Investigate Economical Decision System Framework to Support Gas Crisis - Case Study: UAE

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***Abstract*— Decision Support Systems (DSS) are mainly computer based applications include essential component called Database to support rational Decision Making process by analyzing, determining and evaluating the available raw data, documentations, knowledge to reach rational alternative set of actions, identify and solve business problems, and present various economical business decisions.**

UAE has been determine more than ten years ago a clear strategy to reduce the dependency of their GDP on Oil products. The main aim of this paper is to analyze the UAE's oil independence strategy and to propose a Decision Support Framework (DSF) generalizing their excellent perspective for the other oil producer countries to determine the most appropriate economical alternative solution as a substitute for a Gas Crisis.

In this article, one of the famous DSS is used; Group Decision Support system is the most suitable tool for the investigated problem to build an effective Decision Support to help the oil producer countries for the sack of their GDP's oil independency.

The proposed DSF will help the users to achieve their main competitive advantage through effective acts in innovation. Its simulate the UAE strategy through the new technologies as well as modern techniques that used to create new things has never been made before and can be recognized as a unique product.

This article introduced a DSF to support the oil producer countries to diversify their GDP resources and to reduce its oil dependency.

***Index Terms*—Gas crisis, competitive advantage, Decision support systems (DSS), Innovations**

I. INTRODUCTION

The drop of the oil prices leads to a direct challenge to the GCC economy. This economy faces the challenge of diversifying its sources of income in light of the limited skilled labor locals and the weakness of the stability of foreign talent. Competitive Economy is the recommended field to create an intelligent solution of the GCC economy dilemma [1].

The today's question is, the weaker demand than expected in the Europe and Asia, or the higher than expected OPEC output developments or substitution effects have pushed down prices of other energy commodities. There are some evidences support the fact, which says that, the played role of the supply factors was more crucial than the demand factors in driving the oil prices during the year 2014-2015. It is not easy to determine clear evidence of speculative forces or financial impact driving the price decline of energy commodities [2].

Declining of oil prices leads to the performing of the fuel pricing and taxation in importing as well as exporting countries. The resulted monetary balances will create enough tolerance for increasing priority expenditures and cutting distortionary taxes. Therefore, it will lead to a growth increase.

Diversity in economy through the region has been promoted to achieve the planned goals and growth levels since the mid fifties of the 20th century.

Simply, diversifying the economic base will lead to growth and stability, as similar as the diversification in the personal portfolios targeting the recognized profit.

The main challenge in this work is to find an Competitive alternative(s) to compensate the Oil's income as a crucial player in the GCC's GDP, using the GDSS as a decision making tool for the GCC's High Management level of Decision Makers [5].

II. ENERGY CRISIS HISTORY

An Energy Crisis (EC) is any critical bottleneck (or value ascend) in the supply of energy assets to an economy. EC is frequently mentions to one of the energy sources utilized at a specific time and place, specifically those that supply national power frameworks or those utilized as fuel in vehicles [3].

Modern advancement and populace development have prompted a surge in the worldwide interest for vitality lately. In the 2000s, this new request, together with Center East strain, the falling estimation of the U.S. dollar, lessening oil saves, worries over pinnacle oil, and oil value theory set off the 2000s vitality emergency, which saw the cost of oil achieve an unequaled high of $147.30 barrel in 2008 [9].

The 1970s **EC** was a period when the major mechanical countries in the world, particularly the Assembled States, Canada, Western Europe, Japan, Australia, and New Zealand, provoked considerable oil shortages, genuine and saw, and in addition lifted prices [6]. The two most exceedingly awful emergencies of this period were the 1973 oil crisis and the 1979 **EC**, when the Egyptian "Sinai Freedom" War and the Iranian Upset, activated intrusions in Center Eastern oil sends out.

The emergency started to unfurl as oil creation in the Unified States and some different areas of the world crested in the late 1960s and mid-1970s. World oil generation per capita started a long haul decrease after 1979 [15].

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The 1973 oil emergency started in October 1973 when the individuals from the Association of Middle Easterner Oil Sending out Nations (OAPEC, comprising of the Middle Easterner individuals from OPEC of in addition to Egypt and Syria) broadcasted an oil ban.

The cost of oil was increased from $3 per barrel to almost $12 universally, because of the ban in March 1974; consequently, the US costs were increased.

The ban caused an oil crisis, or "stun", and long haul consequences for worldwide governmental issues and the worldwide economy. Later it was known as the "principal oil shock", trailed by the 1979 oil crisis, named the "second oil shock".

In 1980, after the eruption of the Iran-Iraq War, oil generation in Iran about halted, and Iraq's oil creation was seriously cut. Monetary retreats were initiated in the US and different countries. Oil costs didn't decreased to pre-emergency levels until the mid-1980s. After 1980, oil costs started 20-years decay, in the end achieving a 60 percent tumble off amid the 1990s. Similarly as with the 1973 emergency, worldwide legislative issues and power adjust were affected [17].

The crisis prompted dormant monetary development in numerous nations as oil costs surged. In spite of the fact that there were honest to goodness worries with supply, some portion keep increasing in costs come about because of the impression of an emergency. The mix of dormant development and value expansion amid this period prompted the coinage of the term stagflation.

By the 1980s, both the subsidence of the 1970s and alterations in neighborhood economies to end up noticeably more effective in oil use, controlled request adequately at oil costs worldwide to come back to more feasible levels.

The 1990 oil value stun occurred because of the Iraqi Intrusion of Kuwait on 2nd of August 1990. Enduring just nine months, the value spike was a lesser surprising and of shorter length than the past oil emergency 1973 and 1979 yet the spike still added to the subsidence of the mid-1990s. Normal month-to-month cost of oil ascended during the period July – October from $17 to $36 per barrel [20].

III. GCC PETROL CRISIS 2015-2016

The lower oil price crisis became an excellent regional and international crisis. Many experts are trying to determine their causes and future implications for the crisis. However, the economical crisis is not far from the world of politics as well.

Saudi Arabia and the other GCC consider themselves the leaders of the oil policy in the region, something that expressed by these countries through the OPEC group policies. As a results of the right policy for this organization and the other wrong decisions, the political calculations affect the economic expectations, to result in a major crisis are eating OPEC countries, especially as a result of the insistence on increasing the supply of oil, in an attempt to hit both Russia and Iran. However, it is clear that the Gulf States themselves fell in evil deeds, and is today suffering from the results of the unrealistic OPEC policies. This leads us to approach the issue objectively, depending on the facts and economic realities of the countries [24].

It is known that, the oil prices changes are driven by the market-based polices, however, the policy adopted by OPEC was affecting the key in determining the reality of the oil market. Perhaps the most prominent question is about the Saudi intransigence and the Gulf to keep the production as it is, under the clear-cut crisis. In Riyadh repeats its policies and unilateral and immediate, far-verification for political purposes.

The talk closed with a couple of definite inquiries concerning the long haul impacts of low oil costs on the GCC. With the present immersion of oil supply and decrease in worldwide request, costs may stay at this low harmony. Moderate development in China's economy, the expansion in U.S. oil generation, and Iran's reentry to the oil market will all add to keeping oil costs low [29].

The oil industry in the GCC region is robust: a large, mature industry with a lot of producing assets that will continue to operate and produce petroleum commercially for the near future. The income it is generating is down, but production and investment are likely to continue at current levels, unless a political decision is taken to alter the current production levels.

Meanwhile, governments are beginning to look at diversifying their income to cover more than just oil revenue and at reducing their budgets where possible [30].

The United Arab Emirates has removed the country's long-standing fuel subsidy for petrol and diesel, for example, setting the price based on market rates. While this affected the household budget for most people living here, on the macro level, it is recognized as a sound policy and one that other countries are likely to follow [22].

In five years, therefore, the region will likely have settled down from this year's price shock. It will have created a leaner, but still profitable oil industry, and a more diverse general economy. With oil 'off the boil', it is no longer using up all available manpower, all the warehouse space, and driving up prices – so other industries have a chance to grow and flourish.

There have been four sharp augmentations in the cost of oil in the past four decades – in 1973, 1979, 1990 and 2008, each has provoked an overall withdraw. By that measure, a lower oil cost should be sure for the world economy, with cut down fuel costs for clients and associations in those countries that import unpleasant surpassing the incidents to conveying nations.

Yet, the proof since oil costs began tumbling from their pinnacle of $115 a barrel in August 2014 has not bolstered that proposal – or not yet. Oil makers have absolutely felt the effect of the lower costs on their development rates, their exchange figures and their open funds however there has been no surge in purchaser spending or business venture somewhere else.

Fig 1 explains the break even for producing an Oil barrel in different countries [33].

IV. PEAK OIL PROJECTIONS

M. Lord Hubert at first anticipated in 1974 that pinnacle oil would happen in 1995 "if current patterns proceed." Be that as

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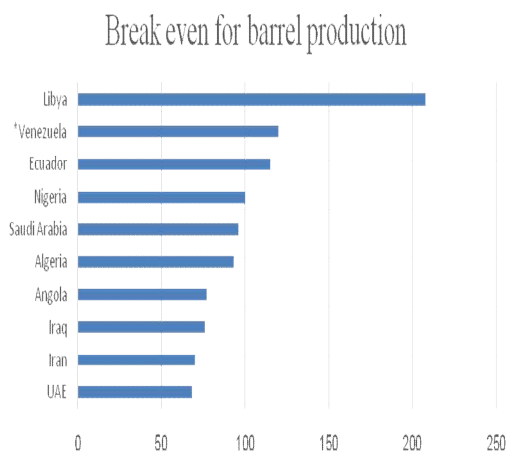


Fig. 1: Break even points for barrel productions in different countries (source) http://marketrealist.com/2016/01/whats-break-even-cost-top-oil-exporters/

it may, in the late 1970s and mid-1980s, worldwide oil utilization really dropped because of the move to vitality proficient autos, the move to power and flammable gas for warming, and other factors [34], at that point bounced back to a lower level of development in the mid-1980s.

Hence, oil generation did not top in 1995, and has moved to dramatically increase the rate at first anticipated.

The above will underscore the fact, which says, there is one consistent way to recognize the occurring of oil peak expected timing. However, forecasting techniques had been improved through the previous years as an essential tool for producing more accurate information, especially for using the analytical reserve growth data to estimate the future volumes based on the data assembly methods

The three possibilities of oil peak occurrence (recently occurred, will occurred shortly, and that a flat terrain of oil production will grantee oil supply for the next century) are included in the timing prediction of peak oil.

None of the mentioned predictions disputes oil production peak, but they have different predictions concerning the occurrence timing of the peak. Oil production peaks concept is a global one and it depends on the accumulated experience of each country. The WWI recorded in 2005 that declining of the oil production by almost 70% of the main producing countries, whilst the other 32% countries will passes their own oil production peaks [28].

The country/peaks list in Table 1 illustrates the production peak year for the oil producing countries until 2050.

V. ABSOLUTE ADVANTAGES VERSUS COMPETITIVE ADVANTAGES

A. Absolute Advantage:

The simplest case for free trade is that nations have different Absolute Advantages (**AA**) in producing goods. UAE is a practical example for that country has **AA** in producing oil and its derivatives.

Table I. The important Oil Producer Countries with its expected corresponding production peak year

JABAN	1932	Norway	2000
GERMENY	1966	OMAN	2000
VENEZULA	1970	AUSTRALIA	2000
USA	1970	MEXICO	2004
LIBYA	1970	CHINA	2009
IRAN	1974	RUSSIA	2010
NIGIRIA	1979	ANGOLA	2010
TOBAGO	1981	ALGERIA	2012
PERU	1982		2013
EGYPT	1987	AZERBAIJAN	2013
FRANCE	1988	QATAR	2019
INDONISIA	1991	KAZAKHSTAN	2020
SYRIA	1996	KSA	2027
INDIA	1997	KUWAIT	2033
NEWZEALAND	1997	IRAQ	2036
UK	1999	UAE	2050

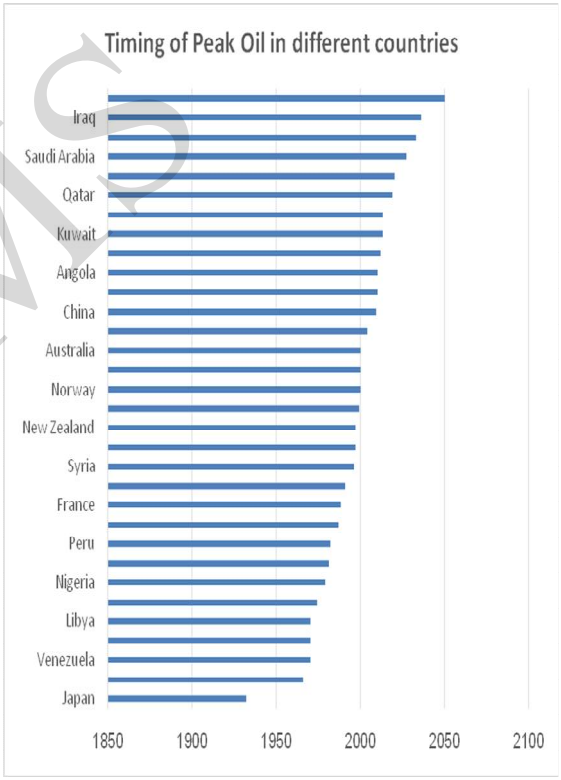


Fig. 2: Timing of Peak Oil in different countries

UAE adopted its plane towards a competitive advantage theory, which is through effective acts in innovation. In addition, they approaching it on its broadest sense including both new technologies and modern techniques that used to

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create new things have never made before and can be recognized as a unique product [26].

B. Competitive Advantage:

UAE has been determine more than ten years ago a clear strategy to reduce the dependency of their GDP on Oil products. Our paper discusses the UAE's approach and generalizes their excellent perspective to be a DSF for the other countries.

Economies in created nations have been momentous effective at cultivating the formation of a wide assortment of products and enterprises while at the same time enabling governments to build spending on a wide assortment of projects and administrations [8]

A portion of the issues, in any case, are that the riches created by this financial movement has been unevenly dispersed, and, as has turned out to be progressively apparent, the proposed demonstrate fundamental assignment to test furthest reaches of maintainability as far as asset utilization, spending and obligation accumulation [7].

It is certainly conceivable to apply new advances and present day methods as an answer however subject to the cooperation of a minimum amount of people. As of not long ago, the devices and assets have not been accessible to make this a useful undertaking, yet now they are both accessible and set up.

Likewise, until the current financial crumple, there was a sure carelessness, which brought about an absence of inspiration for such another and distinctive approach. Buckminster Fuller stated, "You never show signs of change things by battling the current reality, to change something, manufacture another model that makes the current model out of date"

VI. ECONOMIC DIVERSIFICATION IN UAE

Differentiate the economy (counting the enhancement of salary sources, interests in the non-oil part, and development in exchange framework) to diminish the offer of oil incomes in the piece of the UAE's Gross domestic product to 5% by 2021 as expansion endeavors make progress [11].

The most essential objective of the Legislature is to achieve adjusted and reasonable financial development by making a business-accommodating condition. These decays: a sound remote exchange approach administration, advancement of national ventures, development and Research and development, advancement of fares, advancement of speculation, control of rivalry, advancement of little and medium endeavors, assurance of buyers and protected innovation rights, and expansion of the economy.

As of now, the economy of UAE is a standout amongst the most differentiated among the Gulf Countries.

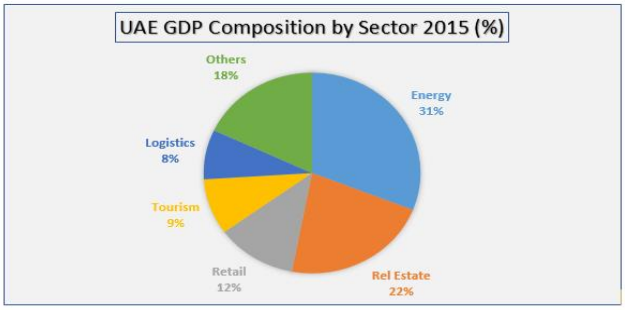


Fig. 3: GDP composition in UAE by sector, 2015. (Source, IMF, Economic Diversification in Oil Exporting Arab Countries, April 2016)

This could be existed in the decrease of offering of oil and gas in its Gross domestic product by 10% to reach 31% in 2015, and more than 400% expansion in mechanical framework spending.

This is observed mostly in the flight, aviation and safeguard divisions in the course of the last five years [14].

Expansion patterns are obvious in the rising offer of administrations and money related segments in the Gross domestic product. Past this as specified the immense interests in training, human services, water, interchanges, transportation, tourism, and other non-hydrocarbon areas. Fig 3 demonstrates the enhancement for the UAE Gross domestic product amid year 2015, what is intriguing that the vitality speaks to just 31% of the aggregate Gross domestic product [13].

As a feature of Vision 2021, the vitality division enhancement is encouraged by interest in sustainable and elective vitality sources, for example, sun based, carbon catch and capacity, and clean innovation.

VII. DIVERSIFICATION OF RESOURCES IN MALAYSIA

In the IMF report April 2016, "The Arab Annual Meeting of Arab Ministers of Finance", it concludes the following about the Horizontal and Vertical diversification in Malaysia.

Malaysia depended vigorously on essential wares at the mid-1980s. Essential wares accounted for33 percent of Gross domestic product and 77 percent of fares in 1980, which postured impressive difficulties to the economy, particularly regarding dealing with the instability from ware costs. Malaysia propelled a financial expansion technique in the mid-1980s planning to increment higher esteem included exercises and lessen the over fixation in upstream wares (tin mineral and elastic) [10].

The Industrial Master Plans (IMP) and the National Industrial Policy (NIP) were mostly influential; they built up based on sequence of measures of policies, which aggressively promoted the manufacturing sector.

Between 1986 and 1995, the 1st IMP established the framework of assembling ventures and advanced the handling of regular assets and the improvement of the neighborhood innovative abilities.

During the period 1996 and 20055, the 2nd IMP concentrated into two different perspectives to enhance manufacturing competitiveness, to work on comprehensive its

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base utilizing the bunch based mechanical advancement, while expanding through the esteem tie to incorporate higher esteem included exercises [9].

The 3ed IMP aims to expand the economic activities scope since 2006 by including various services and featuring functional targets through the R&D departments in SMEs. This broadening planned to continue until 2020.

The success generated by the IMPs resulted in a quick space of diversifying the economy horizontally, to increase the manufacturing share and services sectors and simultaneously decrease the reliance on commodity.

In the other hand of diversification, In Malaysia the economy diversification followed a vertical model by the economy was diversified vertically e direct commodities share in the exports [22].

VIII. DECISION MAKING MODELS

A. Decision Making Elements

Decision Makings (DM) is a rational process concerned with choosing a course of actions from among alternatives to attain a predetermined objectives that obtained from the organizational objectives based on the Decision Makers' values and preferences. Fig 4 represents the standard DM steps, when properly utilized increases chances of success in decision-making.

Decisions are classified in general into programmed decisions and non-programmed decisions (see Fig 4). The structured situations reflect well-defined associations, experimental, and easy to be automated. In the other hand, the non-programmed decisions deal with unclear or undefined rules and relationships, and non-routine problems, this is not quantifiable.

The required information for Decision Making process depends on the problem environment. If the Certainty conditions are present, the manager what is going to happen when particular decision has been taken can expect it and the required information is available. In the risk situation, although the information may be present but it can be insufficient and does not provide answers to overall questions regarding the outcome of the decisions. In case of uncertainty environment, very little information is available to the managers and they are not sure regarding the reliability of such information [23].

B. Decision-Making for multi-criteria problems:

Another known operations Management model is the Multi-Criteria Decision Making (MCDM). These techniques deal with both measurable and non-measurable criteria/norms/objectives; and analyze any existing conflict among the predetermined criteria/norms/objectives through DM [6].

The main target of MCDM is to choose the suitable alternatives with the highest score according to predetermined evaluation criteria. Decision Making problems are characterized by the existence of multiple and competitive attributes that should be evaluated by predetermined set of criteria.

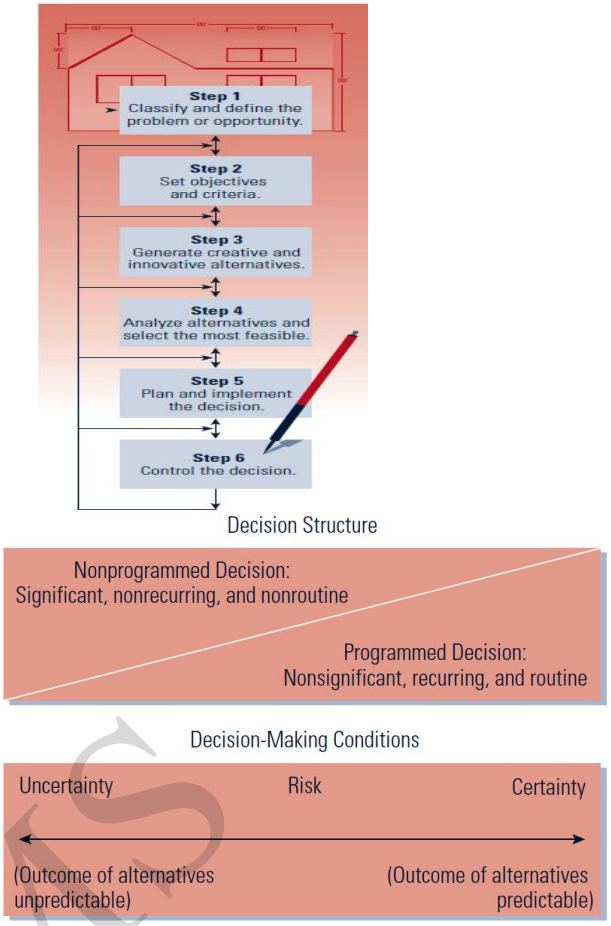


Fig. 4: Decision making steps, Decision Structure, and Decision Making Conditions

A. Decision Support Systems:

The Decision makers' assistance represents the main task of Decision support systems. Before the computer systems availability, the idea beyond DSS was offering some rational alternatives to arrive a suitable decision.

According to S. Hansson, formalized methods for decision support was initiated 1793, when the French philosopher Condorcet outlined a three-phase decision-making process for the French Constitution [6].

Decision Support Systems DSSs are similar to the automated Information systems and it is computer-based systems. DSSs designed to help the Decision Makers to create their decisions. It serves the management, operations, and the three planning levels for an organization for all managerial levels. DMs help DMs to solve both the semi-structured and the Un-structured business challenges. Some of the existing DSSs completely automated, some of them are manual, and some of it is mix between the two types [5].

In the literature, DSSs were classified among five types; Communication-Based (COM-DSS), Data- Based (DAT-DSS), Document- Based (DOC-DSS), Knowledge- Based (KNW_DSS), and Model- Based (MOD_DSS). Following are brief definitions for the five types.

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COM-DSS is useful for the internal teams, including partners. Its purpose is assisting the team to conduct a meeting, or facilitate the collaboration for users.

DAT- DSS is used by suppliers, Internal Staff, and tactical level Managers. Its main functionality to extract information from the available databases or data warehouses using the data mining statistical techniques.

DOC-DSS is used by the supporting groups. Its main target is exploring any webpage to find required documents using specific predetermined set of keywords.

KNOW-DSS providing expertise in problem solving techniques and these tools were sorted as facts, rules, procedures, and structures.

MOD- DSS characterized as complicated decision systems which help to interpret and analyze different decisions or to choose among different alternatives, and it should use by the top managers.

B. DSS Characteristics

In general, there are fourteen different characteristics for any decision support system. DSS should Support the decision makers for their independent or sequential decisions. In addition, it should support all managerial levels and individuals as well as groups of decision makers. DSS should support DMs through all the phases of decision making process.

In standard DSSs, DMs should have full control through the decision making process and can add, delete, combine, change, replace, arrange, modify all the basic parameters and elements during the process. Moreover the end users should be able to modify and improve the simple cases but they should not have accessibility for the basic elements and parameters.

DSS should include effective and enough graphical capabilities; in addition, it should be friendly use through a clear natural language interactive interface.

In the general the structure of DSS, modeling component should facilitate the experimental capabilities for different scenarios or strategies under various conditions or configurations. Moreover the Database component should have the capability to integrate with variety of data sources. Fig 5 represents the main characteristics and capabilities of a DSS [3].

C. Group Decision Support Systems (GDSS)

GDSS is to support a project collaboration recent technological technique to support project collaboration during the development of digital communication with different tools and assets. Moreover it will support those tailored projects which requiring team efforts and series of protocol meetings.

When it is come to a huge problem like what we are going to analysis, GDSS is the most suitable tool for such types of investigations and decisions [2].

GDSS Components are classified as the main DSS, the group thinking and varying time/place facilities. While

GDSS Output is to improve the DM process, the tinted actively executed by the predetermined group of decision makers. It is mainly characterized by particular structure which

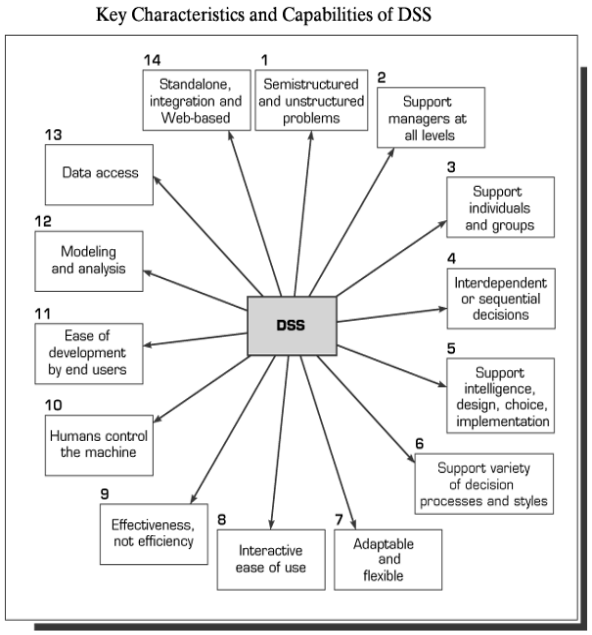


Fig. 5: (DSS Characteristics and Capabilities, Springer, 2008; Decision Support Systems and Intelligent Systems, Ephraim Turban and Jay Aronson

includes the flexibility, support tools for decision makers, handling of the conflict between group team members, excellent communication tools, and effective recording systems.

IX. PETROL CRISIS MANAGEMENT IN UAE – EVALUATION

In spite of the oil crisis and the huge reduction of its prices, UAE will keep achieving the economic growth, moreover. It recorded a positive trend in the created new jobs and simultaneously the exports order increased strongly, nevertheless, the employment rates increased.

The key strategy of the UAE economic diversifications during the previous decay was decided since more than 15 years. It is mentioned by His Highness Sheikh Mohamed Bin Rashid Al-Maktoum in his statement, that "the UAE should develop new economic sectors and allocate more budget contribution for the Innovation", this will be the only way to secure the country against the declination of the Oil and Gas prices and the world markets fluctuations and instability.

Therefore, UAE intended in its long-run strategy to increase the dependency of different sectors that differ from oil related product sectors in its GDP, by almost 8% in 2014, and almost reached 70% of the GDP. It is planned to reach 100% before the last petrol barrel in 2050.

Moreover, UAE will implement all the needed planned strategies in different sector like; industrial, tourism, transportation, knowledge economy, and innovation to increase the non-oil economy up to 80% by year 2021 [7].

UAE is currently considered a pioneer in the Arab countries in the area of Knowledge Economy, and their implementation

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to the long term strategic planes supports the economy transfer process from the oil-based economy to the multi-purpose economy. UAE will triple the research and development share in the national budget before 2021 by doubling the number of worker. Based on the above strategy UAE can compete not only with the Arab countries but also the whole world through their rank in the Global Innovation Index [26].

One of the main reasons that led to the positive impact on the economical growth in UAE during year 2014 was the declination in the oil price by almost 50%. This positive impact observed through many economical sectors. The Financial sector growth was 15% in 2014 and it has more than 120 billion AED as a contribution of the GDP. While the growth of the Transportation sector increased by almost 2% to reach the level of 10%. Based on the new launched tourism programs in UAE, the number of tourists reached 20 million visitors to UAE during 2014. Nevertheless, the significant negative effect of the oil crisis on the major producing countries, didn't affect UAE with the same level, this happened as a result of the relative diversity of UAE economy, which started since more than ten year ago, compared with the other five GCC countries [27].

X. PROPOSED DECISIONS SUPPORT SYSTEM FRAMEWORK

Our main target in this article to describe a decision support tool for the decision makers to help them for finding other alternative to replace the oil imports gradually and to support their countries to avoid any economical crises could be arise because of the oil prices.

To build up the proposed DDS framework, we have to define our main players or collaborates who will feed the DSS databases. In this study, there are six main players, which are, Oil Crisis Management, Alternative Economy, Diversification philosophy, Multi-Criteria Decision Making, Decision Support Systems, and Experts Support Systems [29].

A. Oil Crisis Management

Indicates the pre-prepared action plans based on the predicted information and expected scenarios related to the oil prices. Most of the CCG countries already operate, or have plans for, a crisis management managerial team on the national level [11].

B. Alternative Economy

Finding other alternative economical solutions to replace the economic effect of the oil prices reduction represents a huge challenge for the economists. Any country from the major producer of oil can choose one of the following alternative sectors to cover the current as well as the expected oil price declination:

- Industrial sectors,
- Tourism Industry,
- Transportation sector (Air/Maritime),
- Commercial sector (Import/Export),
- Knowledge sector (Small projects/Innovative initiatives),
- Islamic Economy,
- Investing in innovation, content development, and
- Health Truism sector.

The sector(s) chosen based on the given internal parameters of each country to cover the expected shortage in the oil sector [15].

C. Diversification Philosophy

Diversification of economy has many perspectives; country can diversify its markets, in addition, diversify the domestic economic activities that affect its GDP, as well as diversifying the income from the abroad investments. As mentioned in section VII, there are two known types of diversification, the horizontal and the vertical diversification.

D. Multi-Criteria Decision Making

In the reality Decision Makers face conflict criteria like cost, profit, quality, man power, etc…, which are usually conflicting in the evaluating options. Multi-criteria Decision Making (MCDM) is one of the known techniques for evaluating these types of problems.

E. Decision Support Systems

Decision Support System DSS consists, in general, of three main components, Data-base component, modeling component, and a Computer Interface component. DSS main target is to support Decision Maker to analyze, interpret, and predict in the strategic as well as the operation levels through selecting the appropriate alternative and measuring the corresponding risk level.

F. Experts Support Systems

Expert Systems simulate the experiences of the human expertise. It has two main components, the knowledge base component and the Inference Engine. Its main components are included in a computer system to support the Decision Maker for solving complex structured as well as and unstructured problems.

Based on the above explanation of the main players of the proposed DSS, Fig 6 shows the main components of the proposed framework that related directly to the main players.

XI. CONCLUSIONS

From the above discussion, there is a clear fact that explains the inverse relation between the political importance of diversification and the oil/gas prices, and the declining the oil prices will strongly support the diversification. Year 2008 is considered a typical example to indicate that the diversification force matched the oil high prices.

The Gulf Cooperation Council, in spite of the different political orientation for the GCC countries, but the official statement of the GCC includes many investments and projects under implementation towards the diversification policies.

The GCC economy faces the challenge of diversifying its sources of income in light of the limited skilled labor locals and the weakness of the stability of foreign talent.

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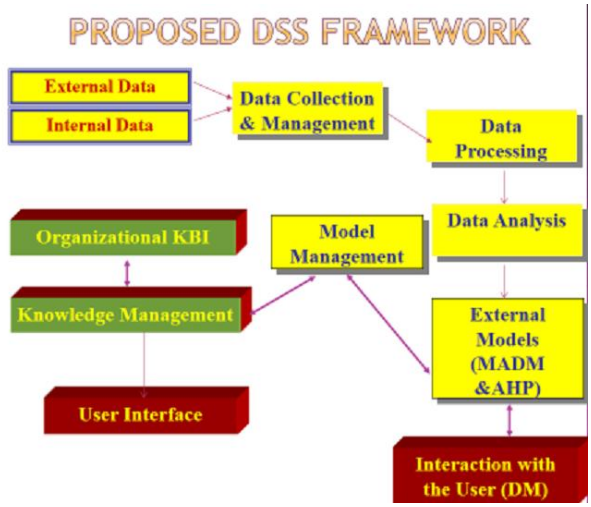


Fig. 6: The Proposed Decision Support System for choosing a suitable alternative for the Oil Imports as a GDP contributor [34].

Alternative Economy is the recommended field to create an intelligent solution of the GCC economy dilemma.

There are many suggested economical sectors, like; Industrial, Tourism, Import & Export, Knowledge Economy, Islamic Economy, Innovation Project, Mining, Petrochemicals, and financial services.

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