Determinants for the adoption of Regulatory Technology (RegTech) services by the companies in United Arab Emirates: An MCDM Approach

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Abstract. The increasing compliance expenditure, identity management and increasing need to secure data constitute risks to current regulatory procedures. The concept of Regulatory Technology, or RegTech, in the United Arab Emirates (UAE) is still in the infant stage due to lack of defined processes and it holds immense potential in employing RegTech to its existing institutions. The purpose of this paper is to understand the various factors that determine the adoption for RegTech services and proposes a multi-criteria decision-making approach by ranking those determinants. The determinants are divided into three main hierarchies which include customers, regulators, and environment-based factors. Survey was conducted to rank each of the determinants within the hierarchy to validate the need for RegTech services. It is observed that customer-centric experience, enhancing data security and ensuring real-time data capabilities play the major factors for the implementation of RegTech services that is validated by constructing an AHP model. The need for RegTech's determinants would help financial institutions, regulators, and stakeholders in the UAE benefit from the research and achieve competitive advantage by understanding and implementing the suggested findings.

Keywords: RegTech, Compliance, Regulatory Monitoring, Analytical Hierarchy Process

1 Introduction

The dawn of the 21st century has largely changed the landscape of financial services as a whole because of a rapidly changing and development of technology. The evolution of Financial Technology, or FinTech, which collaborates technology with creating financial solutions has long led to changing the financial markets [2]. FinTech has entered an industrialization phase marked by the emergence of start-ups and other newcomers, such as e-commerce and IT enterprises, which have segmented the financial services market. Regulatory technology or RegTech, a booming tech word at this age with the rise of technology and a growing focus on data, has made it the focus of attention. Most of the financial heads agree that the real cause of the 2008 global

housing and financial crisis were due to unscrupulous private mortgage loans and unregulated markets [4]. With the global financial crisis of 2008, many regulators have come together to create regulatory solutions that could help manage the compliance risks of the organization. The term RegTech was first coined by the UK's Financial Conduct Authority (FCA) in 2015 who defined it as: "A subset of FinTech that focuses on technologies that may facilitate the delivery of regulatory requirements more efficiently and effectively than existing capabilities." [22]

Existing financial agencies and their regulations for risk management and compliance were previously the main driving force and sector of RegTech solutions. Although the financial sector has long been such a significant user of algorithmic reporting and compliance tools, which have increased regulatory burdens since 2008, this is an opportunity for success implementation of digitization and automation processes has been strengthened [3]. Regulation on financial services has expanded at a significant rate since the financial crisis and hence the cost of regulatory compliance has expanded [7]. Failures to comply have also become costly. The finance sector has paid $321 billion in fines and sanctions over the last 10 years. But this does not count the adverse effect of fines on the reputation of a company and on the credibility of the shareholders [10]. With the 2008 Global financial crisis, many regulators have come together into creating regulatory solutions that might help manage the organization's compliance risks [8]. RegTech companies collaborate with various institutions and regulatory bodies in coming up with technological solutions basically covering challenges involved with regulatory monitoring and compliance so as to cut back their regulatory failures thereby saving their time and money. In today's world, where data is of prime importance, RegTech has become a source of competitive advantage and can help secure data which can satisfy the regulator's demands and deliver effective insights about customers and the market [4]. The ongoing COVID-19 pandemic puts an unimaginable strain on markets, governments, corporations, and individuals and has shaken the nation's core around the world and has assessed their infrastructure for healthcare, pummeled their financial markets, and left entire populations in fear and lockdown. Strategies for tackling the financial aspects of the crisis to reduce the economic and human impact team include ensuring sufficient liquidity, intensifying information exchange to ensure accurate information, leveraging digital finance payments to reduce human-to-human contact and many more. At the same time, the digitization of financial services over the past decade offers alternative and more direct ways of stimulating the real economy, which will be critical in minimizing economic impacts and preserving economic stability post-COVID [2]. RegTech was initially regarded as a subset of FinTech's, which evolved to help companies move away from the concept of 'Big data' to digitized 'smart data'. Gradually, with the advent of new technology and increasing compliance protocols, RegTech is rising as a separate industry focusing on providing compliance and regulatory monitory solutions to various companies. We need to embrace new technology to help clear the fog to steer the financial regulatory atmosphere, transforming what was perceived as a limitation into an attempt that contributes to our customers, and thus to the market. RegTech in the UAE, as of 2020, is currently in the developing stage as not many companies consider RegTech as a separate entity. RegTech is still "nascent" in the Middle East. While

there is considerable diversity in the pace with which the UAE adopts regulatory solutions, overall investment was low compared with other regions. RegTech's adoption in the MENA regions is still underway, but UAE has started organizing regional conferences to explore its prospective and existing adoption restrictions [12]. This is mainly due to the UAE government that has been keen to adopt new technologies and to the UAE's greater national push to become a world leader in FinTech innovation. The MCDM analysis, which is being proposed in this project, might help companies adapt to RegTech to ensure a seamless experience for companies to enact financial services as per compliance.

2 Literature Review

The increase in regulatory and supervisory scrutiny after the financial collapse means that financial services firms are spending ever greater amounts of money and resources to manage their compliance risk. That cost has now reached unjustifiable levels in the eyes of some investors in the current low productivity environment [15]. The application of new technologies in the financial services sector can bring clear, distinct advantages. Dubai International Financial Center and Abu Dhabi Global Market, two of the MENA region's leading free zones, each seek to appeal to financial services technology developers by setting up innovative environments where FinTech solutions can be developed and, to a certain extent, into the wilderness [9]. RegTech seeks to use innovative technologies such as artificial intelligence, block chain, analytics of big data, cloud computing and biometrics. Its main purpose is to tackle issues of compliance and risk management and facilitate for more effective management of compliance costs and reduction of operational risks [15]. The need for risk and compliance functions to have more involvement in assessing the impacts of FinTech innovation has increased remarkably. Compliance modelling is a broad policy comprising the direction it enforces the function, the technology, and analytics it uses, the amount and essence of its connections to other parts of the business, the standards it has been assigned and more. Innovating compliance can be the most complex and sophisticated way for an organization to monitor what is going on inside its four walls and what is coming from outside [16]. The percentage of firms that identified their risk and compliance functions as having to participate more in Fintech, RegTech and InsurTech has more than doubled from 15% in 2017 to 32% in 2018. Those reporting that their risk and compliance function is fully engaged and consulted in their company's approach to fintech from 37% in 2017 to 18% in 2018 have a parallel drop [7], [11].

Regulators around the world are encouraging fintech's potential benefits while minimizing potential risks and challenges. This is especially the case where loyal customer outcomes could be compromised [8]. A regulatory approach is that of a sandbox where new solutions can be tested and developed without having to comply fully with

all relevant regulatory requirements from the start. Soon, regulators will be under immense pressure to migrate to the market that includes large banks, emerging tech firms and lean startups. RegTech will not only be used to help authorities control and regulate industry participants but also to identify when to do so. There are advantages for industry and regulators alike. It can enable financial institutions to control economic costs more efficiently for business, release regulatory surplus capital, and offer new potentials for FinTech startups, consultative companies, and tech firms [19], [6], [9]. It helps regulators develop continuous monitoring tools to detect problems as they evolve and minimize the time it takes to investigate compliance violations, also promoting the development of simulation systems and sandboxes that can predict the possible impacts of new approaches and changes. To identify the determinants associated with RegTech, various research articles published in reputed journals were studied. The database of Top RegTech studies of 2019 were looked upon to look for data associated with RegTech. Similarly, the Google Scholar engine was also explored to find out the top driving factors that determine RegTech from various research papers. The study carried out by top financial institutions was observed. After carefully going through the abstracts of the research papers, 10 key determinants were chosen. While analyzing the determinants for RegTech, the focal point must be to identify why companies must adopt RegTech services. The extensive literature study was carried out to identify what exactly is RegTech. The following paragraphs explain the determinants of RegTech in bold to assist companies in U.A.E. understand the benefits of the services RegTech has to offer.

Identifying Financial crime poses a considerable threat to the overall integrity, stability, and development of the financial services industry. They also have the potential for strengthening business performance and effectiveness within financial institutions [17], [20]. Whether it's cyber fraud, terrorist financing or the history of corruption is full of the trail of economic devastation left by financial crimes. In 2012, HSBC Holdings faced a backlash and was fined $1.92B by the US authorities for allowing laundering drug money flowing in and out of the cartel [22]. With the advent of advanced technologies, the regularity and sophistication of financial crime has significantly increased.

According to a study conducted by Thomson Reuters, one of the leading multinational media conglomerates, compliance budgets continue to be on the rise. There has been a year on year rise on compliance budget with 63% of firms in 2019 compared to 61% in 2018. Lack of compliance budget constitutes to 13% challenge for compliance officers in 2019 [23]. This increasing compliance budget is supported by the fact that more numbers are opting for automation of compliance activities, continuing regulatory change and enhancing the role of compliance within the businesses to assure their stakeholders' trust in the company [18], [14].

RegTech can be used to automate compliance tasks which involve utilization of advanced algorithmic processes. Companies providing technology-based solutions

have been on the rise lately. With the advancement of technologies, there has been an increase in competition from many companies into adopting the latest technologies to satisfy their customer needs [12], [5].

Artificial intelligence will supposedly play a major role in driving RegTech to success. Linking analytics with artificial intelligence will provide agility of data and ensure a complete user-friendly experience while ensuring compliance [7], [14].

Many startups have been emerging over the past couple of years into bringing the best regulatory solutions into the market. This has led to an increase in innovation and startups and consequently, led to an increase in the competition with more startups, there is an increasing possibility of more risks involved. RegTech identifies these risks into creating a more proactive environment. Because of this and many other potential hazards, regulators and firms see significant opportunities to use the latest technologies used by financial firms to manage risks and improve market efficiency, security, and soundness. The main task of RegTech is to help companies to adjust their work to the requirements of legislation. The demand for such services is growing because traditional legal processes are becoming too expensive in terms of resources and time. [13].

We discussed how one of the main objectives for RegTech is moving from '*big data*' to '*smart data*' thereby offering real-time data capabilities to ensure a timely response and have a lower turn-around time. Modern times call for data to be available at our fingertips for quick analysis and a better understanding of the problem to reach a quick solution. This can also help make sure timely reporting, as these reports can be instantly optimized and extracted allowing data-driven compliance and constructive regulation. RegTech offers the possibility for financial firms to clump their raw data to enhance agility through these algorithmic processes [10].

Another driver is the similar complexity of financial institutions served in line with its business concepts, mechanisms for business entities and markets. Tracking, analyzing and compliance to existing and proposed regulations is a challenge even for the major banks. The transition from individual solutions to RegTech is reinforced by the fact that the major portion of the costs are spent on consulting firms, consulting services and IT professionals [14].

Companies are evolving at a rapid pace to highly focus on acquiring smart data for their processes. As our financial system moves from one based on the principles of Know Your Customer through Know Your Data approach, a new regulatory framework must evolve that will have to deal with regulating identity assurance and focus on data privacy in financial industries and also facilitate due diligence and Know Your Customer (KYC) procedures, screening and detection of AML and anti-fraud [16]. There have been significant advancements in KYC procedures with a data-driven process to identify their customers and gain background information to assess the risk factors involved in the transactions.

While tackling the cost of spiraling compliance and avoiding hefty fines may provide banks with plenty of motivation to navigate the rewards of RegTech solutions, there is more to it. By restructuring processes, organizing data appropriately, developing innovative new solutions will be put in place to provide customer-centric experience while also providing regulatory challenges with solutions [1], [5].

RegTech also makes sure financial crime is at the minimum as it also focuses on enhancing data security and protecting individuals' data. This has been a primary key in why many companies adopt RegTech services to gain their customers' as well as their stakeholder's trust. In today's current era, data security has been of utmost importance as it affects protective measures to secure data from security breaches and data mismanagement throughout the data life span [20]. The 10 key determinants for adoption of RegTech services discussed are tabulated in Table 1.

Table 1. The selected drivers for adoption of RegTech services

Determinants	Authors	Description based on literature review
Real-time data capabilities (V1)	Anagnostopoulos (2018)	RegTech offers access to real-time data and act instantly based on customer requirements to develop real-time, proactive responses
Relative complexity of financial institutions (V2)	Butler (2019), O'Brien (2019)	Complexity in terms of business designs, mechanisms of legal entities and procedures is a major driving force for RegTech. It is a challenge to monitor, interpret, and comply with current and planned regulations
Automated advanced algorithmic processes (V3)	Anagnostopoulos (2018)	Application of technology can help automate the performance of regulations thereby reducing the time involved
Linking advanced models and analytics with artificial intelligence (V4)	Arner (2017), Barberis, (2017), & Buckey (2017)	RegTech provides potential for constant monitoring and real-time perspectives with the help of deep learning and artificial intelligence
Increasing need to identify financial crime (V5)	F.C. Authority (2015)	Knowing the cause of the issue can help to solve most of the problem. RegTech can help in identifying any crime so that the perpetrators can be caught in real-time and help in reducing financial loss
Customer-Centric Experience (V6)	Lootsma (2017)	Develop a customer experience-based platform that provides a personalized experience and enhance digital screening of customer through the help of KYC
Encourage Innovation and Competitiveness of Business (V7)	Arner (2017) and Buckley (2017)	New approaches to regulation must be developed to attempt the balance with innovative technology and urbanization benefits with economic stability

Increase in compliance expenditure (V8)	English (2019) and Hammond (2019)	RegTech adoption in developed economies is driven mainly by the increasing cost of compliance. The rapid increase of the compliance budget is a clear indication that RegTech is proving to be successful.
Identity management and assurance (V9)	Johansson (2019), Sutinen (2019), Lassila (2019), Lang (2019), Martikainen (2019), MLehner (2019)	RegTech companies aim to focus on identity management, security, and data privacy in financial services. Involve diligence and understanding of AML and anti-fraud procedures.
Enhance Data Security (V10)	Anagnostopoulos (2018)	To prevent unauthorized access to individuals, cyber security becomes a key driving force in developing RegTech

3 Methodology

This study introduces the Analytic Hierarchical Process modelling and the Total Interpretive Structural modelling technique to analyze drivers of RegTech in a systematic way and a more comprehensive approach. In this manner, the competitiveness of each determinant is analyzed. The measurement of degree of each RegTech determinant is a complex task which seeks to enhance the adoption of RegTech services. Multi Criteria Decision Making is employed to solve such kinds of problems. MCDM problems are determined as challenges in making decisions that comprise several parameters. In the MCDM approach, a certain problem is expressed in linguistic terms which are then mapped into fuzzy numbers. The collective study of criteria helps us to improve comprehension between them of direct and indirect relationships, rather than studying them individually [2]. There are many approaches into tackling an MCDM problem such as Analytical Hierarchy Process (AHP), Total Interpretive Structural Modelling (TISM). AHP is one such popular methods of decision-making process which is being discussed in this paper.

The analytical hierarchy process (AHP) is one of the most frequently used strategies to decide a priority in various fields. Developed by Saaty in 1980, it breaks up the decision-making problem into a system of hierarchies of determinants. AHP can have as many objectives as possible to fully characterize the problem, thereby helping to understand the logic behind choosing this decision. The prominent feature of this strategy is a check of the consistency of the expert decision making in comparison matrix development. The AHP has qualitative and quantitative factors to it. It can handle several criteria and sub-criteria effectively. The main objective of constructing an AHP model is to prioritize the indicators which can assist with decision making

involving multiple criteria. The AHP method is so chosen in this paper to assist with decision making involving multiple objectives. Due to its pairwise comparisons, AHP requires ratio scales. Saaty argued that the ratio scales in the form of a comparison scale, also known as Saaty's fundamental scale is the only possible measurement to calculate a weighted sum of the objectives. In original Saaty's AHP, the verbal statements are represented by scale with measures from one to nine. The Saaty's fundamental scale is the only scale used in AHP. Since we are doing a pairwise comparison of linguistic objectives, a reliable scale is required. Saaty proposed a 9-point scale for analytic hierarchy studies with the assumption that the objectives are of the same order and magnitude and their relative weights do not differ more than 9. The 9-point scale was so selected since it offers a wide range of levels and was found to be highly reliable in several scale development studies. This paper uses radical root method and devises the AHP as follows [25].

Step 1: Identify the problem and its objectives. Define the factors affecting the problem which can be obtained through studying literature reviews, conducting surveys or by having brainstorming sessions.

Step 2: Construct a pair-wise comparison and design a matrix for each of the determinant on a scale of 1-9 using Saaty's fundamental scale given in the following Table 2 [23].

Table 2. The fundamental scale for pair-wise comparisons

Intensity of importance	Definition	Explanation
1	Same	Neither of the two alternatives are preferred over another
3	Weak	The selected alternative is preferred slightly over the other
5	Clear	The selected alternative is preferred clearly over the other
7	Strong	The selected alternative is preferred strongly over the other
9	Very Strong	The selected alternative is preferred very strongly over the other
2, 4, 6, 8	Compromise	Can be used as a compromise for alternative grading

Step 3: Find the relative priority vector (w_i) of each determinant by calculating the geometric mean of the i^{th} row and normalizing the geometric mean of the rows in the comparison matrix. This is represented as follows:

$$\text{Geometric Mean (GM)} = \prod_{i=1}^{N} (a_i)^{1/N} \quad (1)$$

where a_i denotes the comparison value in the given cell and N refers to the number of determinants in the specified objective.

The relative priority vector (w_i) is given by:

$$W_i = \frac{GM}{\sum_{i=1}^{N}(GM)} \quad (2)$$

Step 4: Calculate the respective sum of each of the columns of the obtained matrix and multiply it with the corresponding priority vector in the row.

Step 5: Determine the maximum eigenvalue λ_{max} that is the sum of the results in the row obtained from Step 4.

Step 6: Calculate the consistency index (CI)

$$CI = \frac{\lambda_{max} - N}{N-1} \quad (3)$$

Step 7: Obtain the random index (RI) for the number of objectives used in decision making from Table 3.

Table 3. Random Index (RI) Values

Attributes	3	4	5	6	7	8	9	10
Random Index (RI)	0.52	0.89	1.11	1.25	1.35	1.4	1.45	1.49

Step 8: Calculate the consistency ratio CR = CI/RI. A CR of 0.1 or less is normally considered acceptable and reflects an informed rational judgment attributable to the analyst's knowledge of the issue under study [13]. Based on the determinants, we classified them into the type of stakeholder the determinant belongs to easily be able to analyze it. In a RegTech company, there are mainly three stakeholders that the company can function upon. Based on these stakeholders, we divide our problem into three main hierarchies. These hierarchies are defined to assist the decision maker to address which alternative is best suited for the growth of its company. The determinants which were determined were classified into three hierarchies, namely -- customer based, regulatory based and environment based. A questionnaire was developed with the help of Google forms for pilot testing of construct validation to validate the competitiveness of determinants for RegTech from the literature review to substantiate the competitiveness of RegTech determinants. The survey conducted was primarily used to determine the pairwise comparison of each of the grouped determinants. The survey was sent on various social media platforms to obtain a viewpoint on the determinants selected on a 9-point comparison scale (1 → determinant is equal; 9 → determinant is most important). 75 responses were received after the survey was sent out across the social media platforms. The survey was conducted in the middle of the pandemic during April-May 2020. A standard Google Form was sent to the employees through email and the respondents included customer relationship managers, account managers and sales managers of a top IT firm.

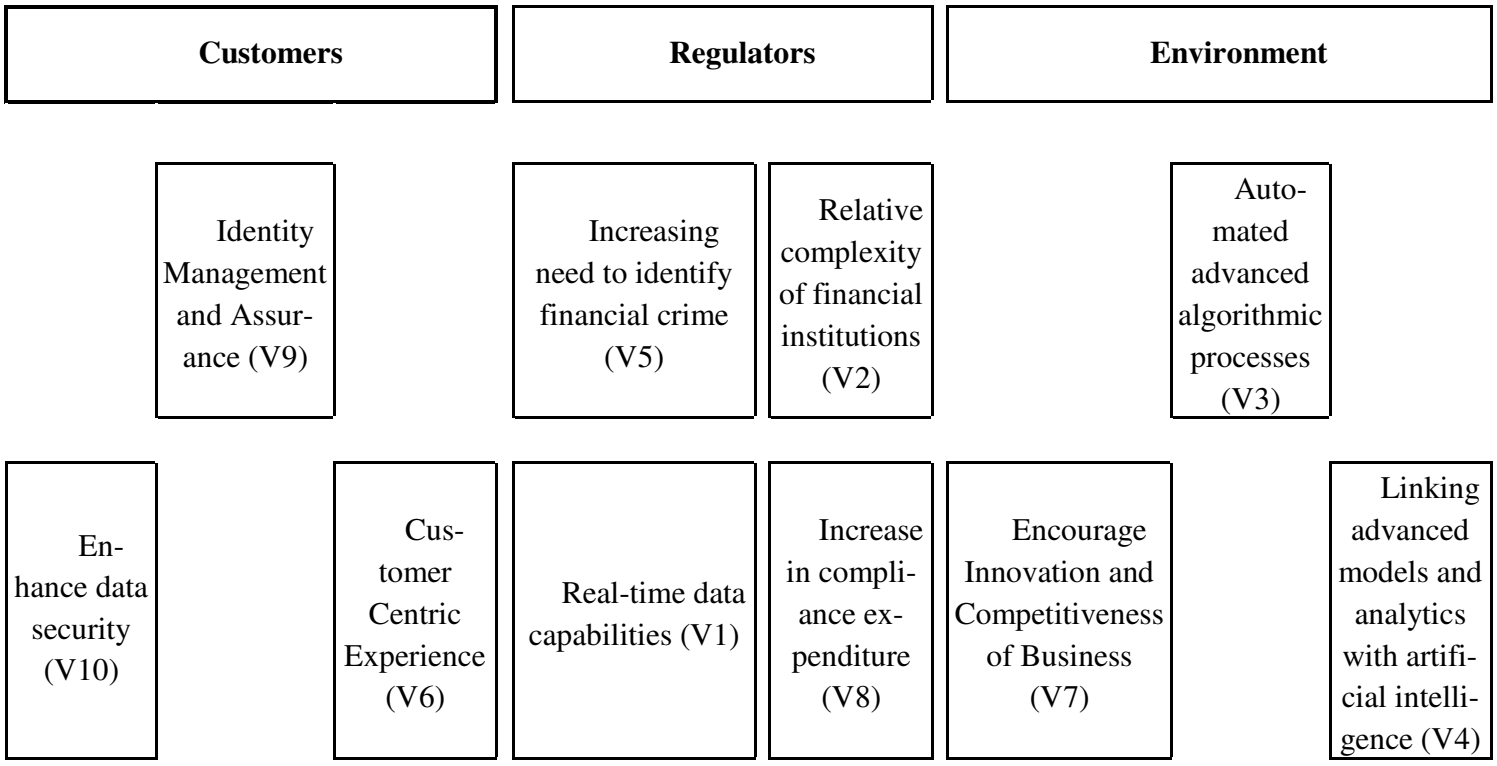

Fig. 1. Classification of determinants into three hierarchies (Source: Authors' Representation)

4 Results & Discussion

The survey was conducted in three parts -- by pairwise comparing customer-based, regulatory-based and environment-based determinants and then comparing them overall. Based on the responses collected, the following pairwise comparison matrix was obtained.

Table 4. Customer-based pairwise comparison

	V6	**V9**	**V10**
V6	1	5	3
V9	0.2	1	0.33
V10	0.33	3	1

The eigen value λ_{max} obtained after AHP analysis for customer-based pairwise comparison was 3.051. The consistency index (CI) was calculated to be 0.0193 and the consistency ratio was calculated as 0.037 which is below 0.1 and is an acceptable value.

Table 5. Regulatory based pairwise comparison

	V1	V2	V5	V8
V1	1	5	5	3
V2	0.33	1	3	5
V5	0.2	0.33	1	3
V8	0.33	0.2	0.33	1

The eigen value λ_{max} for regulatory-based comparison obtained is 4.375. Consistency index is 0.125 and the Consistency ratio is 0.1404.

Table 6. Environment-based pairwise comparison

	V3	V4	V7
V3	1	0.142	0.33
V4	7	1	3
V7	3	0.33	1

The eigen value λ_{max} for environment-based comparison obtained is 3.007. Consistency index (CI) is 0.0035 and the Consistency ratio is 0.00675. Since the CI value is less than 0.1, it implies that the obtained readings are consistent.

Based on the above results, it is evident that the AHP has produced satisfactory results as the consistency ratio was well below 0.1 for customer-based and environment-based pairwise comparison. After obtaining the pairwise comparison of each matrix, the weights of each of the determinant pertaining to the given hierarchy was calculated by first taking the geometric mean of the row of the matrix.

The weights were then calculated by dividing the geometric mean of the given determinant to the sum of the geometric mean. The ranking is determined by giving priority to the highest weights and subsequently ranking each determinant based on the hierarchy.

Table 7. Local weights and rankings of customer-based hierarchy

	Local weights	Ranking
V6	0.63699	1
V9	0.10473	3
V10	0.25829	2

Table 8. Local weights and rankings of regulatory-based hierarchy

	Local weights	Ranking
V1	0.50387	1
V2	0.29091	2
V5	0.13009	3
V8	0.07511	4

Table 9. Local weights and rankings of environment-based hierarchy

	Local weights	Ranking
V3	0.087946	3
V4	0.66941	1
V7	0.24264	2

To determine the overall weight of each of the determinant, the weights of the hierarchies are determined by constructing a pairwise matrix and calculating the weights likewise.

The matrix was obtained from the survey responses as below:

Table 10. Hierarchical pairwise comparison

	Customers	Regulators	Environment
Customers	1	3	5
Regulators	0.333	1	3
Environment	0.2	0.333	1

The eigen value λ_{max} obtained after AHP analysis for hierarchical pairwise comparison was 3.039. The consistency index (CI) was calculated to be 0.01925 and the consistency ratio was calculated as 0.037 which is below 0.1 implying consistency and a satisfactory result.

The consistency ratios of all the payoff matrices are well below 0.1 which is the acceptable value. This implies that the comparisons are of good consistencies. The weight of each hierarchy is calculated by dividing the geometric mean of each row to the sum of geometric mean.

Table 11. Weight of Hierarchy

	Weights	Ranking
Customers	0.63699	1
Regulators	0.25828	2
Environment	0.10473	3

To calculate the global weight of each of the determinants, each of the determinant's local weight is multiplied by its hierarchical local weight. This will give the ranking of each of the determinants and help in prioritizing the determinant while adopting RegTech services. The priority for ranking is given for the determinant having the largest weight. The above Table 11 shows the weightage of each hierarchy after developing AHP and Table 12 shows the weightage and ranking of each of the determinant. The global weights give the overall weightage of each determinant while the local weights give the weightage of the determinant within its predefined hierarchy.

Keep in mind that the local weights give the weightage of the given determinant against its allocated hierarchy. For example, the local weight of Customer-Centric Experience (V6) is 0.6369 or 63.69%. This is the weight of the given determinant inside the Customer-based hierarchy. The global weight or the overall weight of the determinant is calculated by multiplying the local weight to the weight of Customer-Based hierarchy, i.e., 0.6369 * 0.6369 = 0.40575 or 40.57%. From Table 11 of the hierarchies, customers are ranked 1st in the list with a weightage of 63.7% followed by Regulators at 25.83% and Environment at 10.47%. Of the determinants from Table 12, customer centric experience is getting the highest weightage of 40.58%. This is evident from the fact that the RegTech solutions are tailor made exclusively for the customers to provide a seamless user experience. The UAE is a major hub that prioritizes delivering to its customer and is keen on enhancing and regularly upgrading customer satisfaction to promote happiness and wellbeing. Data security comes second with 16.45% which is a prime factor in gaining customers and the stakeholders' trusts in the business.

Table 12. Global weights and rankings of determinants of RegTech

Determinant	Local Weights		Global Weights	
	Weights	Ranking	Weights	Ranking
Customer-Centric Experience (V6)	63.70%	1	40.58%	1
Enhance Data Security (V10)	25.83%	2	16.45%	2
Real-time data capabilities (V1)	50.39%	1	13.01%	3
Relative complexity of financial institutions (V2)	29.09%	2	7.51%	4

Linking advanced models and analytics with artificial intelligence (V4)	66.94%	1	7.01%	5
Identity management and assurance (V9)	10.47%	3	6.67%	6
Increasing need to identify financial crime (V5)	13.01%	3	3.36%	7
Encourage Innovation and Competitiveness of Business (V7)	24.26%	2	2.54%	8
Increase in compliance expenditure (V8)	7.51%	4	1.94%	9
Automated advanced algorithmic processes (V3)	8.79%	3	0.92%	10

The UAE has set in place many legislations to protect the data and the privacy of the persons and the companies. Ensuring that data is provided in real-time becomes another major driver for RegTech services and holds 13.01% weightage. Technology plays a major role in the success of RegTech services. The existing regulatory processes often involve manual and error-prone methods with regards to old management protocols that lead to chaotic and inefficient environments. RegTech solves this issue by ushering into the digital data era using the latest and the most efficient technology. The rest of the determinants hold low weightage and are dependent on other determinants.

5 Discussions and Implications

The study examined the importance of RegTech and the driving factors behind RegTech. The findings through an extensive literature review proposed 10 determinants for adoption of RegTech services. With the help of Multi Criteria Decision Making Approach (MCDM), AHP analysis was done to understand the focus of RegTech services and an attempt to understand the major driving factors of RegTech. To further enhance customer satisfaction, companies in the UAE must be ready to adopt RegTech that promises to provide a customer-centric, user friendly experience to its valuable customers. The findings of this study contribute to the existing companies in UAE to heavily focus on adopting RegTech within their businesses [3]. Based on the AHP findings, it is observed that customers play the major driver factor in RegTech determinants. It is evidenced by the fact that the UAE government lays special significance on consumer protection and consumer rights. This paper presents one of many studies that attempt to promote the adoption of RegTech services in the United Arab Emirates. RegTech can greatly favor UAE markets as it brings in a standardized form of the regulatory domain mixed with the vast array of new technologies across the world. The UAE has already made strides into embracing the concept of RegTech within their companies. This has already begun with Abu Dhabi Global Market launching sandbox programs designed to simulate the structure and functioning of RegTech within their businesses. The findings will help regulators and stakeholders

understand the benefits of adopting RegTech which can be further expanded to the MENA region. The findings of this study may lead the way to determine many more drivers due to the dynamic nature of RegTech and help regulators and stakeholders set up many more RegTech firms in the UAE.

6 Conclusions and Future Scope

This paper presents the AHP analysis using empirical data and identifies several specific determinants of RegTech which are notably effective in encouraging RegTech services in the UAE. In the report present, the driving factors for RegTech are identified through various research papers and are analyzed through AHP which does a pairwise comparison of each determinant. A survey was taken to establish a pairwise comparison of each of the determinants to develop the AHP analysis. The results of the AHP process imply the weights of each key indicator which contribute to why companies must adopt RegTech. The study finds that providing customer-centric experience as the largest weighted determinant at 40.8%. Furthermore, ensuring data is secure is ranked second from AHP analysis. Industries and financial institutions must ensure that their data is secure to prevent unauthorized access. RegTech is a currently growing field and has a vast potential to reach out too many markets and provide its service [5]. Many UAE banks and stakeholders can benefit from utilizing RegTech services to provide a safe and seamless user experience to its customers. The AHP technique presented in this paper is qualitative in nature and based on one's perception of a given idea. The results cannot be generalized to all companies present in the UAE. The research was conducted only from a sample of 75 participants without involving many experts' opinions. Since RegTech changes dynamically due to its vast potential and currently developing field, the data obtained may not hold true a few years down the line [8]. Further studies may consider a greater number of participants and take into consideration more expert opinions on RegTech to better understand and analyze the priorities of the obtained determinants. The research was conducted keeping in mind the financial industries. The results may vary if the same study is performed in a different market or in a different geographic location. As the United Arab Emirates is not a very prominent RegTech hub, further studies may consider a generic study that involves all markets over a vast geographical area that may include the entire MENA region or the European region where RegTech is very prominent.

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