



Examining the role of computer and data mining to counter the negative impacts of globalization in Islamic banks

Yousef El-Ebiary, Sekou Toure, Elsayed Salem

Al-Madinah International University, Selangor, Malaysia
dr.y.elebiary@gmail.com, elsayed.mohamed@mediu.edu.my

ABSTRACT

The world is moving towards Globalization and from there, to Googlization; where there are no limits or restrictions, in spite of the multiplicity of manifestation. The move is most prominently seen in the economic sphere, and banking institutions are no exception to be affected. According to this, there are two major challenges faced by Islamic banks. The first is the merger or what is known as conglomeration, a major force in economic and the second is financial globalization that is also faced by the Islamic economy. This phenomenon requires the Muslim community including the Arab countries to keep up with the reality-based competition on a local and international levels. This study aims to enlighten on the strategic proposal for Islamic banks in Arab countries to take advantage of the opportunities offered by globalization and therefore achieve greater benefits and reduce the risks and threats associated with them. The study focuses on two groups of results, namely public and private as the main subject matter. The study also looks at the current lack of technical developments which could adversely affect the speed of decision-making and lead to lack of coordination among the key decision makers. In studying the exposure of these institutions being to financial crises as a result of globalization, this paper also shows the possibility of benefiting from the experiences of the commercial banks, stating that globalization can actually stimulate Islamic banks to innovate and develop methods and attract new financing and investments. The researchers give few recommendations, such as fostering closer cooperation among Islamic banks in all countries and building a strong entity operating under one umbrella. The aim is to create competition between commercial and Islamic banks. This can be achieved through faster decision-making using advanced techniques and creating foundations and activating the role of the young talent by giving them a significant role. To implement all these recommendations, a strategic change in leadership is required.

Keywords: Islamic Banks, Data Mining, Globalization.

1. INTRODUCTION

Muslims have introduced the concepts and great services in the development of the banking industry, even more so than the Greeks which have been traditionally hailed as the superior contributor in this field. The beginning of the banking industry in European countries was the invention of the Deposit. Prevention of compactness is forbidden in Islam, as Islam allows the applicant to have the discretion to decide on the funds deposited. This was essentially based upon the decision of the respective banks. Zubair Bin El-Awam (may Allah be pleased with him and reward him) did not accept that the deposited money can only be used for loans, which was the widespread use in all banks. He naturally searched for an alternative to commercial banks and founded bank based on the principles of Islamic law. Some may think that the emergence of modern Islamic banks does not take into account the many individual and governmental and international initiatives launched in the Arab countries. A legitimate

speculation by Dr. Ahmed al-Najjar, on the Arab Republic of Egypt in 1963 in terms of the number of countries involved in the experience spelled out many examples. One such example is Malaysia in 1940, until the establishment of the Bahrain Islamic Bank in 1979. This also includes the attempts of Pakistan in 1950 and the Bank of Nasser in Egypt in 1971, the Islamic Development Bank in Saudi Arabia in 1975 and Dubai Islamic Bank in the same year. All these, including the Faysal Bank of Saudi and the Kuwait Finance House together in 1977, established the International Association of Islamic Banks in Saudi Arabia in 1977, with the General Secretariat located in Egypt. The main objective was to support economic development, and from then Islamic banks began to spread in different countries and following that, many of the most prestigious global conventional banks began to open sections of Islamic windows of the bank such as HSBC in Europe and Citibank in the USA, Barclays Bank of Great Britain as well as the Swiss bank, UBS and others. This spread to more than 50 countries in the world, based on the International Monetary Fund report. Some foreign educational organizations also issued diplomas and advanced professional diplomas in the field of Islamic banking and management (Islamic Banking), reflecting the importance of Islamic banks.

The major challenges faced by Islamic banks is the phenomenon of globalization through politics and economics, particularly technological openness and economic bloc, which affects the financial dimension directly. Prominent among these blocs are the European Union (EU), and the bloc of Southeast Asian Nations (ASEAN). The rest includes the Asian Forum of Cooperation (APEC), and the Market of North America (MAFTA), and finally the Common Market of the Southern Bloc (MIRCOSOR). The global influence of the economic transactions gave birth to a number of agreements which control the trade, investment and the movement of funds. Most notably was the General Agreement on Tariffs and Trade (GATT), which was founded in 1947, and developed into the General Agreement on Trade in Services (GATS) in 1995 through the efforts of the World Trade Organization (WTO). The WTO works to ease international trade restrictions and lower tariffs between member countries of the agreement. The foreign exchange market (FOREX), which is now fully managed through new technologies, is estimated to have the volume of currency trading at about \$30 trillion per day. Many advanced technologies in banking are now used, such as: electronic or on-line banking, remote electronic banking, home banking, self-service banking and web banking. There are many sophisticated security methods for dealing with these advanced systems. It is now possible to highlight the main reason for the strengthening of these institutions to gain access to the growing internet market, a result of the growing impact of the global communications revolution and the trend towards high-tech business performance and the integration of economic globalization.

This study is trying to develop a strategic Islamic view to determine the ability of banks to cope with liberalization and globalization in the era of new development, exploring the possibilities of mergers to unite their abilities to accomplish the unprecedented idea of comparing the same thought between commercial banks and the role of modern technologies to reach the desired goals of the merger. It also focussed to clarify the importance of managing Islamic banks, employing the required expertise and management techniques of commercial banks and reducing the cost of competition as well as the bottom line.

2. RESEARCH TERMINOLOGY

Globalization: International integration process arising from the exchange of views, means making a global or international phenomena spread equivalent to making a world without

borders. Those institutions involved are vulnerable in all commercial, economic and political fields which will reflect on the social and cultural aspects of whole peoples.

Googlization: This is a new term describing the expansion of research techniques to more markets, and web applications including traditional institutions. The rapid development of the media and research, particularly Google and its applications, is part of the new media and draws attention to the ease of access and build relationships between business interests and the media and communication. Islamic banks: This refers to the banking system which is compatible with Islamic law. Data mining: The search among large amounts of data to uncover relationships that have not been previously disclosed between data elements; also known as knowledge discovery in databases (KDD).

3. AIMS

This study aims to examine and achieve the following objectives:

- 1- Analysing the strength of the Islamic banking systems and components for the application of Sharia in the presence of globalization and financial liberalization.
- 2- Studying the increasing proportion of the global Islamic banking market, resulting in a variety of tools and techniques.
- 3- Looking at the extent of Islamic banks affected by the surrounding environment and the current circumstances and flexibility with development and globalization.
- 4- To study the importance of the impact of the spread of Islamic banks to the economy of the countries examined.
- 5- Instilling the importance of providing a reference in the field of Islamic banking to assist with further research and studies on the future of Islamic banks.
- 6- Reviewing the strength of the commercial banking sector in terms of experience and the speed in decision-making with the help of the information technology coupled with advanced techniques, as well as trained and experienced personnel.
- 7- Threats to Islamic banks.
- 8- Opportunities for Islamic banks.
- 9- Awareness of the importance of equal competition.
- 10- Assessment of current intellectual and human, material and technical potential of the Islamic banks, and analysing the ability to adopt strategies that fit with the intellectual and scientific progress.
- 11- Identify the impact of globalization on the development of Islamic banks and how to assist the affected institutions.
- 12- The restructuring of the administration of Islamic banks and recovery of the institutions to achieve the global response in an attempt to maintain a presence among global conglomerate in the near future.

4. RESEARCH PROBLEM

This study is to explore the challenges faced by Islamic banks with the advent of globalization, economic development and conglomerates issue where they had to compete with global challenges and commercial banks which are more experienced and have advantages with the presence of trained staff, technical facilities and the sophisticated technology that assists their leaders and management in making quick and accurate decisions.

5. RESEARCH OBJECTIVES

The main objective of this research is to determine the extent of Islamic banks in response to technical and vocational professional development around them and their willingness to keep pace to meet current and future challenges, as well as to take advantage of the advantages and opportunities and also avoid the risks and threats resulting there from. So it will track the problem and determine the role of computer and information systems and decision-making in support of Islamic economics to assume a prominent place in the economic world through the objective analysis of the competitor and available opportunities while using modern techniques.

6. RESEARCH HYPOTHESIS

With the right strategies, Islamic banks can occupy a prominent place among the global economic blocs. The EU integration and design strategy aims to compete with equal entities cope with the financial and technical progress, globalization and thus avoid the threats at the same time. Regarding on this issue, the researcher seeks to strategize a future merger between Malaysia's Maybank and the Dubai Islamic Bank and compare the outcome after the merger with the performance before the merger and identify the role of technical progress in achieving the desired integration.

7. RESEARCH METHODOLOGY AND SAMPLING

The framework of this study will involve: First, the methodology which is conducted using the:

- 1- Descriptive analytical approach, and
- 2- The use of technical assembly from the theory of data mining

Second, the limits and the research sample: The sample was selected Islamic banks in general and the researcher has identified Maybank in Malaysia and Maybank Islamic Bank of Dubai in the United Arab Emirates as a primary research sample.

Third, the source of information: This study will widely use reference materials such as research and academic studies and articles, magazines, newsletters, statistics issued by economic institutions and published papers and minutes of scientific seminars in addition to the electronic and paper books on the subject of the search.

8. LITERATURE REVIEW

There are many researches done pertaining to issues affecting Islamic banks and globalization. Although not many exposed the essence of the problem, some of them focused on the concept of financial globalization. Among the researchers included (financial analyst, 2002), (Ali, 2013) and (Walter, 2012), as well as (Hillman, 2010). Others like Prince Faisal, 2006 and Haider Younis, 2013 focused on other important aspects namely the performances of Islamic banks and assessment of their performances. Some of the literature reviews were associated with the nature of Islamic banking (Ali and Rajan, 2012). According to other researchers like (Beltagy and Vincatar, 2015) as well as (Safer and Joseph in 2015), the provision of security protection regarding the use of electronic banking systems as the main supporter of the growth of Islamic banks. However, none of them are specifically exposed to

the impact of new technologies and globalization on Islamic banks. This fact alone makes this research an addition to the literature of Islamic banking.

9. RESEARCH STRUCTURE

The era of multinational corporations was a significant factor of globalization, where mergers between major companies led to the achievement of superior leadership and progress. Many institutions that have integrated made high gains that were reflected in their economic achievements. They built up their production and marketing knowledge and their ability to compete. The product of this merger is to control more than a third of the value of goods. The annual sales produced by all countries of the world are dominated by 100 companies only whose total capitals were estimated to be the size of five thousand billion dollars.

These strategic alliances include: Motorola and Toshiba in the field of electronic communications, the Japanese JVC and French Thomson in videos industry, and the Alliance of Mazda and Ford in the auto industry. The integrations improved the economic situations and growth as well as increasing the market share of the conglomerates. As for international banks, the merger between the Chemical Bank with the Commercial Bank of Hanover in July 1991 in a deal estimated at 135 billion US dollars. While retaining the name of Chemical Bank. This deal was to become the second largest bank in the United States, behind Citicorp in terms of both assets and customer base. Chemical Bank has also become one of the largest lenders to US companies and it was arguably the leader in syndicated loans globally. In addition, Chemical Bank took a leading role in the provision of foreign exchange, interest rate and currency trading and corporate finance, cash management trust companies, institutions and services and commercial real estate loans and the transfer of funds. The Chemical Bank has become one of the largest bank creditor in the country. Their card privileges are provided through the proliferation of network ATM automated with the highest rated technologies.

In 1996, Chemical Bank acquired Chase Bank of Manhattan in a merger valued at 10 billion US dollars. The deal created the largest financial institution in the United States and adopted the Chase name and led the merger to provide an expense ratio to nearly 1.9 billion dollars. The Bank continued to work under the Chase brand until its acquisition by JP Morgan & Co., in December 2000 to form JP Morgan Chase & Co.

10. The Effect of Information Technology

The percentage of effective support and influence of information technology outweigh the 7% in all decision-making and nearly 48% in facilitating the integration process and the proportion of 66% to facilitate the management process to reach for a profit. Figure 1 below drawing the following explanation for the high rate of growth for banks after the economic integration.

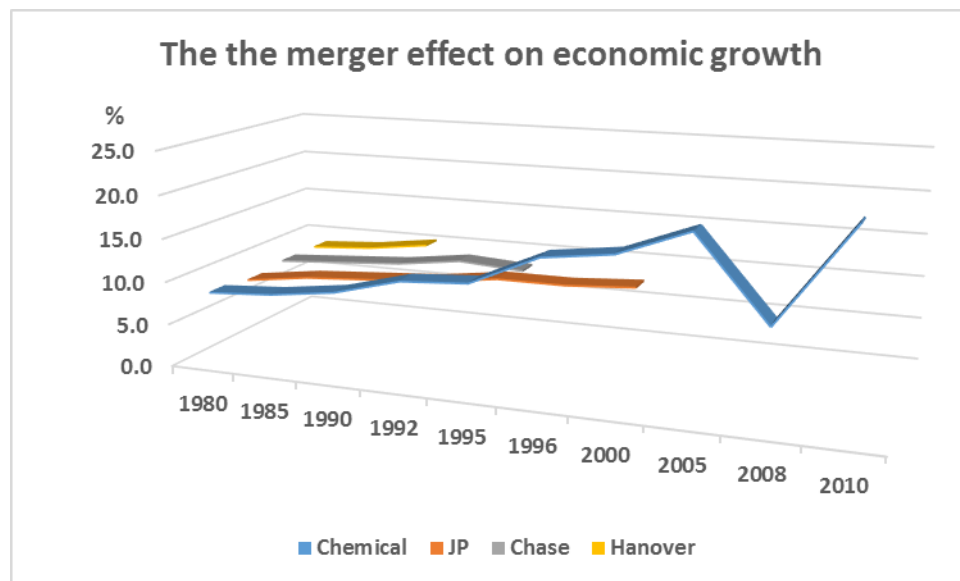


Fig 1: Clarifies the Chemical Bank mergers over previous time periods

Some Islamic banks plan to offer Internet Banking, to enhance the benefit of the new rules of globalization, as approved by the respective Central Banks. For the provision of the service, Faisal Islamic bank and Arab investment, through their subsidiaries, were at the forefront of banks that seek to apply the service. Despite the acquisition of technology, banking services, on the priorities of most commercial banks recently, the Islamic counterparts are slow in moving into that direction.

The data warehouse is also one of the things that is sometimes overlooked of its importance in the field of data and information technology in developed countries. The measure of success for commercial banks is the success in the use of information technology to increase the number of transactions in these banks. At another level, the growth rate of Islamic banks in the Gulf region shot up to 7.3 billion Dirham in the period between 2009 and 2013. Such a volume of operations needs proper systems and solutions, as well as technological advanced help to ensure the comprehensive automation and provide high-level banking experience. Regular banks currently use virtually real provision of integrated technology platforms for current and future needs. Some studies and many analysts also forecasted that this sector will be growing at between 30 and 40 percent in the next three years. They also stressed the need for the correct choice of the nature of the solutions for the banks. The provision of the necessary information security and maintaining the confidentiality and security of information make up the greatest threat of financial transactions in the present day, so data mining and classification must be improved in order to facilitate handling and make the most of them.

On data mining, it is one of the critical issues and recognize as the important issue for the President of the United States of America, Barrack Obama, who in December 2013 was met with the largest entities in Information Technology (Tim Cook, Apple, Google, Twitter, Microsoft, Facebook, the Sales, Netflix, Dropbox, Yahoo, Zynga, Sherpa, Global, Comcast, LinkedIn) in order to discuss that issue. In a speech in January 2014, he again mentioned the issue by calling for reforms in data mining system. This confirms the interest in this topic in data mining globally.

The widespread use of information technology on data mining and the ease of making them available to inflate the size of the information has not been seen before in history, making the issue of massive data on the Internet as controversial, in terms of the feasibility of its existence. When we talk about the huge data, we are talking about unimaginable amounts of multiple data types and sources of the size of up to hundreds of Betabyt (Betabyt is the number one followed by 15 zeros). Also, IBM is talking about 2.5 Quintillion bytes of data every day (Quintillion is the number one followed by 18 zeros). Information is everywhere and in several topics.

We wonder on the importance of this data considering the fact that the organization refers to the information from these data only a fraction of up to 10% as compared to the available information. This led to an increased need to develop tools characterized by force to analyze the data and extract information as shown in Figure 2. Traditional statistical patterns cannot deal with this enormous amount, so there is need for smart tools to handle this data.

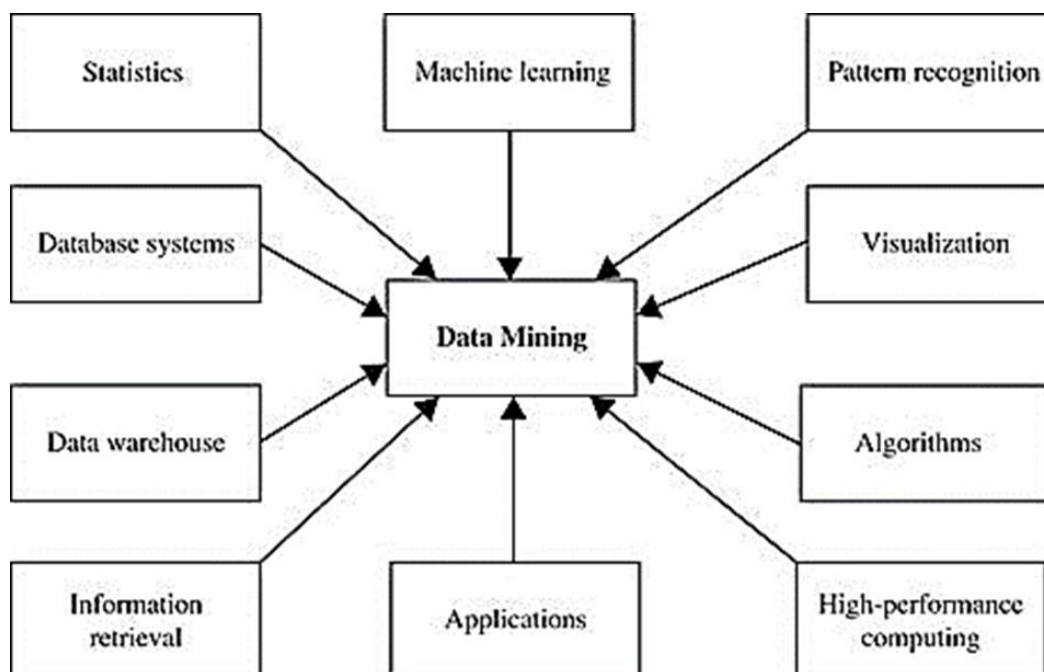


Fig 2: The different directions to assemble and extract the information from data

The number of Islamic financial institutions has increased to more than 700 firms operating in 60 countries around the world today, including 250 institutions in the Arab Gulf States and 100 in other Arab countries. According to the Global Competitiveness Report of Islamic banks for the year 2013-2014, the number of Islamic banks and customers around the world amounted to 38 million customers. However, 80% of the potential clients for Islamic finance database are still untapped, and the sector has the powerful capacity to accommodate more customers regionally and internationally. The Sharia compliant assets constitute only about 1% of global financial assets. Table 1 shows the ranking of countries in terms of the size of the assets of Islamic institutions.

Table 1: 20 countries by total Islamic assets in 2013

Ranking	Country	Total assets of Islamic institutions (Billion USD)	Percentage of total	No. of Institutions
1	Iran	475.89	37.76	28
2	KSA	227.2	18.03	41
3	Malaysia	196.8	15.62	41
4	UAE	87.3	6.93	19
5	Kuwait	72.5	5.75	26
6	Bahrain	56.5	4.48	37
7	Qatar	53.1	4.22	10
8	Indonesia	19.0	1.51	57
9	Bangladesh	16.5	1.31	24
10	Turkey	12.1	0.96	4
11	Sudan	10.0	0.78	9
12	Pakistan	7.1	0.56	23
13	Switzerland	6.6	0.52	1
14	Egypt	6.5	0.52	3
15	Brunei	5.0	0.39	1
16	Thailand	4.1	0.32	1
17	UK	2.5	0.20	4
18	Jordan	1.9	0.15	9
19	Iraq	1.7	0.14	5
20	Yemen	1.6	0.13	1
Total		1,260.26	100%	344

Table 2 shows the performance of the Supreme Islamic institutions and their ranking in terms of assets and revenues at the global level.

Table 2: Assets and the performance of the 20 largest Islamic banks in the world

Ranking	The Bank	Country	The assets (B. USD)	Return on assets	Return on equity
1	Al-Rajhi Bank	KSA	71.29	2.95	21.62
2	Maskan Bank	Iran	54.62	0	5.42
3	Kuwait Finance House	Kuwait	52.29	0.60	4.36
4	Melli Bank	Iran	37.84	0.44	8.72
5	Amislamic Bank Berhad	Malaysia	33.79	0.01	13.60
6	Maybank Islamic	Malaysia	29.90	0.97	19.50
7	Dubai Islamic Bank	UAE	25.96	1.21	11.99
8	Bank Kerjasama Rakyat	Malaysia	25.96	2.19	16.43
9	Bank Saderat	Iran	24.32	1.00	18.14
10	Abu Dhabi Islamic Bank	UAE	23.32	1.40	9.52
11	Qatar Islamic Bank	Qatar	20.10	1.70	10.82
12	Al Baraka Banking Group	Bahrain	19.06	36.64	0.24
13	CIMB Bank Berhad	Malaysia	18.75	1.38	21.08
14	Islamic Development Bank	KSA	17.62	1.00	1.64
15	Masraf Al Rayan	Qatar	16.93	2.44	15.68
16	Standard Chartered Bank	Malaysia	15.65	11.29	17.48
17	Alinma Bank	KSA	14.40	1.36	4.40
18	Bank AlJazira	KSA	13.59	0.98	9.99
19	Bank Sepah	Iran	12.76	0.10	3.15
20	Parisan Bank	Iran	12.59	2.20	27.29

On the approach to the merger of banks, it is assumed that the merger of two of the prominent Islamic banks aimed at promoting and raising the level of the Islamic banking sector in general and increase profits and capitalise on the resources of their experience and databases in particular. In assuming the integration of databases owned by both Maybank Malaysian and Dubai Islamic United Emirates, it is certain that this merger will result in increasing the global standing of the merged institution. On the economic level, the benefit from information technology will be integrated into all their databases and all their branches worldwide. This means bigger and wider reach of clients more as a positive effect on the proliferation of ATMs operating electronically to serve the bank's customers at any time and everywhere.

As shown in Figure 3, with the use of data mining techniques and a choice of two special algorithms, the problem of integration of databases of banks in the case of the merger can be solved.

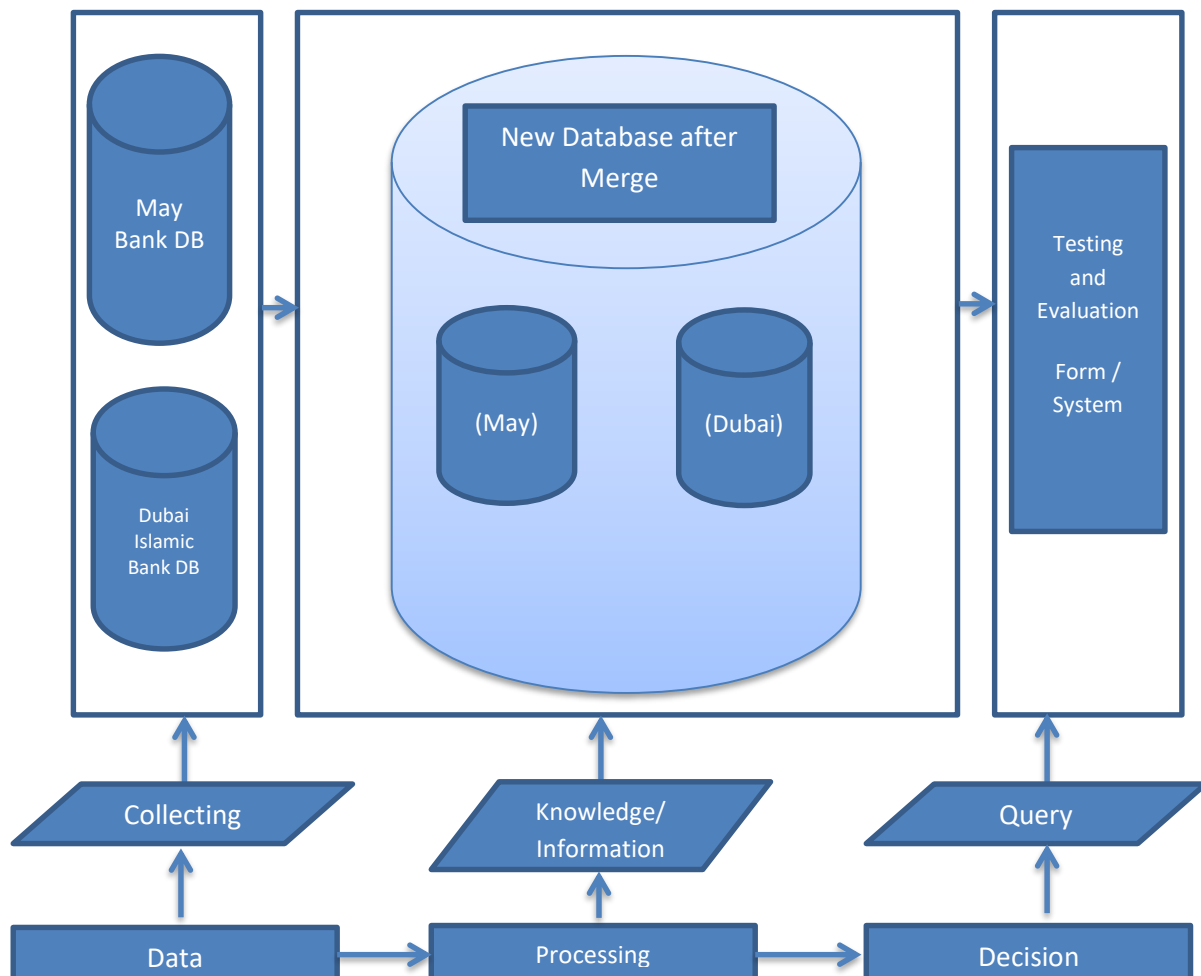


Fig 3: Illustration of the process of the merger of banks databases with the aid of Clusters and Decision Tree Classification, and some of data mining algorithms.

Based on Figure 3, the databases have been integrated by:

1- (Clusters): They split the data into a set of varieties depending on the involvement of similar properties and to find the relationship between the data process, it also helps the beneficiary to understand the natural structure of the data sets.

2- (Decision Tree Classification Algorithm): Decision tree is an important method of classification in the classification and data extraction. Decision trees have proved to be valuable tools for classification and description, and dissemination of data. It also works to build decision trees for data sets that exist in multiple disciplines such as signal processing and pattern recognition and decision theory and statistics, machine learning and neural networks.

11. RECOMMENDATIONS

The following are the benefits of this study:

1. Work on the establishment of a Higher Council for Islamic banks, and the establishment of a centre of (Bank) Information which is sophisticated and of benefits to all Islamic financial and banking institutions.
2. Islamic banks need to improve technological capabilities, and the use of the developments in all areas. Banks must keep pace with these developments, which make them able to compete.
3. The use of experts in information technology for the training and development of human resources working in the banking industry to fit the field of work under this globalization.
4. To send the personnel of Islamic banks in staff training missions to accommodate the new technology used.
5. To make room for young professional leaders to lead strategic change based on high and advanced techniques to meet the challenges of financial globalization, and to take advantage of the opportunities and risk reduction.
6. The need to establish a separate department for scientific research and development based on the foundations of Islamic law and includes legislative financial expertise in order to contribute in carrying out studies and research related to the activities of Islamic banks as well as the direct support of the legitimate positively affect the speed of decision-making.

12. References

- Alsarv, Unified Arab Economic Report, September 2013, p. 175, quoting: Union of Arab 2000, the financial sector in the face of the era of mergers and acquisitions.
- British newspaper The Economist reported in its issue August / 2014.
- Etzioni, Oren. (1996). The World-Wide Web: Quagmire or Gold Mine? Communications of the ACM , 39 (11), pp. 65-68.
- Faraj Ezzat, Money and Banking, a library, Ain Shams, Cairo, 1998.
- Fawzi Abdul Razzaq. Globalization and its impact on the economies of Arab countries in light of the current blocs, the Conference on globalization and economic dimensions, Faculty of Economics and Administrative Sciences, Zarqa Private University, May 1421, August 2010.
- Fayyad, U., Piatetsky-Shapiro, G., & Smyth, P. (FALL 1996), From Data Mining to Knowledge Discovery in Databases, American Association for Artificial Intelligence.
- Hayali, "The Arab and Islamic economic cooperation in the context of globalization" Mosul, Iraq, the Conference on globalization and economic dimensions, Faculty of Economics and Administrative Sciences, Zarqa Private University, May 1421, August 2000, p. 453.
- IBM. (2012). What is big data? Retrieved from Big Data at the, Speed of Business: <http://www-01.ibm.com/software/data/bigdata/>
- Junior, M. G., & Gong, Z. (2005). Web Structure Mining: An Introduction. Proceedings of the 2005 IEEE International Conference on Information Acquisition. Hong Kong and Macau, China.
- Martin Wolf, Did all this hatred of globalization?!, the newspaper Omend Diplomatie, June 2007.
- Mostafa Mohamed, Globalization and re-shape the world, Tahan Community Magazine, No. 1307, / the first spring 131 419 e 0.7 / 7/1998, p. 26.
- The Financial Times, March / March 2014.
- Unified Arab Economic Report, September 2013, p. 176 et seq.