenario writing for the future, a combination of possible, probable and believable futures, is depicted as a desirable future, and to achieve that future, various scenarios are developed, including contradictory, proportionate, different and similar scenarios (Verus, 2003).

3. Research method

This research is an applied research according to the objectives of the research and from the perspective of data collection. It should be mentioned that mixed research is a kind of research strategy or methodology

for collecting, analyzing and combining quantitative and qualitative data. The present study is a descriptive survey in terms of data collection.

To collect the theoretical foundations of the research, refer to various articles, reports and books and using these sources, a description of the subject is provided; Also, since in this research, scenario planning method, interaction analysis has been used, in terms of futurism methods, it is in the category of quantitative / qualitative (semi-quantitative) and exploratory methods.

In this research, first, the trends affecting the future of auditing are identified through library studies and placed in the interaction matrix; Then, by completing the interaction matrix through the panel of experts and using Mick Mac software, strategic variables are identified and again by designing a matrix based on strategic variables and completing it by experts,

advanced audit scenarios are identified using Scenario Wizard software.

Society and statistical sample of research

The statistical population in this study includes a group of experts and experts in blockchain auditing and technology who had a futuristic and strategic perspective. The statistical sample consists of 10 experts in the field who were selected based on method and availability.

According to the type of "judgmental and purposeful sampling", the sampling is of the type of statistical population and according to the type of information required to conduct the research, the mentioned sampling is used. In Table 1, the demographic characteristics of the research samples (sex and age distribution, education and occupation) were discussed.

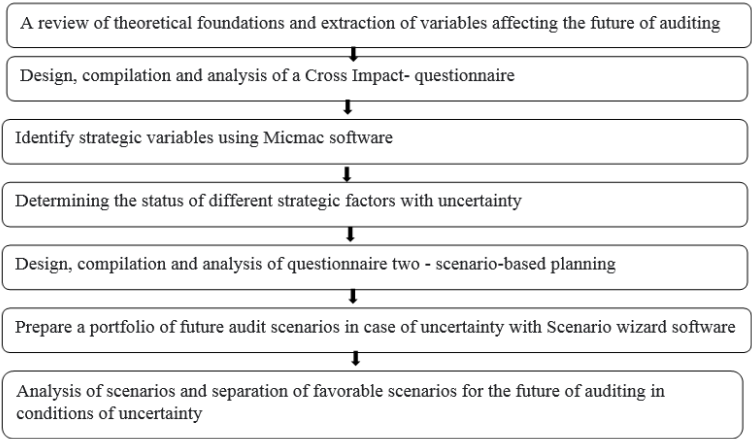


Figure 2 - Research process

Table 1: Description of demographic data of statistical sample

Property	Frequency
Gender	Male = 70% and female = 30%
Age	39-30 years = 30%, 49-40 years = 50% and 59-50 years = 20%
Education rate	Master = 40% and PhD = 60%
Job	University professor = 40% and senior and senior managers = 60%

Software used

Micmac software: Designed to perform complex calculations of the leaf matrix. The method of this software is that first identify the variables and important components in the field and then enter them

in a matrix such as the effect analysis matrix and experts recognize the relationship between these variables and the field.

The variables in the rows affect the variables in the columns. Thus, the sum of the data of the row variables will show the degree of influence and the

sum of the data of the variables of the columns will show the degree of influence (Zali, 2013).

Scenario Wizard software: This software is designed to perform complex scripting calculations and was designed and developed in 2008 by Dr. Wolfgang Weimer at the Research Center of the University of Stuttgart, Germany. The work of this software is based on cross-effect matrices.

These matrices are used to extract experts' opinions about the effect of the probability of one state occurring from one descriptor on another state in the form of verbal expressions, and finally by calculating the direct and indirect effects of states on each other, scenarios Compatible with the progress of the system under study, are extracted.

4. Analysis of findings

In the first step, using the interaction method, which is one of the semi-quantitative (quantitative / qualitative) methods of futures research, the factor interaction analysis matrix was completed by forming a panel consisting of 10 experts.

In this method, after conducting a field study and interviewing experts in the field of auditing and futures studies, 40 changes were selected as factors in the future of auditing and in a 40 by 40 matrix, a reciprocal matrix was designed.

The interaction analysis matrix between key factors was completed by forming a panel of 10

experts (based on numbers 0 to 3) and then the data of this matrix was entered into Mick Mac software.

The factors resulting from the analysis of the matrix and the distribution of variables in the diagram (around the diameter) indicate that the selected factors have a large and scattered effect on each other and in fact the state of the system is unstable.

In order to identify the future of audit progress and planning based on them, it is necessary to identify and analyze the variables that have high impact and effectiveness in the system, these variables are called strategic variables.

Strategic variables are variables that can be manipulated and controlled and also affect the dynamics and change of the system. Comparing influential and Impressive variables based on their ranking is the first step in finding strategic variables.

Mick Mac software output identified 9 of the 40 identified factors in the role of strategic agents. These factors were used as the main basic factors in screenwriting. In order to write a scenario, expert experts were consulted at this stage, and finally, by summarizing them, 153 possible situations were defined for 9 factors.

The probabilistic situation for each factor was similar to the other factors and covers a range from undesirable to favorable. The key factors and their possible status in the future of the audit profession are shown in Table 2.

Table 2: A set of possible situations of each of the strategic factors for scenario writing in the audit profession

Status name	Condition	Strategic agent name	Strategic factor
Accounting book immutable and almost unhackable	A1	Accounting	A
Opportunities arising from the adoption of global accounting rules (including international financial reporting standards, extensible reporting language, etc.)	A2		
Increasing competition with the entry of people outside the profession and performing auditing tasks by other disciplines such as computers, industry, financial engineering and	B1	Audit	B
Demand multi-skills from auditors (including communication, analytical, abstract and visual skills, creative, organizational, teamwork, interdisciplinary, etc.)	B2		
Changes in standards, auditing procedures and the impact of certain size companys rules	B3		
Policies of the Ministry of Science and universities in the field of auditing	C1	Educational and research	C
Increase of academic specialists (number of professors, doctoral students, masters and auditors)	C2		
Increase interdisciplinary concepts in topics (statistics, math, computer, programming, neural networks, etc.)	C3		
Invest in the global and national infrastructure of the economy	D1	Economical	D
Stability of the national income base and the tax share of the country's budget	D2		
Globalization and lifting of sanctions (including Borjam, joining the World Trade Organization, competition and cooperation with foreign companies)	D3		
Transition rate to democracy	E1	Political, cultural and legal	E
Cultural globalization	E2		
Expand the volume and complexity of the rules	E3		

Status name	Condition	Strategic agent name	Strategic factor
Reducing the age structure of the workforce	F1	Social and demographic	F
Expanding the level of women's participation in the workplace (gender ratio)	F2		
Increasing the level of awareness and accountability of people and accountability of managers	F3		
Global competition for limited natural resources and the use of alternative energy by businesses	G1	Environment, energy and resources	G
Taxes on pollutants (such as carbon) and other market environmental mechanisms	G2		
Environmental crises (water shortage, air warming, dust, etc.)	G3		
Future capitalism: The governing market and business paradigms of the future	H1	Companies and organizations	H
The effect of combining financial centers and institutions and on the integration and national and global education of companies	H2		
Choice of international business languages	H3		
Prediction and forecasting using sensitivity analysis and social network data	I1	Science and Technology	I
Expand business opportunities related to augmented and virtual reality and valuation of digital assets	I2		
Marketing and e-commerce (including e-commerce, inter-company e-commerce, company-to-customer e-commerce, etc.)	I3		

After identifying the most important key factors in order to achieve the objectives and missions of the audit and to improve the effectiveness of the profession, various situations are conceivable that these potential situations are very important for the future of the audit in terms of planning;for this reason, a detailed analysis of the leading conditions of possible situations requires the development of scenarios.

The definition of scenarios does not mean choosing only one preferred future and wishing for it to come true or to find the most probable future and try to adapt to it sufficiently "all possible futures"; Rather, the main intention is to make strategic decisions that are wise and sustainable . In order to work accurately at this stage, expert experts were consulted and finally 153 possible situations were defined for 9 key factors based on the scriptwriting perspective; Possible situations for each factor were different from other factors and their only common feature is the existence of a range of favorable and unfavorable situations.

In this step, the script wizard software was used, which is designed to perform complex script writing calculations. After selecting the key factors, each factor was classified into different situations and these situations are provided to experts as a matrix for all key factors.

In this questionnaire, situations can also show a negative impact and the numbers of the questionnaire vary from 3 to -3. The central question of this questionnaire is what effect the occurrence of condition A1 from key factor A will have on the occurrence or non-occurrence of condition B2 from key factor B, the answer of which is mentioned in the

range of numbers 3 to 3 and finally in the mentioned software. Is analyzed.

The analytical technique of this software is known as CIB and its purpose is to optimize scenarios and make them effective and reliable.

Based on past discussions and based on possible future situations of audit progress, a total of 26 different situations were designed for 9 key factors, ranging from favorable to unfavorable conditions.

Again, as in the previous step, by designing the situations and preparing a 26 ×26 cross matrix and determining the key factors, a detailed questionnaire with a work guide was prepared and provided to the experts.

Experts ask if any of the 30 situations in the auditing profession occur, What will be the effect on the occurrence or non-occurrence of other situations? They completed the questionnaire based on the three characteristics of empowering, ineffective and limiting, and by entering numbers between 3 and 3-, they determined the extent of the impact of each situation on the system.

By collecting data performed by auditing and technology professionals, it was possible to use the script wizard software.

Given that the purpose of preparing possible scenarios is to combine 26 situations for 9 factors, it is expected that 13122 combined scenarios will be extracted from them, which include all possible possibilities for the future of the audit profession; Of course, these results can not be analyzed, policy-making and planning at all, and have only statistical use.

Scenario Wizard software with complex and very heavy calculations, allows the researcher to extract high probability scenarios, low probability scenarios and high probability compatibility scenarios. Given the size of the matrix and its dimensions, it reported a combination based on the data of the

questionnaire, analysis and the number of scenarios below. Examining the various scenarios in Table 3 shows the relative dominance of the number of critical situations over the desired situation.

Table 3: Situations of each factor by believable scenarios (with high compatibility) audit profession in conditions of uncertainty

Scenario factors	Accounting	Audit	Educational and research	Economical	Political, cultural and legal	Social and demographic	Environment, energy and resources	Companies and organizations	Science and Technology
1	A2	B3	C3	D1	E1	F2	G1	H2	I1
2	A2	B3	C3	D1	E1	F2	G1	H3	I1
3	A2	B3	C3	D1	E1	F2	G3	H3	I1
4	A1	B3	C3	D1	E1	F3	G3	H2	I2
5	A1	B3	C3	D1	E2	F3	G3	H2	I2
6	A2	B1	C3	D1	E2	F1	G1	H3	I2
7	A2	B2	C3	D1	E2	F1	G1	H3	I2
8	A2	B1	C3	D1	E2	F3	G1	H3	I2
9	A2	B2	C3	D1	E2	F3	G1	H3	I2
10	A1	B3	C3	D1	E1	F3	G3	H3	I2
11	A2	B1	C3	D1	E2	F3	G3	H3	I2
12	A2	B2	C3	D1	E2	F3	G3	H3	I2
13	A1	B3	C3	D1	E1	F1	G2	H2	I3
14	A1	B3	C1	D1	E1	F2	G2	H2	I3
15	A1	B1	C1	D1	E1	F3	G2	H2	I3
16	A1	B3	C3	D1	E1	F1	G3	H2	I3
17	A1	B3	C1	D1	E1	F2	G3	H2	I3
18	A1	B3	C3	D1	E1	F2	G3	H2	I3
19	A1	B1	C1	D1	E1	F3	G3	H2	I3
20	A1	B2	C1	D1	E1	F3	G3	H2	I3
21	A1	B3	C1	D1	E1	F3	G3	H2	I3
22	A1	B3	C3	D1	E1	F3	G3	H2	I3
23	A1	B1	C3	D1	E2	F3	G3	H2	I3
24	A1	B2	C3	D1	E2	F3	G3	H2	I3
25	A1	B1	C1	D1	E1	F3	G2	H3	I3
26	A1	B1	C1	D1	E3	F3	G2	H3	I3
27	A1	B1	C1	D1	E1	F3	G3	H3	I3
28	A1	B2	C1	D1	E1	F3	G3	H3	I3
29	A1	B1	C1	D1	E3	F3	G3	H3	I3
30	A1	B2	C1	D1	E3	F3	G3	H3	I3

Scenario Wizard software with complex and very heavy calculations, allows the researcher to extract different scenarios. Given the size of the matrix and its dimensions of 26 × 26, the processor reported the combined scenarios based on the data entered from the questionnaire, analysis and the number of the following scenarios:

Strong scenarios (probable): 3 scenarios
Believable scenarios (with high internal compatibility): 27 scenarios
Poor (possible) scenarios: 153 scenarios
The results indicate that 30 scenarios with a very high score and a higher probability of occurrence in the conditions of advancing the auditing profession are

imagined. The software also shows 153 low-probability scenarios, which seems to be reasonable . On the other hand, addressing 153 scenarios and policy-making and planning for them is almost impractical, impossible and irrational.

What seems logical is between strong limited scenarios and weak wide scenarios. In table 4, 3 strong (probable) scenarios for the future of the auditing profession are drawn in conditions of uncertainty.

Table 4: Situations of each factor by strong (probable) scenarios in the auditing profession

The third scenario	The second scenario	The first scenario
Opportunities arising from the adoption of global accounting rules (including international financial reporting standards, development reporting language, etc.)		
Demand multi-skills from auditors (including communication, analytical, abstract and visual skills, creative, organizational, teamwork, interdisciplinary, etc.)		Increasing competition with the entry of people outside the profession and performing auditing tasks by other disciplines such as computers, industry, financial engineering and ...
Increase interdisciplinary concepts in topics (statistics, math, computer, programming, neural networks, etc.)		
Invest in the global and national infrastructure of the economy		
Cultural globalization		
Increasing the level of awareness and accountability of people and accountability of managers		
Environmental crises (water shortage, air warming, dust, etc.)	Global competition for limited natural resources and the use of alternative energy by businesses	
Choice of international business languages		
Expand business opportunities related to augmented and virtual reality and valuation of digital assets		

5. Conclusions and suggestions

In conditions of uncertainty and insecure, the audit profession can maintain its existence and play its effective role properly by using forward-looking methods to improve the business environment in turbulent environments.

Dealing with the future relying solely on retrospective information such as forecasting and analyzing trends has created numerous problems in implementing programs.

These problems are often due to ignoring the impact of political, social, economic conditions and emerging or newfound technologies in human life or neglecting the driving forces, uncertainties and key factors affecting the facilitation of future problems or challenges.

In today's world, where the speed of change is very high, it is necessary to prevent the occurrence of possible adverse futures by drawing appropriate scenarios.

In answer to the first question, what are the drivers and key factors that make the future of auditing? Based on direct and indirect impact, drivers of network integration and business intelligence, cloud computing-related businesses, forecasting using sensitivity analysis and social network data, marketing and e-commerce, expanding the application of science

And new technologies in business, investing in the global and national infrastructure of the economy, expanding business opportunities related to augmented and virtual reality and valuing digital assets, increasing competition with the entry of people outside the profession and performing auditing tasks by Other disciplines such as computers, industry, financial engineering, etc. and the requirement of several skills from auditors have been identified as strategic and key drivers. In answer to the second main question about possible, probable and desirable futures and what are the imaginable and desirable audit scenarios in the next 20 years? Due to the size and dimensions of the matrix (26 * 26), 3 strong scenarios (probable), 27 scenarios believable (with high internal consistency) and 153 weak scenarios (possible). Also, in response to the first sub-question about the actors influencing auditing to keep pace with the country's progress, such as visions and other strategic plans, what strategies, plans and executive actions should be developed for auditing in the next 20 years? Based on the matrix of strengths, weaknesses, opportunities and threats, obtained from the opinions of experts, an offensive strategy was obtained and executive measures were provided for them. Are the necessary talents for auditors in the next 20 years. The results of the research based on expert opinions showed that auditors

should have multi-skill abilities (communication, analytical, abstract and visual skills, creative, organizational, professional interest and high intelligence and mastery. Or familiarity with interdisciplinary concepts such as programming and computer literacy, etc.).

In general, practical suggestions and executive actions for key actors (including the Ministry of Science, Research and Technology, universities, professional associations, auditors, government and the public sector, companies and businesses, and other actors) include:

Interdisciplinary cooperation with auditing-related disciplines, especially computer and information technology, multi-skill training including communication, analytical, abstract and visual skills, creative, organizational, teamwork, etc.

To auditors, focusing on cyber security challenges, attracting smart and talented people and attracting interdisciplinary people in auditing, training in applied new technologies in auditing, holding joint panels and workshops with auditing experts from developed countries and domestic experts. The focus of new technologies, creating sections in the subset of large accounting associations and institutes to attract new technology experts and train new technologies in auditing, paving the way for the presence of international associations and institutes active in the field of auditing in Iran, etc.

The following prospective items are also recommended for future research:

- 1) Futurism Creating interdisciplinary disciplines and incorporating interdisciplinary courses into auditing
- 2) Futurology of the application of new technologies in internal and external reporting
- 3) Future research of organization external financial reporting systems.

References

- 1) Abreu, P. W., Aparicio, M., Costa, C. J. (2018). Blockchain technology in the auditing environment. Presented at the 13th Iberian Conference on Information Systems and Technologies (CISTI).
- 2) Arcade, J., Godet, M., Francis, M., Fabrice, R. (2010). Structural analysis with the MICMAC method & Actors' strategy with MACTOR method, Futures research methodology v2, AC/UNU Millennium project.
- 3) Baricelli P., Lucas C., Messina E., Mitra G. (1996). A model for strategic planning under uncertainty; Sociedad Estadística e Investigación Operativa.
- 4) Bell, Wendell (1997). Foundations of Futures Studies: Human Science for a New Era; New Brunswick New Jersey, USA: Transaction Publishers.
- 5) Bell, W. (2003). Foundations of Futures Studies I: History, Purposes, Knowledge. New Brunswick, NJ: Transaction Publishers.
- 6) Broby, D., Paul, G. (2017). The financial auditing of distributed ledgers, blockchain and cryptocurrencies, Journal of Financial Transformation, vol. 46, 2017.
- 7) Bryson, J. (2006). Strategic planning for non-profit organizations, 5th edition. San Francisco, CA: Jossey-Bass.
- 8) Bushehri, A., Nazarizadeh, F. (2009). Global Strategic Strategies Effective in Defense and Defense Industries, Tehran: Center for the Futures Studies of Defense Science and Technology of Research and Educational Institute for Defense Industries.
- 9) Davani, Gh. (2019). The future of the accounting profession in the light of cloud computing and blockchain, Accountant Monthly, year 35, consecutive numbers 326 and 327.
- 10) Deloitte. (2016). Blockchain: Democratized trust, <https://www2.deloitte.com/content/dam/Deloitte/uk/Documents/technology/deloitte-uk-tech-trends-2016-blockchain.pdf>.
- 11) Drane, J. (2016). Wait, blockchains need audited???, Available: <https://www.linkedin.com/pulse/wait-blockchains-need-audited-jeremy-drane/>. [Accessed: 28-Feb-2018].
- 12) Ehresmann, A. C. (2013). A theoretical frame for future studies. On the Horizon, 21(1): 46-53.
- 13) Fahey, L., Robert, M. R. (2011). Learning from the future, competitive foresight scenarios, Canada: John Wiley & sons Inc. 226.
- 14) Foundation for the Development of Tomorrow (Toseae Farda) (2005). Technology Foresight Techniques, Tehran: Futurist Group Publishing.
- 15) Godet, M. (1991). From anticipation to action. UNESCO publishing, Paris.

- 16) Goodwin, P., Wright, G. (2001). Enhancing strategy evaluation in scenario planning: a role for decision analysis. *Journal of management studies*, 38(1): 1- 16.
- 17) Gordon, T. J. , Glenn, J. C. (1993). Issues in Creating the Millennium Project: Initial Report from the Millennium Project Feasibility Study, United Nations University.
- 18) Hamidizadeh, M. (2011). Time Theory and Future Studies based on the Theory of Understanding and Perception, *Strategic Management Studies Quarterly*, 2(6): 81-102.
- 19) Hanafizadeh, P., Aarabi, M., Hashemi, A. (2006). Consistent Strategic Planning Using Scenario Planning and Fuzzy Inference system, *Quarterly Journal of Humanities, Management Edition*.
- 20) Hoover, W. (2009). The Future of Human Resources: Technology Assists in Streamlining Your HR Department. Colorado Biz.
- 21) Khazaei, S. (2007). Foresight, Concepts and Needs, Tehran: Center for Future Studies in Defense Science and Technology of the Institute for Defense Research and Training.
- 22) Levenby, R ., Sahlin, E .(2018). Blockchain in audit trails - An investigation of how blockchain can help auditors to implement audit .
- 23) Maleki, A. (2006). Scenario-based planning: A way to reduce decision-making problems, *Yas Strategy*, (8): 73-112.
- 24) Miles, I., Keenan, M. (2002). Practical Guide to Regional Foresight in the UK. European Communities, Luxembourg.
- 25) Nazemi Ghadiri, Amir. (2006). "Foresight: From Concept to Implement", New Industries Center, Tehran: Ministry of Industries and Mines.
- 26) Peterson, G., Cumming, G., Carpenter, S. (2003). Scenario planning: a tool for conservation in an uncertain world. *Conservation biology*, 17(2): 358-366.
- 27) Potekhina, A., Riumkin, I. (2017). Blockchain – a new accounting paradigm (Master degree thesis). Umeå School of Business and Economics.
- 28) Postma, T.J.B.M., Liebl, F. (2005). How to improve scenario analysis as a strategic management tool, *Technological Forecasting & Social Change*, 72(2005): 161–173.
- 29) Rford, N, (2014). Online foresight platforms: Evidence for their impact on scenario planning & strategic foresight, *Technological Foresight & Social Change*, In press, Available online: 33.
- 30) Rahnamy Roodposhti, F., Shirin Bayan, N. (2016). Designing an investment portfolio using a scenario-based approach by a hypothetical-based planning method, *Journal of Financial Engineering and Management of Securities*, 28.
- 31) Ringland, G, (2010). The role of scenarios in strategic foresight, *Technological Foresight & Social Change*, 77(15).
- 32) Saeedpour, S., Behboodi, M., Ahmadi Kohanali, R. (2015). Future Studies for Knowledge Management Strategies with a Scenario-Based Approach, *Strategic Management Studies Quarterly*, 22.
- 33) Schwartz, P. (1996). The Art of the Long view, New York: Doubleday.
- 34) Shearer, A. W. (2005). Approaching scenario-based studies: three perceptions about the future and considerations for landscape planning. *Environment and planning B: Planning and design*, 32: 67-87.
- 35) Taqwa, M., Alizadeh, Y. (2006). Trend Impact Analysis Technique (TIA): A cross-point of quantitative and qualitative prediction techniques (With an example in the field of energy foresight research), *Quarterly Journal of Energy Economics*, 3(11): 84-106.
- 36) Tisheh Yar, M. (2011). Future Studies in Strategic Studies, Tehran: Strategic Studies Research Center.
- 37) Vecchiato, R. (2012). Environmental uncertainty, foresight and strategic decision making: An integrated study, *Technological Forecasting & Social Change*, Elsevier Inc, 79: 436 – 447.
- 38) Voros, J. (2003). A generic foresight process framework. *Foresight*, 5(3): 10-21.
- 39) Zahedi, Sh., Khanloo, N. (2011). Future Studies of Non- Governmental Organizations Accountability in the Area of Iran's Health and Human Services, 2025, *Journal of Management Science of Iran*, 6(21): 47-76.
- 40) Zali, N. (2009). Future studies on regional development with a scenario-based planning approach, Doctoral dissertation, University of Tabriz, Faculty of Humanities and Social Sciences.
- 41) Zali, N. (2011). Forecasting of regional strategy and policy-making with a scenario-based

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approach, Strategic Studies Quarterly, 14(4): 33-54.

- 42) Zali, N. (2013). Strategic Foresight in Regional Planning and Development, Tehran: Strategic Studies Research Center.