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THE IMPORTANCE OF ENTREPRENEURIAL EDUCATION IN DEVELOPING ENTREPRENEURIAL SPIRIT FOR THE STUDENT

Taleb Soumya Chahinez[1], Ghezal Meriem[2]

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Abstract

This research paper aims to examine the entrepreneurial spirit levels of the students under study, and focuses on entrepreneurial education by adopting modern education that encourages initiative, creativity, innovation, independence and perseverance, self-confidence, etc., and works to spread the spirit of entrepreneurship and awareness among students about the importance of initiative in establishing entrepreneurial activities, as well as to enable them to acquire knowledge and information about the entrepreneur and the contracting companies in a more objective manner in order to avoid the failure of the projects.

The questionnaire was designed from samples of 300 students at the University of Sidi Bel Abbes, using the SPSS program to process it and study it, the value of the (Cronbach's α=0.970), whish confirms that the Entrepreneurial education has effect on the student by raising the entrepreneurial spirit, every one of them wants to be independent and make a profit by creating a new entreprise.

Keywords: *entrepreneurial education; entrepreneurial spirit; entrepreneurial orientation*
JEL Codes: *L2, L26, I20, I21.*

Introduction

Entrepreneurship is one of the important mechanisms for establishing a new business in any economy, as this mechanism requires the presence of distinguished people who assume this role. Through training and education, the university is one of the most reliable means for training individuals and obtaining the spirit to start a path.

The entrepreneurial spirit is in fashion. Politicians, educational leaders, business leaders, entrepreneurs themselves see it as the source of the entrepreneurial culture

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necessary for the economic renewal that our old countries need, so much is at stake that entrepreneurship has been recognized by the European Union as one of the eight key skills for lifelong learning. “It defines both intellectual faculties and dispositions to act”. What prepares you to eventually consider becoming an entrepreneur and what must be trained in university? Ways of thinking? Ways to act? Knowledge? Capacities? Skills? Qualities? Motivations?

In order to achieve this goal on the behavioral level, the university must interact with these changes and in turn be a space for discovering entrepreneurial youth capable of producing creative ideas and establishing productive institutions working to create innovative job opportunities and provide job positions with a focus on the importance of diversifying economic activity.

And for that, the university has had to include educational units that serve this purpose by expanding the horizon of thinking and modifying the behaviour of the university student to transform his professional orientation towards entrepreneurship.

In an effort to show the importance of entrepreneurial education in promoting the entrepreneurial spirit, the main problem was crystallized as follows: How can entrepreneurial education affect the development of entrepreneurial spirit for students of university of Sidi-Bel-Abbes**?**

Study Hypothesis:

H1: Entrepreneurial education affects positively students’ orientation towards establishing an enterprise.

H2: The Entrepreneurial Orientation has an effective role in raising the entrepreneurial spirit for the students and motivate them.

H3: The activities and the formations of entrepreneurial path affect positively ~~on~~ the student’s spirit.

Study Objective:

This study aims to clarify the importance of spreading entrepreneurial education in the university community and its impact on creating an entrepreneurial culture among students and raising their entrepreneurial spirit, while presenting proposals that contribute to the establishment of a start-up, which contributes to the economic development of the country.

Literature review

Entrepreneurial capacity refers to the ability to identify and seize opportunities, and to plan and manage creative processes of great cultural, social or financial value. It requires

good knowledge of contexts and opportunities, approaches to planning and management, ethical principles and self-awareness, it includes the skills of creativity (imagination, critical thinking, ability to solve problems), communication, mobilization of resources (people and objects) and management of uncertainty, mystery and risk.

Entrepreneurship also includes the behavior of knowing one's own abilities, motivation, perseverance and valuing the ideas of others, to optimize entrepreneurship education in the development of the skills. The capacity of schools to create conducive and stimulating learning environments is just as important as the personal skills of students and motivation.

Definition Of Entrepreneurship

Entrepreneurship is an approach that is represented in striving towards innovation, it is the organization and reorganization of economic and social mechanisms in order to exploit certain resources and situations that accept risk ; it is also a path that works to achieve a certain value, and this is achieved by allocating the time and work necessary to obtain it in the form of satisfactory results. (Wassim & Hassan, 2019)

Entrepreneurship is defined as an activity that involves the discovery, evaluation and exploitation of opportunities to introduce new goods and services, ways of organising, markets, processes and raw materials through organising efforts that previously had not existed (Thokozani, 2012).

The entrepreneur is considered as the main actor in entrepreneurship, because he is the owner of the investment idea and the owner of the new project, as he is the one who works to manage and run it and is looking to develop it appropriately. The entrepreneur is every person who runs an enterprise for his own account and operates various factors of production in order to produce services or products. (Azzedine, 2005)

According to Fayolle (2003, p38), the entrepreneur is the individual who is in a state of uncertainty, offers new products or services and engages in work that contains risk. As defined by Schumpeter (1926), the entrepreneur is that person who has the ability to convert a new idea or new invention into innovation in the markets to achieve economic growth, and has the entrepreneurial desire, entrepreneurial spirit.

The concept was associated with the spirit of entrepreneurship and the practiced activity that carries the meaning of renewal and change, capabilities and skills do not only belong to people who want to establish an entreprise (Rajhi, 2011), but include individuals who seek to develop their competencies and capabilities in order to adapt to the factors of change, which makes them characterized by flexibility and openness to the other, and to develop a sense of entrepreneurship, stimulating motivation and entrepreneurial spirit to establish an innovative entreprise.

The entrepreneurship spirit, refers to the ability of a person to identify and seize opportunities, to move from idea to realization and to plan and manage processes to achieve objectives.

Entrepreneurial education

The history of the teaching of entrepreneurship dates back from 1947 when MACES introduced the first course in entrepreneurship at Harvard Business School, where this course attracted the attention of 600 students. Since then, the American universities have led many other universities in the world towards entrepreneurship education, thanks to the University of Southern California as the first university to offer the first modern and advanced course in entrepreneurship in 1971.

Entrepreneurial education is defined as: "a group of formal education methods that are based on informing and training any individual who wishes to participate in economic and social development, through a project aimed at enhancing entrepreneurial awareness and establishing and developing small business projects." (Carrier, 2009)

We can define entrepreneurial education as: “that educational process that aims to provide students with the necessary knowledge and skills, and to stimulate and promote their motivation in order to encourage them to succeed in many levels.“ (Randerson & Shaker, 2012)

It may also be referred to as: “a series of activities aimed at enabling the individual to realize and develop his knowledge, skills and values, to acquire the skill of analyzing problems in creative methods.“ (Matthias, 2011)

The educational approach has limited the tasks of entrepreneurial education to enhancing the value of self-esteem of the individual learner and instilling the value of self-confidence in himself, which leads to nurturing creative talents and building values and skills related to expanding his perceptions in study and the subsequent business opportunities that make some of them adopt necessary methods and behaviors related to planning the course of entrepreneurial work and practicing the profession.

The importance of entrepreneurial education:

The importance of entrepreneurial education evident in inculcating the entrepreneurial spirit, activating distinguished capabilities, and discovering innovative skills, establishing high-tech business projects to made succuesfull leaders.

Increasing the chances of success businesses related to the orientation, knowledge production, wealth production, and minimize unemployment, by producing goods/services intended to serve the economy, in a way that supports building creative young entrepreneurs

Objectives of entrepreneurial education: (Al-Joudi, 2015)

- Awareness of entrepreneurship: Informing about entrepreneurship and the path of an entrepreneur.
- Business creation: train technical, human and managerial skills to generate your own income, create your own business or create jobs.
- Development of trainers: develop skills useful for consulting, teaching and monitoring small businesses.
- Business development: responding to the specific needs of owner-managers.

Entrepreneurial Education Programs:

In order to achieve the requirements of this type of education, a real partnership must be established between governmental organizations, private organizations, and supporting agencies affiliated with private sector organizations, which include the latter on (García, José, Alexander, Brizeida, & Lizette, 2017):

- ✓ Infrastructure: This is done by providing suitable halls equipped with the necessary tools, computers and various other devices such as slideshows and software that provide practical and training applications that facilitate dealing with entrepreneurial content.
- ✓ Providing human resources: by appointing qualified individuals who have the ability to apply advanced training strategies and methods in entrepreneurship and use technology appropriately to serve this process in order to change the mindsets and behaviors of the learners, with the need to provide a supportive environment entrepreneurship education embodies the steps to implement the programs, plans and objectives of this type of education with the total support of all concerned parties from the top to the bottom to make the initiative a success in society, focusing on previous experiences in this field in terms of practice and application of educational contexts.
- ✓ Adaptation: These requirements make adaptation a legitimate requirement in response to the great challenges and pressures imposed by the nature of this globalized era.

Entrepreneurial Orientation

Table no. 1 – Comparative analysis of the definitions of the three dimensions of Entrepreneurial Orientation

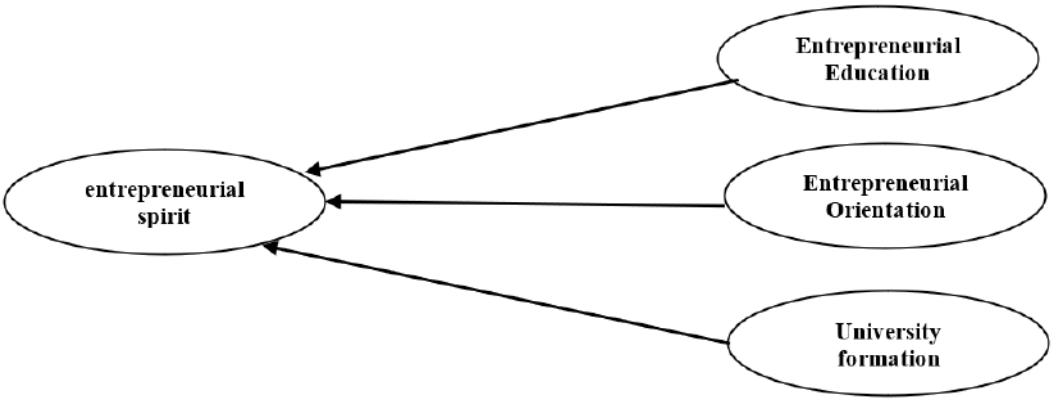
Variables	Definition	Source
Innovation in Product/ market	Does the firm seem particularly innovative in terms of the number and novelty of new products and services which are introduced, and the new markets which are entered? Innovation combination: Innovation in goods/services methods. Product research &development and technological leadership. New frequency in product introduction. Change degree in production line.	(Miller, 1983)
Proactiveness of decisions	The Enterprise reacts to the trends in the environment and shapes it by introducing new products, technologies, administrative techniques. A reactive firm (low proactiveness) follows the leader while a proactive firm is the first to act.	(Miller, Danny; Peter, Friesen, 1982)
Risk-taking	Is there evidence that top managers are risk averse (score low) or does the firm frequently make large and risky resource commitments? Which of those have a reasonable chance of costly failure? Strong proactivity for high risk project (with chances of very high return). Bold wide ranging acts are viewed as a useful and common practice.	(Covin & Miller, 2014)

Source: Author's source based on Miller's research

Research Methodology

Through this study, we choosed the students of the Algerian University of Sidi Bel Abbes, to study their entrepreneurial orientation, so we create a questionnaire that developed at the level of the House of Entrepreneurship because of its role in the formation of students, who have the desire to create their own business (starting a new project), and from there we have collected about 300 answers, which allowed us to analyze their desire, and we used SPSS 25 and PLS software for data analysis.

Figure no. 1 The Study form



Source: Authors' own research

Sample equation

The Stephen Thompson equation, the Robert Mason equation, the Richard Geiger equation, and the Herbert Arkin equation are all examples of sample size equations, we calculated the sample size using the Thompson equation (2012), which is one of the most important and well-known equations for determining the sample size based on study community.

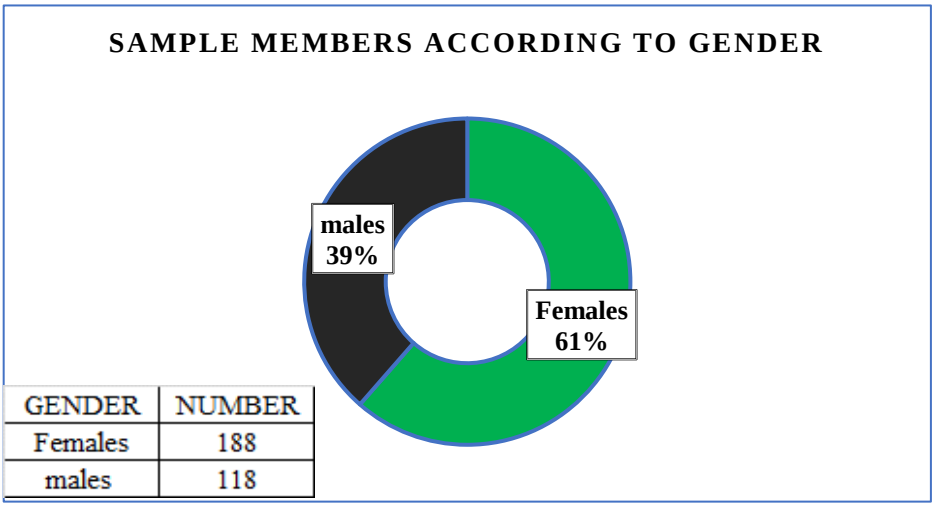
$$n = \frac{N \times 0.50(1 - 0.50)}{\left[[N - 1 \times (0.10^2 \div 1.65^2)]\right]}$$

N community size
Z The standard score corresponding to the
Significance level is 0.90 and is equal to 1.65
D error rate = 0.10
P Availability of the characteristic and the neutral = 0.50 N=300

Results and discussion

- **Personal data**

Figure no. 2 Distribution of sample members according to gender(n=300)

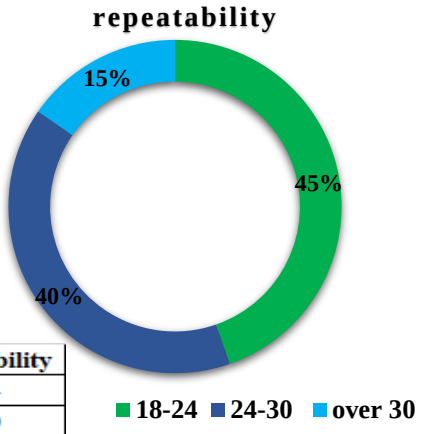


GENDER	NUMBER
Females	188
males	118

Source: Authors' own research on spss results

We note from the figure No. 2, that the majority of the study sample are females, as they constitute 61% of the total number of students in the sample and males represent 39%, and this is because of their interests in creating their own project as they said.

Figure no. 3 Distribution of sample members according to age(n=300)



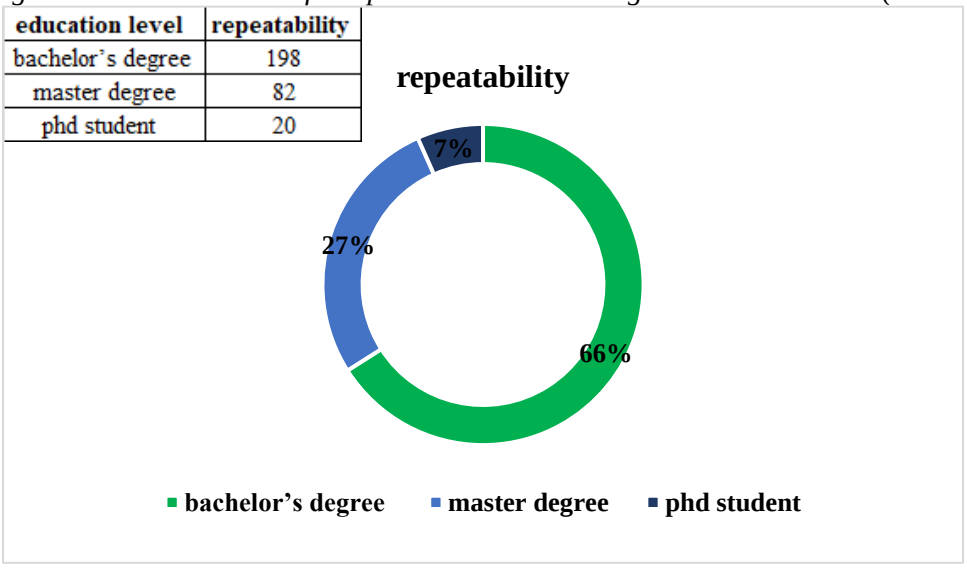
age	repeatability
18-24	134
24-30	120
over 30	46

Source: Authors' own research on spss results

As can be seen in figure No. 3, most of the students are between 18 and 30 years old, with a rate more than 40%. The reason for that is that most of the students who have enrolled in the majors that exist in the university have completed a bachelor's degree and returned for a master's degree, so we raised the age group and included it in the classification.

Figure no. 4 Distribution of sample members according to educational level(n=300)

education level	repeatability
bachelor's degree	198
master degree	82
phd student	20



Source: Authors' owns based on spss results.

This variable includes three levels, and according to the above results, we find that bachelor students represent the highest percentage estimated at: 66%, and followed by a master's degree students with a rate of 27%, while the PhD student group was represented by a rate of 7%.

- **Sample Adequacy:**

$$MOj = \frac{\sum i \neq jr^2 ij}{\sum i \neq jr^2 ij + \sum i \neq j^u}$$

Table no. 2 – KMO test for Sampling Adequacy

KMO TEST	N
*0.*879	300

Source: Authors' own based on spss results.

Through the results, we note that the value of KMO is greater than (+0.5) and approaches (+1) (***0.879***), and this indicates the suitability or sufficiency of the sample size for the statistical analysis process.

The reliability and validity of the questionnaire*:*

The stability of the questionnaire was verified through the alpha-Cronbach coefficient method, through the result of the table No. 2; It is clear that the value of the alpha-Cronbach coefficient and the reliability coefficient was much more than (0.7), which indicates that the questionnaire items have a high degree of sincerity and stability.

The value of the alpha-Cronbach coefficient for all expressions was (0.970) and the value of the reliability coefficient for all statements (0.976), meaning that all the items of the study measures have high reliability and stability.

Table no. 3 – Cronbach's Alpha test results on measuring questionnaire overall stability(n=300)

Phrase count	Reliability (honesty)	Cronbach's alpha (confidence)
40	0.976	0.970

Source: Authors' own based on spss results

Confirmatory factor analysis*:*

We used Warp PLS v5.0 program in the confirmatory factor analysis, and the results were as follows:

Table no. 4 - Confirmatory Factor Analysis (CFA)

Phrases		Entrepreneurial spirit	Entrepreneurial education	Entrepreneurial Orientation	The activities and entrepreneurial formations
Entrepreneurial spirit	ES1	(0.816)			
	ES2	(0.848)			
	ES3	(0.846)			
	ES4	(0.847)			
	ES5	(0.856)			
	ES6	(0.882)			
	ES7	(0.853)			
	ES8	(0.861)			
	ES9	(0.733)			
	ES10	(0.716)			
	ES11	(0.738)			
	ES12	(0.765)			
	ES13	(0.777)			
Entrepreneurial education	ED1		(0.852)		
	ED2		(0.851)		
	ED3		(0.858)		
	ED4		(0.895)		
	ED5		(0.847)		
	ED6		(0.856)		

	ED7		(0.882)		
Entrepreneurial Orientation	EO1			(0.816)	
	EO2			(0.848)	
	EO3			(0.846)	
	EO4			(0.846)	
	EO5			(0.769)	
	EO6			(0.754)	
	EO7			(0.773)	
	EO8			(0.793)	
The activities and entrepreneurial formations	AEF1				(0.848)
	AEF2				(0.846)
	AEF3				(0.754)
	AEF4				(0.793)
	AEF5				(0.786)
	AEF6				(0.769)
	AEF7				(0.754)
	AEF8				(0.797)
KMO TEST		0.832	0.942	0.898	0.856

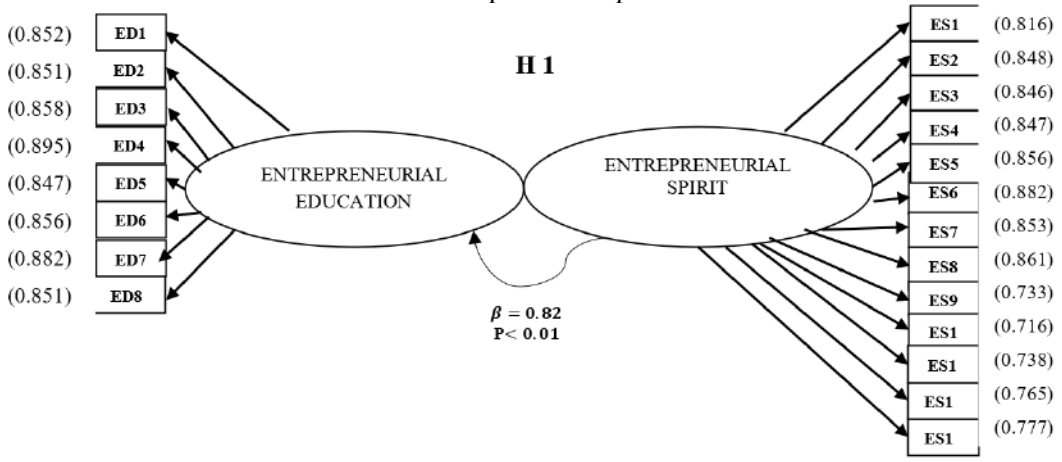
*Source***:** authors used Warp *PLS v5.0 (n* = 300*)* and SPSS V 25

The values of the remaining expressions after the AFC confirmatory factor analysis process all exceed the value (0.7), and the sample adequacy test for each axis also exceeded (0.8), all of which are good statistical indicators to complete the remaining stages of statistical analysis.

Hypothesis test*:*

H1: Entrepreneurial education affects positively the students' orientation towards establishing an enterprise.

Figure no. 5 relationship between the entrepreneurial education and the spirit of entrepreneurship

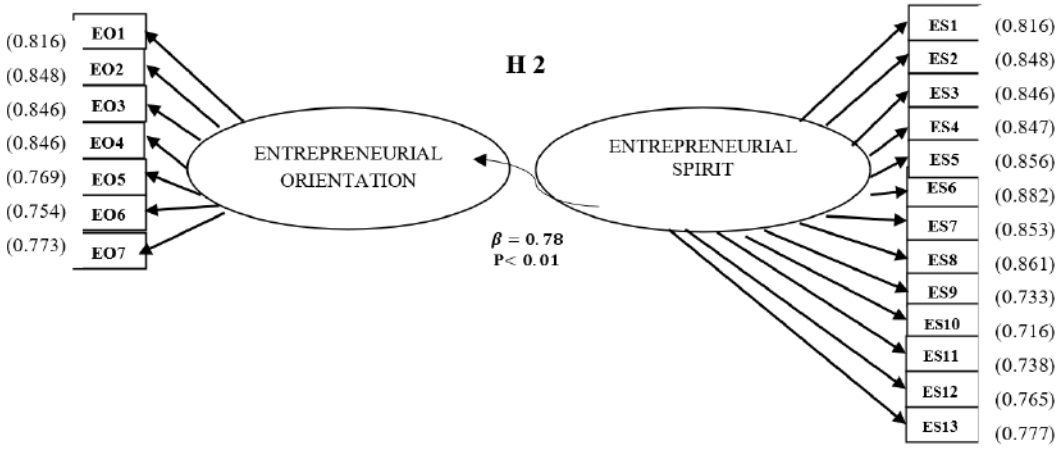


Source: authors used Warp PLS v5.0 (n = 300) program

After modelling the structure relationship between the entrepreneurial education and the entrepreneurial spirit from the above figure No.5 the value of $\beta = 0.82$ *and this* lead to accept this hypothesis which saying that entrepreneurial education affects positively on students? orientation towards establishing an enterprise.

H2: The Entrepreneurial Orientation has an effective role in raising the entrepreneurial spirit for the students and motivate them

Figure no. 6 Relationship between the entrepreneurial orientation and the spirit of entrepreneurship

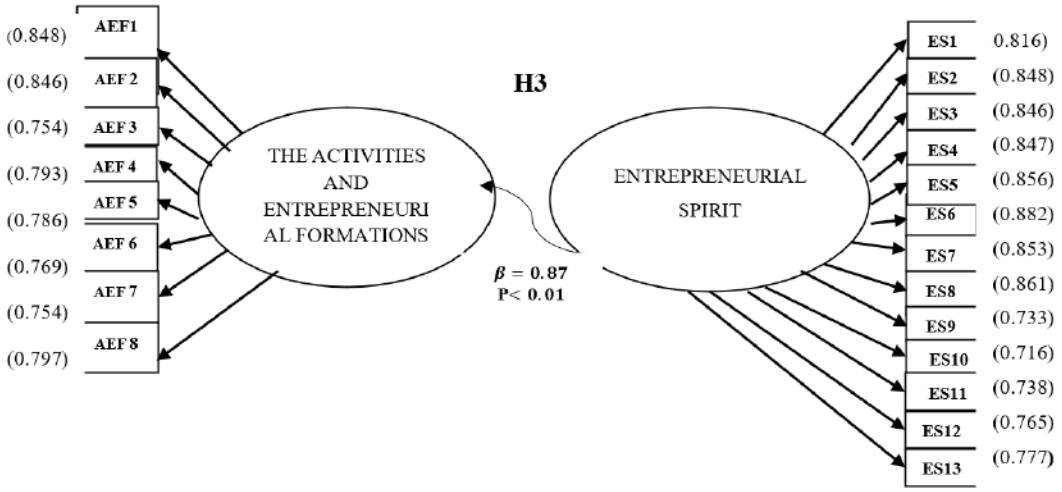


Source: authors used Warp PLS v5.0 (n = 300) program

After modelling the structural relationship between the entrepreneurial orientation and the entrepreneurial spirit**,** we note from the figure N06 that the value of β is positive (0.78), and the level of morale is less than (0.01). All these indicators are positive and indicate the validity of the hypothesis that there is a positive relationship between the entrepreneurial orientation and spirit of entrepreneurship.

H3: The activities and the formations of entrepreneurial path affect positively the student's spirit

Figure no. 7 Relationship between the activities and entrepreneurial formations and the spirit of entrepreneurship



Source: authors used Warp PLS v5.0 (n = 300) program

Figure No.7 shows how the model depicts the relationship between the spirit of entrepreneurship and the activities and entrepreneurial formation, and after modelling the structural relationship between the two, we discovered that the value of β was 0.87, indicating entrepreneurial activities have a positive effect on student's orientation and raise the level of being independent and having their own enterprise.

Conclusion

This article has analysed the entrepreneurship education in developing the entrepreneurial spirit of the students at university of Sidi Bel Abbes- Algeria, as a result of the analysis of the obtained results, the following conclusions have been formulated:

1. The students under study possess the nature of the entrepreneurial personality, which reflects a great degree of their entrepreneurial spirit. The study revealed that there are no differences in the spirit of entrepreneurship among students as every one of them wants to be independent and make a profit by creating a new entreprise.
2. After testing the hypotheses, we were able to prove them, and from the opinions of the sample, we found that the activities and events of the university such as forums and study days, as well as various field visits to institutions and contacts with businessmen, all this contribute the formation of the student entrepreneur by

strengthening their knowledge balance and establishing relationships with businessmen, which will inevitably contribute to pushing towards the formation of the entrepreneur student.

3. Entrepreneurial education aims to provide students with knowledge and provide them with the necessary skills in order to encourage them to work in entrepreneurship on a large scale and at many levels. Entrepreneurial education focuses in its content on individuals' awareness of and identification of opportunities, initiative, risk and independence in order to create a new generation of entrepreneur and increase the entrepreunarial spirit.

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CHANGE MANAGEMENT PRACTICES IN FAST FOOD FIRMS

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Abstract

Organizations have faced challenging concerns such as complex and intense system dynamics, structure-focused, person-focused, and profitability-focused problems. As a result, the study looked at change management techniques and employee job satisfaction at a few fast food restaurants in Lagos State. The Delphi study method was used to interview fifteen top executives from the selected organizations. A content analysis was used to examine the responses. A substantial association was found between change management strategies and job satisfaction in fast food restaurants in Lagos, Nigeria. According to the report, leaders in fast food companies should place a high priority on leadership style as a vehicle for organizational development. The study advises using elements of change management to increase desire and engage stakeholders mentally and emotionally with the change.

Keywords: *Change Management; Fast food; Global trend Leadership Styles; Organisational Policy*

JEL Codes: *M1, M19*

Introduction

The recent trend of pandemics like Ebola and the Novel Corona virus has altered many parts of the global economy. The rules for physical separation have left the fast food business with no choice but to adapt its offerings and operations. Employees were disproportionately affected by these changes. Previously, fast food was predicted to increase rapidly due to urbanization and Nigerians' increasingly hurried lifestyles, which pushes people to seek a quick fix for their meal requirements (Tahiru et al, 2022; Wanza &

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Nkuraru, 2016). However, the Continent was first struck by the Ebola outbreak and, more recently, by the Novel Corona virus, which caused individuals to avoid each other through social distance. Pandemics have impacted organizations all around the world, causing them to experience diverse and intense transformation through process redesign, restructuring, mergers and acquisitions, and overall quality programs. Organizations that are static often do not survive and are relegated to the role of playing "catch-up" to their competitors, either by being absorbed into larger entities or being dissolved into a collection of corporate assets and liabilities (Jaffe & Grubman, 2015, Burnes, 2000). Strategic management is an integral part of the daily life of senior executives which helps in decision making (Yaneva, 2020).

Change is a vital driver of organizational success in the workplace; if only the emphasis is placed more on managerial behavioral factors—how people act and think—rather than the technicalities or financial aspects of change management (Van-der, 2013; Seele & Lucia, 2017; Ojiokoro et al, 2014). According to AbuMadi (2020), change is an ever-present feature of organizational life, the rate of which has increased substantially in recent years. Every business has faced challenging issues in the past, such as complex and intense system dynamics, structure-focused, person-focused, and profitability-focused concerns (Contrafatto & Burns, 2013; Kansal & Singh, 2016). All initiatives aimed at helping an organization successfully accept and adopt new technologies as well as creative ways to increase employee satisfaction at the company are included in organizational change management. To adapt to new development scenarios, many firms must frequently go through change procedures. The results show that leadership, by having a greater framework for thinking about change and acknowledging the basic problems that precede change, may make a major impact on the intensifying organizational performance. Even with the best of intentions, the great majority of efforts launched by organizations have minimal impact when employees are not included in the decision-making process. As a result, organizations that do not evolve will not be able to survive and grow in an unpredictable world.

Research on change management has demonstrated that the rate of change today is higher than at any previous time in history, according to Iljins, Erina, and Gaile-Sarkane (2014). Most people experience the process of change at some point in their professional or personal lives, and being aware of it helps one to better understand how people behave in an organization. Every organization's ultimate success will be greatly influenced by its mastery of the various change management strategies as well as the elements that may thwart or encourage optimal change outcomes. Because inadequate change management skills are frequently held responsible for failed change initiatives, organizations frequently

look for and choose change management solutions. Nonetheless, this raised new concerns about whether there are any common variables that impact the relative success or failure of organizational change attempts (Lines, Sullivan, Smithwick & Mischung, 2015; Mohammed, 2013).

The ravaging effects of change management have been more crucial and severe in the following sectors of Nigeria economy. The financial system has experienced tremendous distress, the oil sector has been crumbling in-respect of prices and recently the fast food industry has been failing which if not timely and neatly managed may lead to loss of jobs, and thus become a problem in the economy. The employees will suffer from these problems and job satisfaction will be low. The pathways of the past no longer reliably guide the understanding of the needs of the present, much less of the future in the face of the dramatic change. Thus, managers in today's world must realize the fact that maintaining the status quo, is to face organizational demise. Hence, the study examined the change management being practiced by fast food industry in Lagos state and the employees' job satisfaction. Therefore, managers in today's society must recognize that sustaining the status quo would lead to corporate extinction. As a result, the study investigated the change management practices used by the fast food business in Lagos state, as well as employee work satisfaction.

Literature Review

The need for change management can arise for a variety of reasons, including an organization's growth issues, changing global markets, changes in strategy, technological change, and competitive processes such as merger and acquisition, customer pressures, or shifting markets (Catanzaro & Salas, 2006; Burnes, 2011; Kotter, 1996). Managing organizational change has become possibly the single most critical issue confronting today's manager or administrator. Organizations of all sizes are under increasing pressure to be more adaptable, responsive, and efficient. The requirement to handle a wide range of issues, such as Why and how organizations change? Are some sorts of change preferable to others? What organizational levels do managers have access to in order to impact these processes? Change management is a systematic strategy to moving individuals, groups, and organizations from their current state to a desired future state (Kansal & Chandani, 2014; Akinbola et al, 2021; Luecke, 2003). Managing change is viewed as transitioning from a problem to a solved state. It is a method of resolving organizational challenges. It is critical to diagnose or assess the problem before making modifications that will effectively solve it. Today, economic entities find ways to improve their performance, applying good practices and increasingly better and successful solutions (Bogdanova, 2022).

This considers both the strategies and resources managers use to bring about organizational change. These resources include a methodical approach for successfully transforming groups or organizations. These methods offer a framework for handling the human component of change when coupled with understanding of individual change management. The techniques for creating a change management strategy (readiness assessments), enlisting senior management as change leaders (sponsorship), communicating the need for change (communications), developing the knowledge and skills to support the change (educational training), assisting staff in transitioning (coaching by managers and supervisors), and methods for sustaining the change are all included in the organizational change management processes.

Leadership Styles: Leadership is viewed as one of the most important drivers of organizational change implementation. Most organizations' desire to achieve expected pre-determined targets is heavily dependent on leadership structuring; so, leaders should not be frightened of making a change; even if something good is lost initially, there is a potential of gaining something greater. According to Kungu, Were, and Nzulwa (2017), a leader influences workers to work harder and go beyond prior bounds by instilling trust, loyalty, administration, and respect. According to Atif (2015), strong leadership may be used to transform organizations difficult from turbulent to success, continuity, and excellence. Employee resistance can be reduced through giving chances for employees to express their views, enhancing supervisor-employee communication, educating and training, offering/ providing rewards, and motivating employees to embrace the organization's aims (Wegge, Shemla & Haslam,2014; Kowo, Akinbola & Akinriola, 2019; Rune, 2005).

Employee Job Satisfaction

Herzberg (1968) proposes a dual factor theory of employee's job satisfaction associated with the following features (achievement, recognition, promotion, responsibility, security, moral values). To achieve their goals in today's economic environment, firms require efficient and productive personnel and managers. No firm can succeed without the effort, commitment, and job happiness of its employees (Mahamood and Hossain, 2019; Obasan, 2011). The sensations that result from the notion that one's work facilitates meeting both material and psychological needs are known as "job satisfaction" (Aziri, 2008; Mbah & Ikemefuna, 2012).

Alavi and Askaripur (2003) list three reasons why businesses should give employee job satisfaction top priority: Employees who are dissatisfied leave organizations (non-security); happy workers are healthier and live longer. Connolly and Myers (2003) found that depression, anxiety, and poor physical and psychological alienation/degradation in

decision-making are all associated with job dissatisfaction. People's personal lives are impacted by their job satisfaction. Employee job insecurity is expensive from a business perspective because voluntary resignations represent an exodus of human capital investment.

Human capital investment comes at a high cost to organizations because it requires looking for potential replacements, choosing between competing replacements, integrating the chosen replacement, and formally and informally training the replacement until he achieves performance levels comparable to those of the employee who has quitted (John, 2000; Connie, 2020). Job satisfaction of employees can be broadly categorized into five distinct model categories: need fulfillment, discrepancies, value attainment, equity, and dispositional/generic components model. Many contend that each business entity, whether small, medium-sized, or large, has its own unique way of motivating its employees (Kinicki & Kreitner, 2007; Nyelisani, Ramdass & Mokgohloa, 2019).

According to Sarwar and Abugre (2013), the degree to which a job, with its specific qualities and obligations, allows an individual worker to meet his or her personal needs, is what constitutes need fulfillment. Second, the discrepancy model suggests that fulfillment results from met or occasionally disappointed expectations. Third, value attainment models are predicated on the notion that job satisfaction results from the perception that one's work is fulfilling. Fourth, equity models claim that a person's perception of how fairly they are treated at work determines how happy they are at work. This is largely determined by how one's own work outcomes—relative to his or her inputs and efforts—compare to others' input/output at work. Last but not least, the dispositional/generic component models contend that individual employee differences play a role in determining success and job satisfaction on the job that is comparable to that of workplace-related factors.

Theoretical Framework

The ADKAR approach was developed by Hiatt (2006) to bring about change in business, government, and communities. ADKAR, which stands for Awareness, Desire, Knowledge, Ability, and Reinforcement, is the name of the model. The change management process is sequential because each of these phrases refers to a different stage in the change process. Phases of change for the business and personnel must take place at the same time for transformation to be successful.

Awareness: To start a change, a person must understand what needs to change and why. What are the consequences of not changing? How would the individual benefit from the change? Individuals are unlikely to want to change unless they are aware of the need for change.

Desire: Once an individual understands what needs to happen, it is critical to find the desire to support the change. Without the support, people executing the change may face a lot of opposition. Many corporate executives make the mistake of assuming that by raising awareness of the need for change, they have also created demand. What steps must be taken to generate desire? Several strategies may be employed, including the use of previous organizational habits and triumphs, as well as demonstrating how the change would benefit individuals affected by the change.

Knowledge: The individual is given the information needed to make a change, which includes information about the new program, processes, or behavior that will be adopted. It is critical to provide the information because people do not always seek to do things they do not know how to perform.

Ability: This is the stage at which knowledge becomes action, or concepts become actuality. Knowing how to swim is not the same as actually swimming. As a result, an individual will require assistance and support when applying the knowledge required to effect change. Learning something new, having someone to turn to for questions and other necessary information when you don't know what to do next is a welcome support.

Reinforcement: When the desired consequence is realized, the individual must be informed. Celebrating tiny victories can be crucial to the continuing adoption of a change. Although group praise is useful, individual recognition of accomplishment for those who have worked hard to make a change is vital and meaningful. Outside forces, poor decisions, or fear can all drive change. Even when changes are motivated by the correct motives, they are difficult to implement and might have unintended repercussions that are not necessarily favorable.

Empirical Review

Oji-okoro et al. (2014) examined how employees viewed change's influence as a strategic benefit in the Nigerian banking industry. Data was acquired for the study using a main source of questionnaires and empirical analysis. The statistical technique employed for the analysis was multiple regression. The study found a relationship between the personal job outcomes variable and employees' evaluations of change success. As a result, change agents should continuously consider job security and motivating benefits when executing change.

Results of planned organizational reform in the Nigerian public sector: lessons from Nigerian higher educational institutions, according to study by Wanza and Nkuraru from 2016. The article looks into how the Nigerian government's education reforms have affected various organizations, particularly those in higher education. The qualitative

approach was used, and a convenience sample of 31 people was interviewed about the topic in an unstructured but guided interview. The respondents are split into two categories: those working on reform agenda creation and those working on education reform implementation. The study's findings indicate that while reforms are simple to imagine, they are challenging to put into practice and encounter opposition from the general public. According to the report, cultural differences have a significant impact in the creation and implementation of the reform agenda. The article suggests that objective analyses of those reforms be conducted rather than biased interpretations based on political considerations.

A study titled "job satisfaction and employee turnover intentions in Total Nigeria plc. Lagos state" was done by Mbah and Ikemefuna in 2012. As three characteristics of job satisfaction that affect employee turnover intention, it specifically examined pay satisfaction, task nature, and supervision. Data for the study were gathered using a survey approach, which involved distributing questionnaires, conducting interviews, and using archived documents. Three hundred (300) permanent employees were given copies of the questionnaires from a population of four hundred and eighty-one (481) people, excluding expatriates, using four (4) major hypotheses at the.05 level of significance. It was found that a standard pay structure, a welcoming work environment, and effective supervision help with retention. Job satisfaction specifically lowers employee turnover intention.

The effects of transformational leadership on change management in a few Kenyan county governments were studied by Kungu, Susan, and Nzulwa (2017). The study used the descriptive research methodology and a sample size of 218 respondents, selected from a population of 500. Regression analysis was employed to evaluate the relationship between the independent and dependent variables. According to the regression analysis, r=.581 and r2=.338. The study's conclusions indicate that transformational leadership significantly affects change management in county governments. In order to shape and develop workers who accept change rather than resist it, managers and leaders are advised to adopt this leadership style.

Methodology

In this study, respondents from each target category were chosen for interviews using the Delphi approach. For this research, 8010 workers from various fast food outlets in Lagos State were enrolled. The top five fast food chains with a geographic presence in every divisional region are Mr. Biggs, Sweet Sensation (S.S), Tastee Fried Chicken (TFC), Tantalizers, and Chicken Republic. All of these businesses have been in business for at least 15 years. The study contacted individuals with appropriate expertise and experience in fast food management in order to achieve the study's objectives. Therefore, it was agreed

to carry out a Delphi study. The Delphi method, a multi-round survey technique, has been successfully and frequently utilized to elicit professional perspectives on potential developments and occurrences. In the sphere of management research, the Delphi method has been recognized as a useful tool. The benefit of this strategy is that it enables the researcher to get input from a panel of experts, who are typically preoccupied with hard professions and have limited free time to participate in research. These people can participate in a discussion and debate using the Delphi technique anonymously, on an equal basis, in brief sessions, and without getting up from their desks. The formation of the expert panel is obviously essential to the success of the study.

Data Analysis of the Research Preposition

In Nigeria's Lagos State, the research hypothesis looked on the elements of change management methods used in fast food outlets. Only fifteen of the twenty-five invited participants in the Delphi process actually showed up. Many people call to the series of contacts that make up the Delphi process as waves. Two waves are often regarded as the minimum, and three waves are generally seen as the most successful. There were three waves, each with fifteen participants. Answers to the third and fourth research questions are given by the analysis. The Delphi method was created with the intention of examining and probing senior executives' perspectives on the elements of change management and the procedures for change management practices in fast food establishments in Lagos State.

Respondent's Background

Since they hold the potential to produce the study's most pertinent data, the study looked into the viewpoints, experiences, and attitudes of important stakeholders. The participants in a Delphi method were fifteen people drawn from three waves. Before the Delphi proceedings began, the chosen groups verbally approved. All participants also received information about the study's objectives, methods, and confidentiality. They were informed that at no time, including before, during, or after the study's analysis, would they be identified by name or by any other means that could reveal/disclose their identity. Due to this, each respondent was assigned a code that allowed for identification in the study, as shown in Table 1. The participant codes are pseudonyms which represented the identities of the waves that participated in the Delphi process to prevent identification and protect confidentiality.

Table no. 1 – Respondents' Background Information

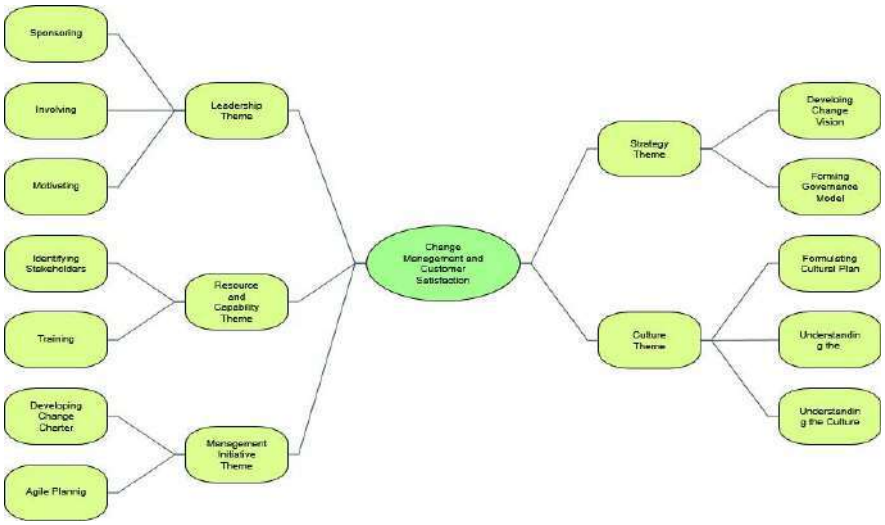
S/No	Location	Job Title	Waves	Participants code
	Lagos Island	Sales Manager	1	Res1
	Lagos Island	Sales Manager	1	Res2

Lagos Island	Customer Service Manager	1	Res3
Lagos Island	Manager	1	Res4
Lagos Mainland	Public relations Officer	2	Res5
Lagos Mainland	Manager	2	Res6
Lagos Mainland	Sales Manager	2	Res7
Lagos Mainland	Chief Chef	2	Res8
Lagos Mainland	Asst. Chief Chef	2	Res9
Lagos Mainland	Manager	2	Res10
Lagos Mainland	Location Manager	3	Res11
Lagos Mainland	Logistic Manager	3	Res12
Lagos Mainland	Public relations Officer	3	Res13
Lagos Mainland	Quality Control Officer	3	Res14
Lagos Mainland	Quality Control	3	Res15

Source: Author's compilation 2020

The interview was subjected to content analysis in accordance with the interpretive method. Each item in the interview responses was classified and categorized after being subjected to a content analysis. The results were based on how changing management methods affected employees' satisfaction at work. The study found twelve sub-themes and five main topics that enhance job satisfaction in the fast food industry in Lagos. Figure 1 shows every subject and sub-theme from top-level employees' impressions of the effects of change management practices on job satisfaction in the fast food business in Lagos State, which met the study's goals.

Figure no. 1 Thematic Illustration of Change management and job satisfaction



Source: (Nvivo 12 Output)

Leadership style Theme

The main objective of the theme is to inspire and include fast food staff in the transformation while also ensuring their alignment and motivation. According to Res15, leadership is essential in ensuring that revised policies are in line with top management, staff, and various stakeholders. The first stage in every change, according to Res9, is to make sure that everyone is on the same page on why the change is being made, what will change, and how it will be made. According to Res11's submission, misalignment between any parties could lead to the failure of the change. Alignment is crucial to change management and ensuring job satisfaction.

While corroborating the submissions made by Res11, and Res9, Res3 added that

It is extremely difficult to effect transformative change just by pressuring people to perform and react. Employees must be sponsored for training and growth in order to keep up with the change mantra.

Res3 further added that:

A transformative change involves effective communication, alignment, motivation, and creativity from its leaders.

In particular, when the workplace atmosphere is very open, other respondents concur that none of these are typically accomplished by force and managerial control. Managers should be committed to and willing to accept responsibility for bringing about the change, according to leadership. From different talks, the concepts of sponsoring, involving, and inspiring were inferred. As stated above, the goal of the leadership style is to guarantee stakeholder involvement and buy-in for the change. According to Res9, involvement in the change process motivates and enlists people by lowering change resistance. According to Res11, a fundamental strategy for change management is employee involvement. Incorporating employees generates a sense of shared ownership and the notion that everyone is in this together, according to Res15. Non-participants could lack the psychological worth of commitment and feel as though the desired change is being forced upon them.

Others said that involving people could be seen as having a double-edged sword because workers might view it as an attempt to manipulate them into providing feedback without actually considering it, which is extremely harmful and bad. Therefore, stakeholders need to be informed about the mechanisms for feedback, analysis, reviewing, and remedial action. As a result, involvement is crucial to maintaining the change because it enhances the process and brings everyone together and into it.

A transformation's stakeholders can be more emotionally and mentally engaged and have greater desire thanks to a leader's approach. For instance, Res10 acknowledges that

change is nature's one constant. Particularly wonderful and intricate creations of God are people. Res6 concurred that when people are driven, they go through a complex jumble of emotions, wants, ambitions, and so forth as they get enthused and involved in carrying out any kind of work. Despite the fact that the research acknowledges that people vary, each motivational factor will have a unique impact on fast food employees. That is, every person responds to motivators in a unique way. Each employee has his own incentive profile. Karodia, Nyaungwa, and Linganiso (2015) posit that planned changes may be founded on the idea that organizational change is a process involving a transition from one "fixed level" to another level via a series of pre-planned motivational steps. According to the idea of reasoned action, a person's motivation for exhibiting a behavior determines how that activity is performed individually (an extension of Vroom expectation theory). Compared to other types of change (contingency/situational) that are affected by outside factors, planned change offers consistency, stability, and an efficient organization (Ajzen & Fishbein, 1980).

There are hygiene elements and motivating factors, according to Herzberg's theory. Although hygienic aspects do not inspire, when they are incorrect, a demotivated and dissatisfied state will develop. (The hygiene component is illustrated through the official automobile.) There are many theories about motivation, including the process-based theory, outcome-based theory, and theory based on content.

Strategy theme

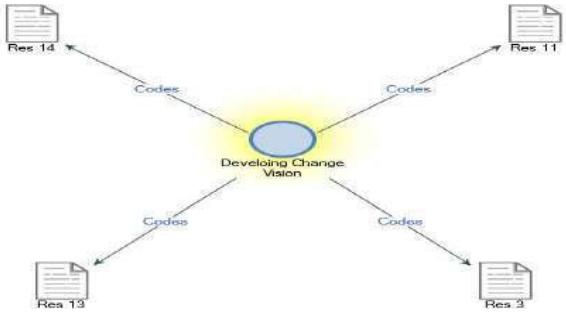
According to a variety of responses, the purpose of this topic is to create a vision for change and make sure that it is connected to the business strategy of the fast food chain. The strategy theme makes sure that measures for managing change are established in line with the organization's capacity for change. Identifying the need for change is another objective of this topic. Lines et al (2015) believes that this is one of the most crucial elements in putting any change into action. As two important sub-themes, creating the governance model and developing the change vision were recognized.

Developing the change vision

The objective of a fast food company's strategy, according to Res3, should be to clearly identify the change. Determining why we are changing, what is changing, who is changing, and how we are changing will define the change. Res13 argues that as both the change and the business plan must be linked, a connection between the change and the strategy must be found to support the aforementioned. Res11 additionally suggested that the analyses provided in the vision serve as evidence of advancements between the old and

new nations. Contrarily, Res14 highlights the significance of defining what will change in terms of procedures, systems, cooking technology, distribution method, structure, management style, employee conduct, and cultural norms. To enable the change leader to continue tracking results against earlier goals, new objectives must be specified with clear indicators and targets (Res3). Additionally, the plan makes sure that the change has the accompanying activities that need to be carried out.

Figure no. 2 Respondents on Developing Change vision



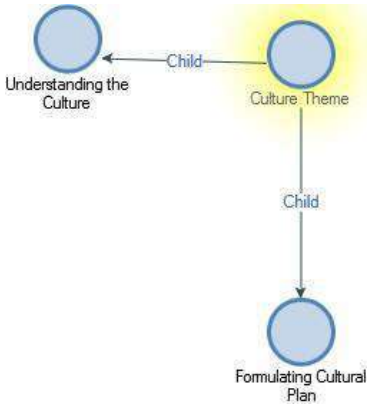
Source*: (Nvivo 12 Output)*:

Res1,2,5,11,12, and 15 agreed that the strategy for creating the governance model is to make sure that the executive managers are in sync, clearly understand their roles and duties, and have ongoing support and sponsorship from the business. Contrarily, Res13 proposes that all workers and other stakeholders be viewed as change sponsors and that they should be required to participate actively and openly in the change processes. The responses to the development of a governance model are shown in Figure 4.

Culture Theme

This theme focuses on institutionalizing cutting-edge approaches to cultural transformation in individuals and organizations. Res1 argues that it is important to identify the cultural elements influencing or obstructing change when it is being implemented. Additionally, it discusses cultural aspects related to the sector, such as food and beverage offerings as well as dining customs. Res5 asserts that fast food chains that disregarded this crucial aspect of transition ceased to exist. African culture never ages, especially when it comes to food. Res12, a typical dinner usually looks appetizing. Additionally, eating at work or even having food delivered to your home gives you the impression of being at home.

Figure no. 3 Analysis on culture theme



Source*: (Nvivo 12 Output)*:

On a different level, Res5 concur that a culture strategy is necessary to motivate the change by balancing and/or altering the culture. Resistance to change might be better understood by appreciating societal culture. To put it another way, a change must be compatible with society's culture, or else it may encounter resistance from the culture. A change will encounter resistance if it undermines established norms and procedures. You can foresee potential sources of resistance in different organizational units by having a thorough understanding of organizational subcultures.

Discussion of Findings

In this part, the findings are highlighted. The four hypotheses that were established and examined in this study serve as the framework for the presentation. The investigation and testing of hypothesis one showed that organizational policy affects job security for employees. Employees can be guaranteed job security as a result of an appropriate assessment of organizational policy, which will maximize job happiness. The report has shown that change is a vital driver of organizational success in the workplace; if only the emphasis is placed more on managerial behavioral factors. Change is an ever-present feature of organizational life, the rate of which has increased substantially in recent years. Significant correlations have been found, which is in line with other studies by Oji-okoro et al. (2014), Tahiru et al (2022), Rune (2005), and Connie (2020), their research showed a strong correlation between several individual job outcome indicators and employees' opinions of change success.

Conclusion and Recommendations

This study investigated the impact of change management techniques on worker job satisfaction in a sample of fast food restaurants in Lagos, Nigeria. Thus the research revealed that change agents always take job stability and motivating rewards into account while executing change. The study's finding revealed that the level of job security certainty increases with improved organizational policy execution. The study recommends that leaders in fast food companies should place a high priority on their leadership style as a lever for organizational development. The report also recommends using elements of change management to increase desire and engage stakeholders mentally and emotionally with the change.

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TOWARDS A DIGITAL SUPPLY CHAIN AMONG RICE MILLERS: AN APPLICATION OF AJZEN MODEL

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Abstract

Despite advancements in technology worldwide, the understanding of digital supply chain is still in its early stages. The study focuses on Nigerian rice millers and employs the theory of planned behavior by Ajzen to investigate their intention to adopt digital supply chain. The research finds that previous studies have overlooked the role of perceived behavioral control in the relationship, thus the study examines its moderating effect on the relationship between attitudes and subjective norms and digital supply chain adoption. The research methodology involves a survey of 50 registered rice milling companies in Kaduna state, using a structural equation modeling (SEM) technique in conjunction with partial least squares. The findings reveal that a positive attitude and favorable subjective norms significantly influence digital supply chain adoption. Moreover, the study highlights that perceived behavioral control plays a significant moderating role between attitude and digital supply chain adoption.

Keywords: *Social Norms; Descriptive Norm; Injunctive Norm; Entrepreneurial Orientation, Start-up Intention.*
JEL Codes: *M15*

Introduction

The rise of information and communication technology (ICT) has led to the emergence of digital disruption (Beutel & Brettel, 2019; Neykova, 2019), which has threatened traditional business models that rely heavily on physical labor (Büyüközkan & Göçer, 2018). This shift to digitalization has impacted all industries and has resulted in new

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partnerships and collaborations between companies and individuals (World Economic Forum, 2016; Bogdanova, 2022). Digitization has enabled supply chains to access, store, and analyze vast amounts of data, both internally and externally. This has created a need for traditional supply chains to transition to digital supply chains (DSCs) to accommodate new production models, transportation methods, and customer experiences that require real-time information sharing. Consequently, businesses worldwide are evaluating digitization as a prerequisite for developing effective strategies (Galyarski & Mironova, 2021; Radilov, 2019).

According to Ajzen (2020) and Atanasova (2022), the widespread use of technology has simplified daily life and increased productivity. However, it also requires individuals to acquire new skills to keep up with the rapidly changing technological landscape (Stavrova, Zlateva, Pinelova, 2021; Yuleva, 2019). Understanding people's reactions to developing technologies is important to design effective treatments that can help individuals adjust their behavior to meet the demands of a high-tech society (Dimova, 2022; Katamadze et al., 2021). As a result, Nigeria's rice revolution, which was initiated by the CBN's Anchor Borrower Programme to diversify the economy and boost agriculture, has led to a significant increase in national output from 5.4 million metric tonnes in 2015 to over nine million metric tonnes in 2021. The productivity per hectare of smallholder farmers has also improved from 2.4 metric tonnes per ha in 2015 to about five metric tonnes per ha in 2021. These developments have not only made Nigeria the largest rice producer in Africa but have also attracted significant private sector investment in the rice value chain. As a result, rice production in Nigeria has increased to over 7.5 million metric tonnes annually.

Even with the progress in technology, the understanding of digital supply chains (DSCs) is still in its early stages worldwide (Büyüközkan & Göçer, 2018; Zlateva, 2020). To investigate the intention of Nigerian rice millers to adopt DSCs, the theory of planned behavior (TPB) by Ajzen is used. In the TPB, the intention to adopt DSCs is the immediate precursor to behavior, meaning that the stronger the intention, the more likely the behavior will follow (Ajzen, 2020). This intention is formed by positive attitudes and subjective norms that make people believe they can engage in the behavior in question (Tornikoski, 2019). Additionally, the importance of attitudes and subjective norms in determining intentions is expected to vary across different behaviors, populations, and time periods. Therefore, the study's hypotheses are formulated as follows:

H01: Attitude does not significantly affect digital supply chain adoption among rice millers in Kaduna State

H02: Subjective Norms do not significantly affect digital supply chain adoption among rice millers in Kaduna State

H03: Perceived Behavioural control does not significantly moderate the relationship between attitude and digital supply chain adoption among rice millers in Kaduna State

H04: Perceived Behavioural control does not significantly moderate the relationship between attitude and digital supply chain adoption among rice millers in Kaduna State

Literature Review and Hypotheses Development

The Theory of Planned Behaviour and digital supply chain adoption

The theory of planned behavior (TPB) utilizes an expectancy-value formulation to explain how attitudes toward a behavior are formed. Specifically, the attitude toward the behavior is believed to be a result of readily available beliefs about the expected outcomes of the behavior, which are referred to as behavioral beliefs. A behavioral belief is an individual's subjective assessment of the likelihood that engaging in a particular behavior will lead to a specific outcome or experience (Ajzen, 2020). Previous studies have shown a significant interaction between attitude (ATT) and perceived behavioral control (PBC) in predicting intention (Kothe & Mullan, 2015; Yzer & van den Putte, 2014). As per expectations, a stronger relationship between attitude and intention results in a greater perceived control over action. This interaction effect was observed as a positive regression coefficient for the ATT x PBC factor in a multiple regression analysis. In our study, we expect to find a similar outcome.

Subjective norms and supply chain adoption

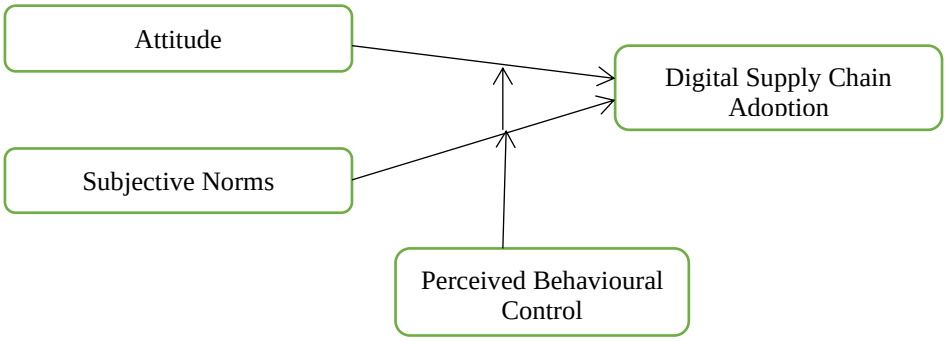
Ajzen (2020) defines subjective norm as the social pressure a person feels to perform or not perform a behavior, which is based on normative beliefs. Normative beliefs are the beliefs about what important individuals or groups in a person's life expect them to do, multiplied by the person's motivation to comply with those expectations (Tornikoski, 2019). Two types of normative beliefs exist: injunctive and descriptive (Ajzen, 2015). Injunctive normative beliefs refer to the expectation or subjective likelihood that a certain person or group approves or disapproves of a behavior, while descriptive normative beliefs refer to the belief about whether significant people perform the behavior themselves. Both types of normative beliefs contribute to the total social pressure felt to engage in the behavior or subjective norm. The evidence on the interaction between subjective norm and perceived behavioral control (PBC) has been inconsistent. Some studies have found no significant effect of PBC on the prediction of intention from SN (Kothe & Mullan, 2015; Umeh & Patel, 2004), while others have reported a positive effect, such that the prediction

of intention from SN was better under high rather than low PBC (Yzer & van den Putte, 2014). One study found a significant relationship (Castanier et al., 2013).

Moderating role of Perceived Behavioural Control

According to Ajzen (2020), the TPB proposes that perceived behavioral control moderates the influence of attitude and subjective norm on intention. This means that a positive attitude and supportive social pressure contribute to forming favorable behavioral intentions only if individuals feel capable of performing the behavior. However, empirical evidence supporting the moderating effects of perceived behavioral control is scarce due to methodological issues. Despite theoretical soundness, few studies have investigated the moderation effects of PBC (Castanier et al., 2013; Umeh & Patel, 2004), and the existing evidence is insufficient to fully understand the interaction effects of PBC on attitudes and subjective norms (Yzer & van den Putte, 2014).

Figure no. 1 Conceptual Framework



Source: Author's Conceptual Framework

Methodology

This study employs a cross-sectional research approach and responses were collected from Kaduna State Rice millers using self-administered questionnaire. The state was chosen because it is the first in the World Bank ranking of ease of doing business in the country. The Population of the study constitutes fifty (50) rice millers registered with their association. Census sampling technique was used given the fact that the population is not too large.

Measurement of Constructs

The Likert scale was utilized to gather responses to a questionnaire measuring ATT, SN, PBC, and DSC, which was adapted from the work of Liñán and Chen (2009). The questions were structured as closed-ended and rated on a five-point scale ranging from "strongly agree" to "strongly disagree." ATT consists of 5 items including; “Digital supply chain adoption is attractive to me”, “Adopting digital supply chain implies more advantage than disadvantage”. Subjective Norms consist of 3 items including; “My friends are positive and accept my plan of adopting digital supply chain”, “My peers see digital supply chain adoption as a logical choice for me”. PBC consist of 6 items including, “Adopting digital supply chain and keeping it working would be easy for me”, “I’m prepared to adopt digital supply chain”. Digital Supply Chain Adoption is measured by 6 items including “I will adopt digital supply chain soon”, “I am determined to adopt digital supply chain”.

Assessment of PLS Path Model

Before conducting the main analysis, the data was checked for normality and multicollinearity, as per the guidelines of Hair et al. (2017). After confirming that all assumptions were met, the collected data was analyzed using SmartPLS software, which is a statistical method that estimates the causal relationship between multiple constructs based on a theoretical framework (Vinzi, Trinchera, & Amato, 2010, p. 47). To ensure the validity and reliability of the model used in this study, Hair et al. (2017) suggested a two-stage evaluation process: measurement models (also called external models) and structural models (also called internal models).

Measurement Model

The researchers assessed the reliability of the items measuring each construct, as well as their internal consistency reliability (which includes composite reliability and Cronbach's alpha), discriminant validity, and convergence validity, in order to evaluate the measurement model of the study (Henseler et al., 2009). While Hair et al. (2017) suggested that an outer loading of 0.70, AVE of 0.50, and composite reliability/Cronbach's alpha of 0.70 are acceptable indicators for scale development, the validity and reliability results were presented in a table below.

Table no. 1 - Measurement Model

Constructs	Indicators	Outer Loadings	Cronbach's Alpha	Composite Reliability	Average Variance Extracted (AVE)
Attitude	ATT1	0.91	0.94	0.96	0.82
	ATT2	0.90			
	ATT3	0.91			
	ATT4	0.90			
	ATT5	0.90			
Digital Supply Chain	DSC1	0.87	0.91	0.93	0.69
	DSC2	0.87			
	DSC3	0.85			
	DSC4	0.88			
	DSC5	0.86			
	DSC6	0.63			
Perceived Behavioural Control	PBC1	0.87	0.95	0.96	0.78
	PBC2	0.90			
	PBC3	0.90			
	PBC4	0.88			
	PBC5	0.89			
	PBC6	0.87			
Subjective Norms	SN1	0.91	0.88	0.92	0.78
	SN2	0.94			
	SN3	0.80			

Source: PLS Output

Table 1 above shows that all of the constructs are reliable since their values are all above the minimum threshold.

Furthermore, Duarte and Amaro (2018) advocated the usage of Heterotrait-multimethod (HTMT) matrix as an alternate way to determining discriminant validity as presented in table 2 below.

Table no. 2 - Discriminant validity (Heterotrait-multimethod (HTMT)

Constructs	Attitude	Digital Supply Chain Adoption	Perceived Behavioural Control	Subjective Norms
Attitude				
Digital Supply Chain Adoption	0.56			
Perceived Behavioural Control	0.32	0.74		
Subjective Norms	0.07	0.11	0.15	

Source: PLS Output

The HTMT results in Table 2 show that the discriminant validity is achieved since the values are less than 0.85 as recommended by (Hair et al., 2017).

Structural Model

The structural model is evaluated after all the measurement model requirements are satisfied. In particular, bootstrapping was used on a sampled instance of 50 using 5,000 bootstrap samples to examine the relevance of constructs (Hair et al., 2017).

Table no. 3 - Hypotheses test

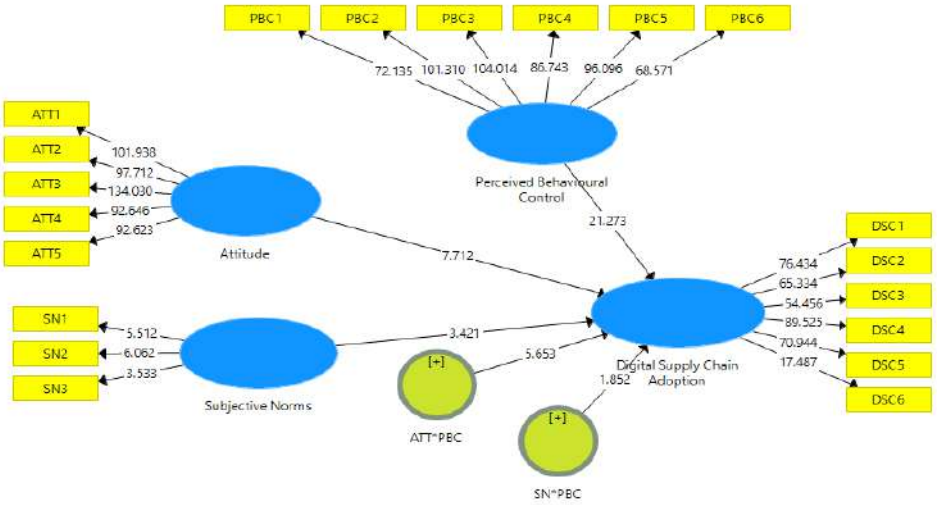
Relationship	Beta Values	Standard Deviation	T Statistics	P Values
ATT*PBC -> Digital Supply Chain Adoption	0.15	0.03	5.65	0.00
Attitude -> Digital Supply Chain Adoption	0.29	0.04	7.71	0.00
SN*PBC -> Digital Supply Chain Adoption	0.06	0.03	1.85	0.06
Subjective Norms -> Digital Supply Chain Adoption	0.16	0.05	3.42	0.00

Source: PLS Output

The table above presents the bootstrapping outcomes, indicating that all relationships were significant except for SN*PBC. The study discovered that both attitude and subjective norms are significantly associated with the adoption of digital supply chains. As for the interaction between ATT and PBC, it was found to have a positive and significant effect on digital supply chain adoption. However, SN*PBC was found to have a positive but insignificant relationship with digital supply chain adoption. Table 3 and Figure 2 below

present the results of the hypotheses, with T-values indicated on the lines connecting the independent and dependent variables.

Figure no. 2 Structural Model



Source: Smart PLS Output

Coefficient of Determination *(R2)*, Effect size (*f*2) and Predictive Relevance (*Q2)*

In order to measure the extent to which external latent factors explain the variation in endogenous latent variables, researchers use the coefficient of determination, also known as the R-square level. According to Chin's 2010 study, R2 values of 0.67, 0.33, and 0.19 are considered substantial, moderate, and weak, respectively. To evaluate the impact of a specific exogenous variable on the endogenous variable, researchers use f2 values, where 0.02, 0.15, and 0.35 are considered small, medium, and large values, respectively, based on Cohen's 1988 study. In this particular study, the predictive correlation (Q2) of external latent factors was analyzed using cross-validated redundancy criteria that represent endogenous latent variables, as presented in Table 4 below.

Table no. 4 - R-Square, F-Square and Q-Square

Indicator	R Square	R Square Adjusted	
DSC	0.63	0.62	
Indicators	**DSA**	**Effect Size**	
ATT	0.19	Medium	
PBC	0.95	Large	
SN	0.06	Small	

Table 4 reveals that ATT, PBC, and SN together explain 60% (0.63) of the variation in Digital Supply Chain adoption. The R2 score indicates that these latent factors have a moderate effect on the target endogenous latent variable. In terms of impact size, ATT has a medium effect, PBC has a large effect, and SN has a small effect.

Conclusion

In conclusion, the study suggests that ATT and SN are reliable predictors of digital supply chain adoption among rice millers, based on their significant contributions. Therefore, developing ATE and SN can help enhance digital supply chain adoption among rice millers. However, PBC is found to be a good moderator only with attitude and not subjective norms.

Implications of the Study

The study provides valuable insights on the interplay between PBC, attitude, and subjective norms, thereby expanding the usage of the TPB framework. While the TPB model is widely used to predict social behavior, previous studies have mainly focused on the direct relationship between the three constructs and intention. However, Ajzen (2020) argues that PBC is better viewed as a moderator rather than an independent variable. Therefore, this study is unique in its approach by including perceived behavioral control as a moderator within the TPB model, rather than as an independent variable.

From a practical perspective, interventions based on the TPB model should focus on fostering positive social norms and enabling supportive behaviors, in addition to promoting a positive attitude towards digital supply chain adoption. For rice millers to adopt digital supply chain, they need to have a positive attitude and subjective norm, coupled with the ability to control a digitalized system. In other words, the adoption of digital supply chain is more likely to occur when rice millers have a positive attitude and subjective norm, multiplied by their ability to control a digitalized system.

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DECISION-MAKING PROCESSES BETWEEN CONTEXTUAL FACTORS AND THE STRUCTURAL DIMENSIONS OF THE ORGANIZATION: STRUCTURAL EQUATIONS MODELING ANALYSIS

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Abstract

This study aims to identify the contextual dimensions of the organizational structure represented in size, technology, strategy, culture, and the environment in the decision-making process. As well as to test the relationship between the organizational structure with its dimensions: formalization, centralization, complexity, specialization, and the decision-making processes with its dimensions: identifying and diagnosing the problem, developing work paths, and decision-making. A scale was designed to collect data from the study sample of 89 specialized economic organization administrative employees. The results of the study show the existence of a statistically significant effect of administrative complexity on decision-making processes. Also, there are statistically significant differences among the studied sample members due to the following variables: educational level, career level, and job experience. Furthermore, looking at the individual differences of decision makers as a significant factor explains the variation in performance. The study concludes with a set of recommendations; the main ones are the necessity of harmonizing the dimensions of the organizational structure and looking at them as strategic variables that contribute to directing the organization towards the planned paths through a set of decisions.

Keywords: *organizational structure; structural dimensions; contextual dimensions; decision-making.*

JEL Codes: M54, L22

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1. Literature review:

The rapidly changing business environment is posing challenges to organizations. The organizational structure is the most critical mechanism for interaction and change response. It must adapt its paths and internal organization accordingly, where it provides responses and reactions that are translated into decisions to interpret problems or capitalize on opportunities related to the organization's contextual factors, such as the environment, size, and technology (Daft & Weick, 1984). Similarly, the complexity of the business environment necessitates developing high-quality decisions that consider all aspects of the organization (Fabac, 2010). Organizational success is linked to making decisions compatible with their environment, internal organization, and external environment (Hollenbeck et al., 2002)

The organizational structure refers to the roles formed according to a hierarchy following the organization's goals (Koohborfardhaghighi& Altmann, 2017). It also describes how individuals work following the organization's design, as well as the mechanisms for decision-making, rules, and procedures that support this. (Chen et al., 2010). Through it, the various interrelationships between the parts of the organization are defined, including responsibilities and how decisions are taken to enhance the organization's productivity (Waribugo & Etim, 2016). The organizational structure, in this context, is the formal system for dividing work among employees and achieving coordination between them by defining authority, responsibilities, and decision-making centers (Akbari, Amirkhani, &Daraei, 2018). It also empowers employees to be oriented and inspired to cooperate and work as one team for the organization's superiority (Jennifer & Gareth, 2012).The organizational structure is a collaborative system that organizes various employee relations to reach goals through indicators such as job descriptions, leadership style, rules, and responsibility (Fitria et al., 2017). In addition, it imposes the distribution of roles without conflict (Delic & Nuhanovic, 2010). It embodies the framework and style of management in directing the behavior of individuals and coordinating their various efforts toward achieving the goals organization (Thomas, 2015). Despite the diversity of the initial concepts, they all share a fundamental point of view. The organizational structure is a strategy for achieving the organization's objectives by coordinating the efforts of its personnel and mobilizing its resources to form a framework for decision-making. Furthermore, the organizational structure is the assembly of individuals following the tasks and responsibilities specified (Stamevska & Stamevski, 2016) to guarantee competitive capabilities for organizations (Atanasova & Yaneva, 2021 because they operate in a changing and nonhomogeneous environment that requires effective decisions (Kuzmanova, Atanassov, & Alexandrova, 2017).

The design of organizational structures differs due to the various context determinants that impose themselves as an influential factor in selecting the appropriate dimensions (Pugh et al., 1969). Environment, strategy, organizational culture, technology, and size are the most critical determinants of organizational structure. Hence, organizations exist in environmental contexts characterized by difficulty predicting, sustaining, and accelerating change (Emery & Trist, 1965). In order to choose the appropriate organizational structure, it is best to understand the characteristics of those contexts and their requirements to find the structural arrangements to adapt together (Hannan & Freeman, 1977). Thus, the primary goal of the structural design is to facilitate the flow of information from the external environment and effectively process it within the organizational units (Astley & Fombrun, 1983). However, the strategy refers to the appropriate location of the organization and the appropriate selection of decisions (Mintzberg, 1987). D. J. Hall and Saias (1980) stated that strategy is a detailed statement of the organization's goals to be achieved through the policies of the relevant organizational structure.In other words, strategy is adapting the organization's relationship with its environment by selecting the best structure and techniques (Miles et al., 2012).

On the other hand, organizational culture refers to the set of features and characteristics that differentiate organizations through programming and conditioning individuals with the same educational background and life experience (Barney, 1986; Hofstede, 1980). Because culture is a tool for shaping and directing behavior, the context of organizational culture can improve the application of organizational structure policies (Janićijević, 2013). The organizational technology used determines mechanisms of interaction of individuals and their mutual reliance to perform tasks, as well as contributing to the adaptation and modification of the dimensions of the organizational structure between the central units and their branches (Hickson et al., 1969; James & Jones, 1976).

In addition, to properly control the behavior of its members, the organization's success requires coordination between its organizational structure and size (Child, 1975). The organization's size determines the various organizational issues applied through the organizational structure, such as formality and job descriptions (Aldrich, 1972). Several factors, including the size of the workforce and the number of organizational locations, determine the organization's size (Child, 1973). The contextual factors of the organizational structure represented by the environment, strategy, culture, technology, and size are relied on to adapt and choose the dimensions of the organizational structure that are appropriate for the situation, which forms the appropriate structural design.

However, the dimensions of the organizational structure refer to the various activities, policies, and procedures that the organization uses to describe, control, and predict the behavior of its members toward achieving goals. As for the contextual

dimensions, it defines the environment in which these activities occur (Dalton, Todor, Spendolini, Fielding, & Porter, 1980). It defines organizations' distinguishing features and characteristics, providing a framework for evaluating and comparing them(McKelvey & Pfeffer, 1984). The structural dimensions define the organizational forms used, and each structural type has its dimensions. The functional structure, for example, is distinguished by high levels of formality, specialization, and centralization. In contrast, high levels of modularity distinguish the network structure. The dimensions of the organizational structure allow organizations to gain a competitive advantage by combining dimensions that meet the organization's needs (Lee et al., 2015). The structural dimensions differ according to the situations, variables, the environment in which the study was conducted, and the complexities it imposes (Reimann, 1974). The structural dimensions also provide the capabilities and requirements necessary for the success of each organization (Snow et al., 2006). Hence, the organizational structure's dimensions vary depending on the time of the study, the subject of the study, and the most important related variables. Table 1 summarizes the most important studies that addressed organizational structure dimensions:

Table no. 1 – Organizational structure dimensions

Author	Variable Dimensions
Max weber, 1947	Division of labor, specialization Rules and regulations, hierarchy of authority
Pugh,1968	Specialization, standardization formalization, centralization, configuration, flexibility
Reiman,1973	centralization of authority, specialization, formalization
Robbins, 1990	Complexity, centralization, formalization.
Blau ,1996	The span of control, hierarchy, size.
Galbraith ,2002	Specialization, shape, distribution of power authority, centralization or decentralization, departmentalization
Daft , 2010	Contextual dimension: cultureenvironment, goals and strategy size, technology. Structuraldimensions: formalization, specialization, hierarchy of authority centralization, professionalism, personnel ratios.

Source: Elaborated by the authors; based on authors' studies

Specialization, formality, complexity, and centralization present the widely used dimensions of structural organization. Although the dimensions differ from another study, they are linked to a common goal of maintaining internal organization and accompanying

external changes. Functional specialization divides formal responsibilities into distinct and recognizable job areas and roles (Child, 1972). In specialization, individuals are assigned focused tasks that require a specific set of abilities and qualifications. Also, individuals are assigned limited tasks in highly specialized jobs (Harris & Hartman, 2013). A distinction is made in specialization between simple, routine, repetitive tasks and complex tasks that require specialized expertise and skills (Blau, 1970). Adeyoyin et al. (2015) stated that specialization helps increase the worker's productivity and the difficulty of attracting other workers because they do not have their skills and abilities. Increasing the worker's specialization provides him with job security. Also, formalization is the degree to which employee behavior and job requirements are regulated through formal rules, processes, and job descriptions (C D'Souza & Bhowmick, 2012). Formalization serves to ensure effective decision-making (Mishra & Maharana, 2019). Formalization makes it possible to control the outcomes of decisions because of the possibility of predetermining the procedures used in decision-making processes. In bureaucratic organizations, a formalization is a form of control used to guide decision-making processes (Pierce & Delbecq, 1977).

In addition, complexity is the degree to which an organization's internal division into parts is reflected in the division of labor, the number of hierarchical levels, and spatial dispersion (R. H. Hall, Johnson, & Haas, 1967). Complexity is related to the extent to which roles are defined in terms of their objectives, task orientation, and level of independence (Wahba, 2014). It may also express the degree of differentiation and differences in attitudes and behaviors within the organization (Beyer & Ullrich, 2022). It is also considered to be a response to the organization's internal environment and what it includes of processes, techniques, and administrative methods, as well as to the organization's external environment and what it contains customers, markets, and suppliers (Dooley, 2002). At the same time, centralization, as an essential dimension of the organizational structure, refers to the location of all organizational processes and decision-making authority in one location (Nilles, 1975). It defines the power and authority of those who influence the decision-making process in the organization and works to direct the goals clearly, which is positively reflected in the organization's performance (Andrews et al., 2009; Pugh et al., 1968). Thus, the principle of centralization is preferred when the environment is unstable, and accordingly, the decision-making process follows a centralized approach (Basol& Dogerlioglu, 2014). Briefly, dimensions of the organizational structure are considered translations to the capabilities of its constituent members, which must vary according to the work environment and its characteristics. Therefore, there are no unified dimensions for each organization.

The organizational structure is a framework that directs the behavior of individuals and groups in its various dimensions to make decisions at the level of departments and

divisions. As a result, the organizational structure is defined as a decision-making mechanism that must be designed in such a way that it can take advantage of the tacit knowledge of the organization's members (Grant, 1996). The foundations of organizational structure design are to find strategies that serve the needs of the various decision-making stages. For this, the structure follows the organization's environment and facilitates knowledge sharing between organizational levels to improve decision-making (Felin& Powell, 2016). In our current era, all organizations in different forms are based on creating organizational relationships among their members to achieve the desired goals through various administrative decisions. Hence, all the concepts and principles of the organizational structure are related to the decision-making and decision-making processes.

Even though the terms decision-making and decision-taking are frequently used interchangeably with the same meaning and context, there is a distinction between them. Decision-making is selecting and processing existing knowledge to deal with problems (Spender, 1996). Decision-making involves a set of criteria to find alternatives to solve a problem by formalizing thought processes and gathering information to determine the most appropriate alternative (Saaty, 2008). It aims to reach suitable paths to manage the organization and work on its continuity (Davis, 2017; Omarli, 2017). In this context, decision-making is the outcome of cooperation between individuals to understand situations using different ways of thinking, as well as to formulate strategies and standards and adhere to them in order to act in situations that require solutions. It is based on collecting and analyzing information related to the situation (Jepsen & Dilley, 1971; McGregor, 2001). However, decision-taking is evaluating options based on the factors surrounding the problem and its characteristics to develop an appropriate alternative (Andreis, 2020). Decision-taking is the selection of appropriate solutions to existing problems(Shahsavarani et al., 2015). It is also the process of embodying and implementing the scheduled plans made by the organization (Simon, 1944). Thus, decision-making is the process of building cognitive inferences to issue judgments to find a solution to the problems or exploiting the available opportunities through determined paths consistent with the decision-making situation. In contrast, decision-taking is a stage of decision-making in which a choice is made between the available alternatives using the criteria formulated and reached through the decision-making stage.

Moreover, the decision summarizes employees' efforts, participation, and commitment to reaching the organization's goals (Abubakar et al., 2019). It is the basis of all organizational processes and obligations that must be fulfilled. Analysis of decision-making processes contributes to understanding organizational behavior (Choo, 2007). Decision-making contributes to allocating and distributing various resources between parts of the organization according to considerations and priorities to prevent competition and

conflict between them (Pfeffer & Salancik, 1974). Thus, decision-making represents appropriate behaviors, social values, and systematic construction to act intelligently with the different standing and exploit opportunities (Feldman et al., 1981). It is also a path and methodology for agreed-upon strategies and plans, which are considered a summation and integration of all the efforts at organizational levels (Goold& Quinn, 1990). It shows the importance of decision-making in the organization through the correct framework and power relations, divisions of roles, and acceptable behaviors to work accordingly (Ranson, Hinings, & Greenwood, 1980). Hence, decision-making represents the administration and what it includes of operations and coordination mechanisms to deal with the organization's inputs (Fama, 1980).

Individual, environmental, and technological factors all influence decision-making. Regarding the manager's personality, his role is that of a decision-maker, so his response to various situations and opportunities results from his skills, know-how, and experience (Porter & Lawler, 1965). The characteristics of individuals involved in the decision-making process and their social and cultural backgrounds form the basis of their behavior characteristics of the environment in which decision-making occurs (Bachrach & Baratz, 1963; Ford & Richardson, 1994). The organization is an open system that influences and is affected by the environment and cannot ignore its dimensions. Likewise, the dynamic environment forces decision-makers to act according to limited information(Baum & Wally, 2003). The strategies adopted by the organization and the type of structure appropriate to it, for example, the defender's strategy, require the decentralization of decision-making and focuses primarily on customers (Olson et al., 2005). Technology helps develop and evaluate alternatives and empowers individuals to participate in the decision-making process (Huber, 2009). In addition, the organization's culture is a mechanism for dealing with difficult decisions by influencing the behavior of individuals towards enhancing a sense of belonging to the institution and working to achieve goals as one entity (Tierney & William, 2011). The same applies to the size of the organization, where organizations of large size require comprehensive information and an in-depth analysis process to deal with the decision-making process(Fredrickson & Iaquinto, 1989). Time pressure impacts response effectiveness and dealing with situations by relying on negative behaviors such as rapid information processing without comprehensive analysis (Simo n, 1987). Thus, identifying strategies and factors affecting the decision-making process and adapting them to achieve quality decisions and reach the desired results (Janssen et al., 2017).

There are many important links between strategy making and its structure and its positive impact on decision-making by assigning the participating individuals according to their job specialization. In addition, companies with complex structures need longer time

horizons in decision-making compared to simple structures. Decentralization also contributes to increasing the scope of administrative participation in analyzing problems, choosing appropriate decisions, and facilitating their implementation (Miller, 1987). Wally & Baum (1994) illustrated the positive impact of intuition and cognitive abilities of managers on intelligence, design, and choice activities that formulate strategic decision-making. There is also a relationship between formalization and the tendency to work. In contrast, formalization cannot compensate for the comprehensiveness of knowledge necessary for decision-making. Also, organizations may achieve effective decision-making in light of environmental uncertainty by harmonizing their organizational structure with the technology used (Covin et al., 2001).Baum & Wally (2003)concluded that formalizing routine procedures speeds up the strategic decision-making process, in addition to centralization and its positive role in accelerating faster decisions by reducing time-consuming negotiations and other behaviors designed to achieve consensus. Organizations can also control the speed of decision-making through the organizational conditions represented in the dimensions of the organization's structure.

Study Hypotheses:

After presenting the study literature and concepts related to study variables, the study hypotheses are:

H1: Dimensions of the organizational structure significantly affect decision-making.

H2: There are statistically significant differences regarding decision-making due to personal variables: gender, age, educational level, career level, and job experience.

2. Method:

2.1 Population and sample:

The appropriate measure to achieve the objectives of the study is the questionnaire. The questionnaire was designed based on some previous studies related to the subject of the study. The questionnaire was given to a sample group of 89 administrative employees in the study organization, a subsidiary of Algeria's national state-owned oil company Sonatrach, specializing in pipeline transportation activity in the Hassi Rmel region. The questionnaire consists of two parts. The first part includes personal and job data: gender, age, educational level, job level, and years of experience. The second part: Was divided into two axes. The first axis relates to the dimensions of the organizational structure. Four dimensions have been developed, and a set of phrases related to each dimension have been allocated. The second axis relates to the decision-making dimension. The following table illustrates this:

Table no. 2 - Measurement items used

Variables	Items
Formalization	Formal1, Formal2, Formal3, Formal4.
Centralization	Centr1, Centr2, Centr3, Centr4.
Complexity	Compl1, Compl2, Compl3, Compl4.
Specialization	Special1, Special2, Special3, Special4.
Decision -making	Decisi1, Decisi2, Decisi3, Decisi4, Decisi5, Decisi6 Decisi7, Decisi8, Decisi9, Decisi10, Decisi11, Decis12

2.2. Characteristics of the study sample:

Table no. 3 - The Description of the Study Sample

Variables		Percentage %
Gender		
Male	56	62.9
Female	33	37.1
Age		
Less than 30	39	43.8
from 30-50 years old	50	56.2
50 years or more	/	/
Educational level		
Secondary and lower	4	.45
Bachelor or master	67	75.3
Postgraduate	18	20.2
Careerlevel		
Senior level	53	.596
Mid-level	22	24.7
Entry-level.	14	15.7
Job experience		
Less than 5 years	43	48.3
From 6-10 years	29	32.6
10 years or more.	17	.191

Source: elaborated by researchers based on SPSS 24 outputs

2.3 Statistical analysis of the study sample's perspectives:

Arithmetic means and standard deviations were calculated to test the extent of the organization's employees' approval of the questionnaire axes, as shown in the table below:

Table no. 4 - Descriptive statistics analysis

Variables	Mean	Std deviation
Specialization	4,0365	0,71564
Centralization	3,8596	0,69796
Complexity	3,9354	0,59535
Formalization	3,8455	0,65551
Decision -making	3,8764	0,55790

Source: elaborated by researchers based on SPSS 24 outputs

Through the table of descriptive statistics analysis, the response of the study sample is positive on most of the items of the dimensions of the study. Likewise, the trends of all items were within the agreed category. At the same time, the formalization dimension is the highest among the averages, with an arithmetic mean of 4.0365 and a standard deviation of 0.7156. It is explained by the fact that the organization formalizes roles to clarify roles and reduce conflicts to make decisions faster.

3.Outer model tests:

The purpose of evaluating the standard form is to ensure the convergence of the questions, the accuracy of the scale used, and its suitability for the subject of the study. The convergent validity and discriminative validity criteria are used.

3.1 Convergent validity test:

Some items whose saturation was less than the criterion set for full acceptance of 0.40 should be omitted due to their impact on the model's composite reliability, internal consistency, and discriminant validity. If the item's saturation is between 0.40-0.70, it is necessary to determine the effect of deleting this item on increasing the value of the remaining model criteria. On the other hand, items whose saturation equals or exceeds 0.70 are retained because they belong to this dimension. The results of the model's convergent validity tests are summarized in Table no.5 after deleting the items and improving the study model.

Table no. 5 - Construct Reliability and Validity

Constructs	Items	Factor Loadings	CR	AVE	Cronbach's alpha
Formalization	Formal1	0.700	0.856	0.668	0.771
	Formal2	0.873			
	Formal3	0.668			
	Formal4	0.825			
centralization	Centr1	0.842	0.858	0.668	0.764
	Centr3	0.857			
	Centr4	0.748			
Complexity	Compl2	0.635	0.790	0.562	0.594
	Compl3	0.686			
	Compl4	0.901			
specialization	Special1	0.829	0.876	0.702	0.788
	Special2	0.868			
	Special4	0.816			
Decision -making	Decisi3	0.739	0.864	0.516	0.811
	Decisi4	0.724			
	Decisi5	0.663			
	Decisi7	0.709			
	Decisi9	0.800			
	Decisi12	0.663			

Source: prepared by researchers based on the outputs of the smart pls 4

3.2 Discriminant validity tests

The degree to which a construct differs from others is referred to as discriminant validity. Cross loading is an indicator that ensures that the items represent the dimension to which they belong, and that their values are greater than the rest of the dimensions. This is illustrated in table 6.

Table no. 6 - Cross Loadings test

	Specialization	Centralization	Complexity	Decision -making	formalization
Specia1	0.829	0.509	0.525	0.569	0.691
Specia2	0.868	0.389	0.628	0.525	0.569
Specia4	0.816	0.338	0.477	0.493	0.341
Centr1	0.382	0.842	0.371	0.434	0.598
Centr3	0.518	0.857	0.375	0.527	0.594
Centr4	0.244	0.748	0.184	0.257	0.464
Compl2	0.381	0.367	0.635	0.389	0.348
Compl3	0.410	0.272	0.686	0.462	0.168
Compl4	0.636	0.287	0.901	0.559	0.421
Decisi3	0.404	0.387	0.397	0.663	0.513
Decisi4	0.447	0.388	0.523	0.739	0.414

Decisi5	0.488	0.361	0.443	0.724	0.412
Decisi7	0.461	0.323	0.357	0.663	0.512
Decisi9	0.455	0.313	0.485	0.709	0.357
Decisi12	0.475	0.482	0.516	0.800	0.457
Formal1	0.328	0.410	0.203	0.408	0.700
Formal2	0.721	0.529	0.428	0.558	0.873
Formal3	0.318	0.521	0.252	0.352	0.668
Formal4	0.540	0.646	0.369	0.547	0.825

Source: prepared by researchers based on the outputs of the smart pls 4

Each item has obtained higher values with its dimension than the other dimensions, indicating that all items are related to the dimension to which they belong. In other words, the independence of each dimension's expressions and their lack of interference with other dimensions. For example, the item centr3, with a value of 0.857, the highest value in the line to which it belongs, explains that it belongs to the dimension of centralization and has a strong influence.

Also, The Fornell Larcker test compares latent variable correlations with the square root of the AVE of the construct. Each construct's square root value should be greater than the highest correlations with any other construct. Table 7 presents the results of this test.

Table no. 7 - Fornell-Larcker test

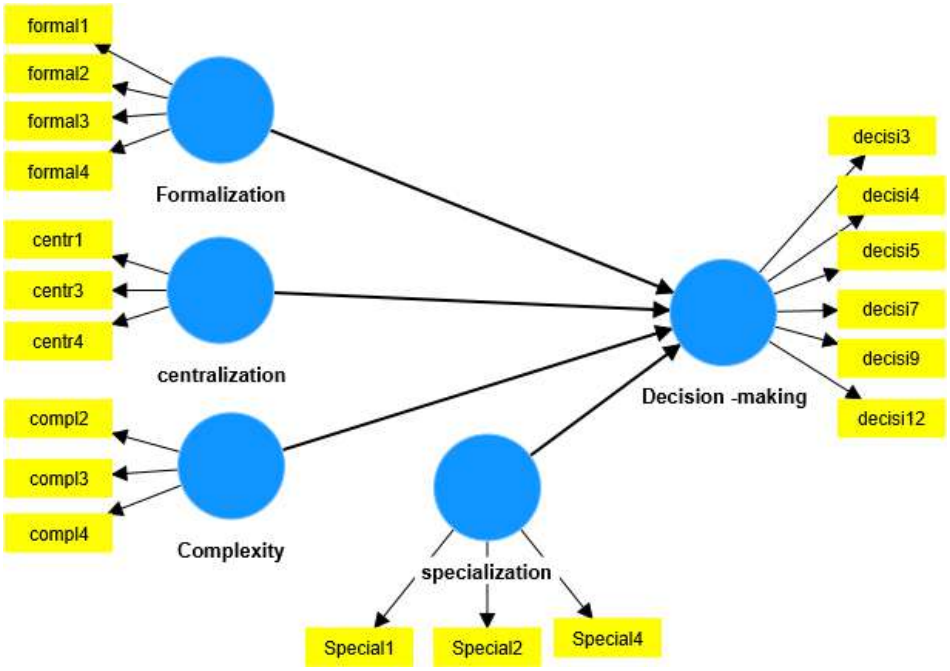
	Complexity	**Decision - making**	**Formalization**	**Centralization**	**specialization**
Complexity	0.749				
Decision - making	0.634	0.718			
Formalization	0.420	0.618	0.771		
centralization	0.402	0.527	0.685	0.818	
specialization	0.649	0.633	0.647	0.497	0.838

Source: prepared by researchers based on the outputs of the smart pls 4

All variables are associated with each other and thus represent themselves with the highest value compared to other variables. It means there is no overlap between the study variables, which are independent and belong to the dimension they represent. Thus, all latent variables are independent, which confirms the discriminant validity of the model.

The final measurement model is as follows:

Figure no.1 Model of Final Measurement



Source: prepared by researchers based on the outputs of the smart pls 4

3.3 Inner model evaluation

The inner model investigates the relationship between all latent variables in the study. The quality of conformity of the structural model is assessed using a set of criteria: coefficient of determination, effect size, and predictive ability.

3.3.1 Coefficient of Determination (R^2 value)

R^2 the coefficient of determination is the most commonly used measure to evaluate structural models.

Table no. 8 - Coefficient of Determination (R2)

Construct	R-Square	R-Squareadjusted
decision-making	0.567	0.546

Source: prepared by researchers based on the outputs of the smart pls 4

R^2 is a statistically acceptable value. As a result, the independent variable organizational structure dimensions: specialization, centralization, complexity, and

formalization explain approximately 56.7% of the dependent variable represented in the decision-making.

3.3.2. Effect Size f

To explain and know the effect size of each independent variable in the dependent variable, we rely on the effect size indicator f² according to table 9:

Table no. 9 - Effect Size

	decision-making
Specialization	0.021
Centralization	0.012
Complexity	0.181
Formalization	0.082

Source: prepared by researchers based on the outputs of the smart pls 4

Administrative complexity moderates decision-making because f^2 equals 0.181 and is confined between 0.15-0.35. There is a small effect of formalization and specialization on the decision-making process because the value of f² was confined between 0.02-0.15. in contrast, centralization has no effect on the decision-making process because the value of f² was less than 0.02.

3.3.3 Predictive Relevance Q^2:

Table 10 reveals the Q2 value of the latent variable:

Table no. 10 - Predictive Relevance Q^2

Construct	**Q^2**
decision-making	0.488

Source: prepared by researchers based on the outputs of the smart pls 4

The value of Q^2 is significant and acceptable because it is greater than zero. There is the ability of the independent variable to predict and explain the dependent variable.

4. PLS-Bootstrapping Hypothesized Structural Equation Model (SEM):

The first research hypothesis of the present study is:

H1: Dimensions of the organizational structure significantly affect decision-making.

The results of testing the impact of organizational structure dimensions on the decision-making process are shown in Table no 11.

Table no. 11 - Path Coefficients analysis.

Hypothesis	Sample mean	STDEV	T-Values	p-Values	Decisions
specialization ->decision-making	0.143	0.120	1.256	0.209	Not Supported
centralization->decision-making	0.113	0.099	1.007	0.314	Not Supported
complexity ->decision-making	0.379	0.084	4.401	0.000	Supported
formalization ->decision-making	0.298	0.155	1.914	0.056	Not Supported

Source: prepared by researchers based on the outputs of the smart pls 4

The probability value of the specialization variable is 0.209, which is greater than the value of the significance level of 0.05. Therefore, the null hypothesis H0 is accepted. There is no statistically significant effect of the specialization dimension on organizational decision-making. It is explained by workers focusing on their functional areas so that their tasks and duties are precisely defined. Thus, when employees focus on their job departments, they can diagnose problems and make decisions only within their specializations. The probability value of the centralization variable is equal to 0.314, which is greater than the value of the significance level of 0.05. The null hypothesis H0 is accepted, and there is no statistically significant effect of centralization on decision-making in the organization. Decision- making process is concentrated in the organization. Thus, employees' actions at the lower administrative levels are concerned with accountability and dependence. There is also the possibility of delegating some authorities according to their specificity and importance to the operational levels without departing from the control of the upper levels.

The probability value of the administrative complexity variable was 0.000, which is less than the significance level of 0.05. The alternative hypothesis H1 is acceptable, and there is an effect of the administrative complexity dimension on decision-making in the organization. The dimension of complexity depends on the parts of the dimension of specialization, with different dimensions of complexity that require: the organization's focus on particular skills, the increase in the number of its units and the multiplicity of its administrative levels, the dispersion of its locations, in addition to the external conditions that impose themselves in the organization's policies, all of which aim to control the quality of decisions.

The formalization variable had a probability value of 0.056, which was greater than the level of significance of 0.05. The null hypothesis H0 is acceptable, and the

formalization dimension does not affect organizational decision-making. Strict reliance on laws, procedures, and rules to program and control individual behavior, unify, and standardize their methods of accomplishing tasks may impede the informal organization of individuals, failing to take advantage of informal communication channels that provide information and generate knowledge that directs decision-making.

The second hypothesis of the present research paper is:

H2: There are statistically significant differences regarding decision-making due to personal variables: gender, age, educational level, career level, and job experience.

Table no. 12 - The results of t-test of two independent samples

decision-making	F	Df	Sig.
Gender	1.484	88	0.227

Source: elaborated by researchers based on SPSS 24 outputs

Sig value is 0.227, which is greater than 0.05. The alternative hypothesis is acceptable, and there are no significant differences in decision-making due to the gender variable.

Table no. 13 - Differences hypothesis results

Variables		Sum of Squares	Df	Mean Square	F	Sig.
Age	Between Groups	0.392	1	0.392	1.262	0.264
	Within Groups	26.999	87	0.310		
Educational level	Between Groups	25.511	2	0.940	3.167	0.047
	Within Groups		86	0.297		
Career level	Between Groups	2.033	2	1.017	3.448	0.036
	Within Groups	25.357	86	0.295		
Job experience	Between Groups	3.363	2	1.682	6.916	0.004
	Within Groups	24.027	86	0.279		

Source: elaborated by researchers based on SPSS 24 outputs

The significant value, sig, is greater than 0.05 for the age variable. Thus, due to age, there are no statistically significant differences in decision-making among the organization's employees. While the significant value Sig for the educational, career, and experience level variables was less than 0.05, thus, there are statistically significant differences in decision-making among the sample members in the organization due to the abovementioned variables.

5. Conclusions and recommendation:

Organizations are decision-making processes. Organizational decisions result from their organizational structure. The study linked the dimensions of the organizational structure and decision-making processes. The organizational structure expresses the internal structure of the organization. It works to find the appropriate combination of the various resources. The interactions between the parts of the organization aim to make decisions that prove the organization towards the desired paths. The dimensions of the organizational structure are divided into structural and contextual dimensions. Structural dimensions aim to control the behavior of individuals in the organization and the ability to predict it to achieve the ruled goals, which are considered a reference for design structural. Contextual dimensions define the environment in which the decision-making process takes place. Thus, the relationship between contextual dimensions and the organization's internal organization is controlled and adapted through structural dimensions. Accordingly, decision-making depends on contextual dimensions: size, technology, strategy, and cultural environment.

Organizations differ according to their activities and characteristics, the context in which they operate, and the situations they face. Their needs vary regarding capabilities, organizational procedures, and appropriate decisions. Thus, each organization is unique in adapting and controlling its structural dimensions in a way that effectively translates its administrative decisions. Concerning the formalization dimension, the study concluded that the organization is marked by high formality to unify and control the behavior of its members through the use of rules and procedures for making quick decisions. High formalization, on the other hand, may stifle creativity and individuals' interactive nature, allowing for the acquisition and exchange of knowledge integrated into decision-making processes. As a result, formalization must be tailored to the nature of specializations and tasks. In the context of the centralization dimension, the organization relies on the central approach in decision-making, which provides controls for performance and taking and works on coordination between the parts of the organization. However, sometimes the organization's strategy involves using lower levels to make decisions, taking their opinions and suggestions, and trying to use them to support the decision-making process.

In the context of the complexity dimension, the organization's functions need specialized knowledge and high skills to face problems and choose appropriate courses of action. The organization's field of activity is far from routine tasks that require standardization, so complex tasks are accomplished by forming work teams that support decision-making processes through the participation of individuals. In addition, the organization develops employees' capabilities according to the needs of their specialties in

terms of skills, abilities, and knowledge to assign each specific task. In contrast, high specialization makes employees focus on their fields without having knowledge and interest in other departments, in addition to the routine that makes it challenging to predict work problems and find solutions. Furthermore, the present research recommends reducing individual differences through training programs and adapting the contextual dimensions of size, technology, strategy, culture, and environment and making them serve and achieve the goals of the organization using the dimensions of the organizational structure and finding the composition compatible with the organization's activity.

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Appendices

Appendix A1: Questionnaire Items

code	item	Strongly disagree	disagree	neutral	agree	Strongly agree
1.1	**Formalization**					
Formal1	The organization has manual procedures that show the steps for carrying out the work.					
Formal2	Decisions are made following the laws and regulations that govern the workplace.					
Formal3	The organization's rules help to carry out tasks comfortably.					
Formal4	Instructions within the organization are communicated in written form.					
1.2	**Centralization**					
Centr1	The decision-making center is known in the organization.					

Centr2	Top management exerts tight control over decisions made at lower management levels.					
Centr3	My boss involves me in organizational work decisions.					
Centr4	I present business issues to higher-level decision-makers.					
1.3	**Complexity**					
Compl1	Organizational functions necessitate specialized knowledge.					
Compl2	Communication is accessible at higher levels in the organization.					
Compl3	The organization's activities are distributed over several sites.					
Compl4	The organization encourages the completion of complex tasks through work teams.					
1.4	**Specialization**					
Special1	The organization develops the capabilities of employees according to their specialization.					
Special2	I carry out assignments which commensurate with my academic qualifications.					
Special3	I find it difficult to do various jobs in the organization.					
Special4	Work is divided in the organization based on the employees' specializations.					
2.1	**identifying and diagnosing the problem**					
Decisi1	I can foresee business problems before they occur.					
Decisi2	I can identify the causes of the problems I encounter.					

Decisi3	The organization allows us to discuss the problems we face at work collectively.					
Decisi4	Specialized committees are formed to analyze work problems.					
2.2	**developing work paths**					
Decisi5	I build solutions based on my previous experience and knowledge.					
Decisi6	I rely on regulations and laws to guide me when generating alternatives.					
Decisi7	The organization relies on the suggestions and opinions of employees in the decision-making process.					
Decisi8	The organization uses modern technical methods to balance the available alternatives.					
2.3	**decision-making**					
Decisi9	The organization's procedures allow timely decisions to be made.					
Decisi10	I have sufficient qualifications to make a decision.					
Decisi11	I use the recommendations provided to me by the work team in making decisions.					
Decisi12	The administration processes and evaluates the implementation of decisions.					

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CURRENT STATE OF ANALYTICS IN ORGANIZATIONS IN THE USA

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Abstract

The state of analytics in the United States is generally strong and growing. The use of data analytics and related technologies has become increasingly important across many industries, including finance, healthcare, marketing, and technology.

According to a report by the U.S. Bureau of Labor Statistics, employment in the computer and information technology field, which includes data analytics, is projected to grow 11% from 2019 to 2029, much faster than the average for all occupations.

A survey was created to identify the state of analytics in the USA, including questions organized into several sections:

Demographics – who is completing the survey: type of organization, role, and contribution to analytics.

Analytics Organization – how is the analytics team structured within the organization?

Analytics Importance and Role perceived within the organization.

Analytical tool/maturity.

The survey was sent to 90 employees from various US organizations, and 34 people responded.

The results show that while all participants perceive analytics as necessary, overall, their satisfaction with analytical structures and processes within the organization could be much higher. There are many opportunities to improve analytics and support decision-making.

Keywords: *Analytics Industry; survey*
JEL Codes: *L89, C83*

Introduction

Analytics plays a critical role in decision-making processes across industries and organizations. It uses data, statistical and quantitative analysis, and predictive modeling techniques to extract insights and drive informed decision-making.

According to John Tukey, data analysis is "Procedures for analyzing data, techniques for interpreting the results of such procedures, ways of planning the gathering of data to

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make analysis easier, more precise or more accurate, and all the machinery and results of (mathematical) statistics which apply to analyzing data". (Tukey, 1962)

The role of analytics can be summarized as follows:

Understanding business performance: Analytics helps businesses better understand their performance by analyzing data and identifying trends, patterns, and opportunities for improvement.

Identifying customer behavior: Analytics can help businesses understand customer behavior and preferences by analyzing customer data, such as purchase history and demographics.

Improving operational efficiency: Analytics can help businesses optimize their processes by analyzing data and identifying bottlenecks and inefficiencies.

Enhancing marketing effectiveness: Analytics can help businesses target their marketing efforts more effectively by analyzing customer data and identifying the most effective marketing channels and strategies.

Supporting strategic decision-making: Analytics provides insights that enable businesses to make data-driven decisions rather than relying on intuition or guesswork.

Other surveys have been completed in the USA to understand the role and the stage of analytics in large and small organizations.

Marr (2016) has collected data from forty-five different businesses and further evaluated their strategies based on the analytics they developed over time. In addition, he published a detailed report about his findings by the organization.

Gartner (2023) also does analytics and data-related surveys. In one of them, they identified that "Less than half of data and analytics leaders (44%) reported that their team is effective in providing value to their organization." The top 3 reasons are staff and skill shortages, lack of resources and funding to support the initiatives, and cultural challenges to accept the change.

One of the challenges of implementing analytics in organizations is the cost component and estimation of that cost. Per Athanasios (2017), " The estimation criteria should accurately describe the basis used for the estimation as well as the assumptions applied to lead to various conclusions." That is required to ensure the accuracy of the estimates.

Most organizations, or at least parts within them, understand how analytics can help them make better decisions. But unfortunately, there is a tendency for managers to think that they can make decisions without advanced analytical solutions. Still, with more and more information available and the increased dynamics and times for change, it becomes evident that analytics is necessary.

Thomas Davenport (2022) researched decision-making and "suggests that 40 percent of major decisions are based not on facts, but on manager's gut". It is scary that in the 21 century, when technology is advanced and the amount of information cannot be processed by the human brain, the decisions are still not based on analytics.

According to pilot testing McKinsey undertook with multiple banks, RMs who used AA workbenches had 9 percent portfolio growth over 12 months. In comparison, control groups who did not use workbenches saw 5 percent growth. They also spread this growth across more clients, received five times more cross-selling ideas, and spent 90% less on account planning.

Methodology

A survey methodology was chosen to identify where organizations stand with analytics currently. Questionnaires are the most used tool in survey research. However, the results of a detailed survey are only helpful if the questionnaire is written appropriately.

A survey is a research method used to collect data from a group of people through their responses to questions. Surveys are generally used to gain insights into people's opinions, beliefs, and behaviors.

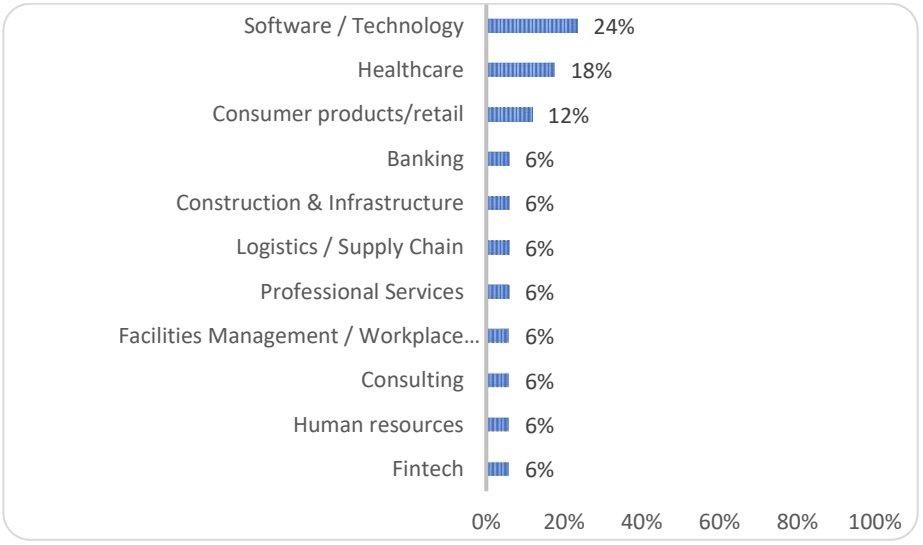
The State of Analytics in the USA - Survey Results

The survey for the research included 18 questions and was sent to 90 professionals from various functions and organizations. Thirty-four (34) people responded to the study.

The objective of the survey is to understand how analytics is structured within the organization and how analytics are used to benefit the organization. The survey was anonymous.

The first few questions are to understand the demographics of those who responded. Most responders (n=20) work for organizations larger than 1,000 employees.

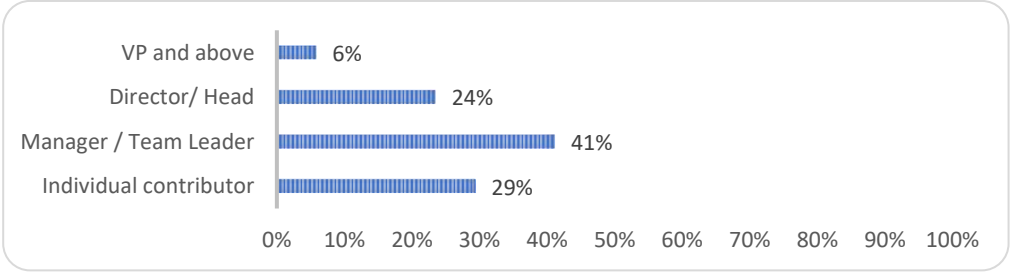
Figure no. 1 Participation by Sector



Source: Author

The sample is representative of regular organization role fragmentation.

Figure no. 2 Participants by role.



Source: Author

The second section of the survey identifies the analytics structure within the organization. Again, all the responders answered that they use analytics in their organization which is excellent news and is the expected outcome.

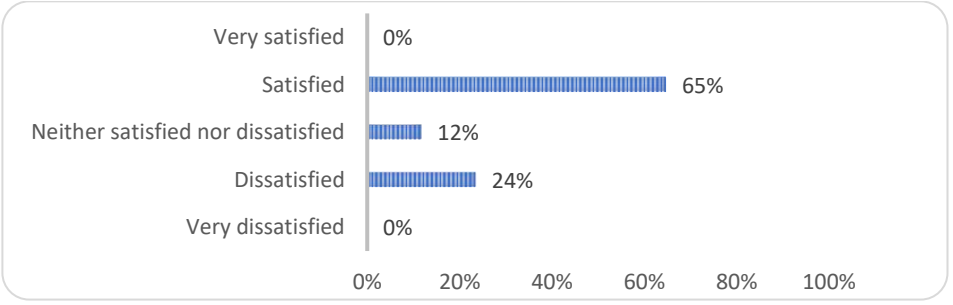
Almost half of the organizations (47%) have centralized analytics departments which speaks for higher analytics maturity. However, decentralized analytics areas are used in 41% of the organizations, which only allows the organization to benefit from the analytics. Most respondents use analytics (76%) vs. creating analytics (24%). Only 29% have Chief Analytics Officer.

The third section of the survey identifies the role of analytics in the organization.

The question of the importance of analytics has five possible answers: Very Important, Important, Neutral, Not Important, or Not Important at all. For 59% of participants, analytics is Important; for 41%, it is Essential. People recognize that analytics plays a vital role in their organizations.

The answers to the question about satisfaction with the analytics within their organizations are in the middle part of the answering choices, which means that no one is Very Satisfied or Very Dissatisfied.

Figure no. 3 Satisfaction with Analytics.



Source: Author

Net promoter Score will be used to evaluate satisfaction.

Net Promoter Score (NPS) is a metric used to measure customer loyalty and satisfaction. A single number represents how satisfied people are with a specific service and how likely they are to recommend a company, product, or service to their friends, family, or colleagues.

In our case, the result is 40.

An NPS of 40 indicates that the business or organization has more promoters than detractors, but there is still room for improvement.

Here are some clarifications for the ratings selected:

As a young organization (3 years), our data in terms of structure and availability is still evolving. As a result, we have many areas to improve and standardize across the org.

Processes are efficient for requesting and pulling data. However, challenges come when attempting to identify anomalies, trends, etc... Self-service analytics helps but requires continuous dashboard creation & updating.

The depth and breadth of data are extensive. However, timeliness and access to marketing data could be better.

Need more detailed reports

Many of our internal software packages are outdated

Bad communication

There are still many opportunities where Advanced Analytics can be used.

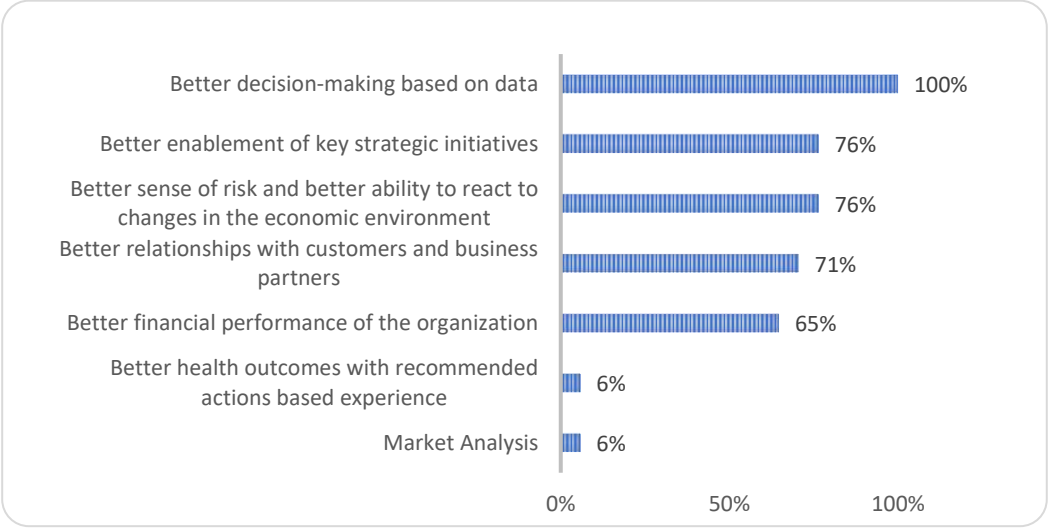
Not always available on demand

It is available upon request and accurate

It is evident that even those employees with some level of satisfaction still recognize opportunities to improve analytics processes and how recommendations are considered for better decision-making.

The participants indicated analytics' benefits for their organizations (multiple choice).

Figure no. 4 Analytics Benefits.



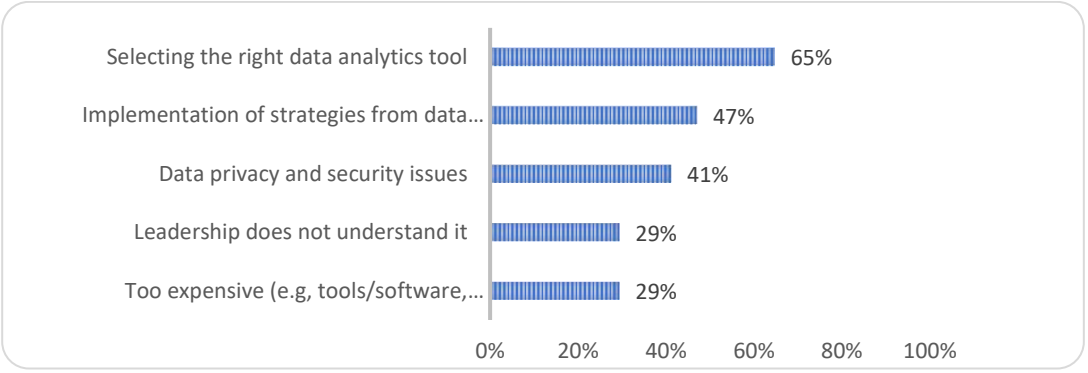
Source: Author

All participants pointed out that analytics supports better decision-making. Also, analytics help with risk management and strategic decisions and improve customer and business partner relations.

At the same time, the respondents identify the reasons that prevent greater analytics adoption. While it may sound strange that the main reason for analytics problems is selecting the right tool since 65% choose that answer, in reality, many employees think that the device is the problem rather than the implementation or the design of the reports and analytics itself. The second challenge is the "Implementation of the strategies from the data analytics exercises" (47%), which is typical for most organizations. Even if the organizations have average analytics maturity, the decisions are sometimes based on gut feelings or collective opinions, not actual analytics recommendations.

A high percentage of answers are regarding "Data privacy and security issues" (41%), which has become more critical lately due to data and security breaches and sharing important data with not the right people. The last two reasons, "Leadership doesn't understand it" and "Too expensive," have each 29% selection.

Figure no. 5 Challenges to analytics adoption.



Source: Author

When asked, "Did data and analytics improve your organization?" 94% answered yes.

In addition, they have shared examples of how analytics did that.

Improves strategic initiatives implementation. We are moving to more centralized data warehouses, so the organization reads and reports from a single data source.

To invest more productively with historical performance to guide decisions. Health behavioral information enables the following logical actions to improve health outcomes and reduce claim costs.

More successful initiatives

It helps us make better, more strategic decisions for our clients

Better estimations, better risk analysis, more comparisons

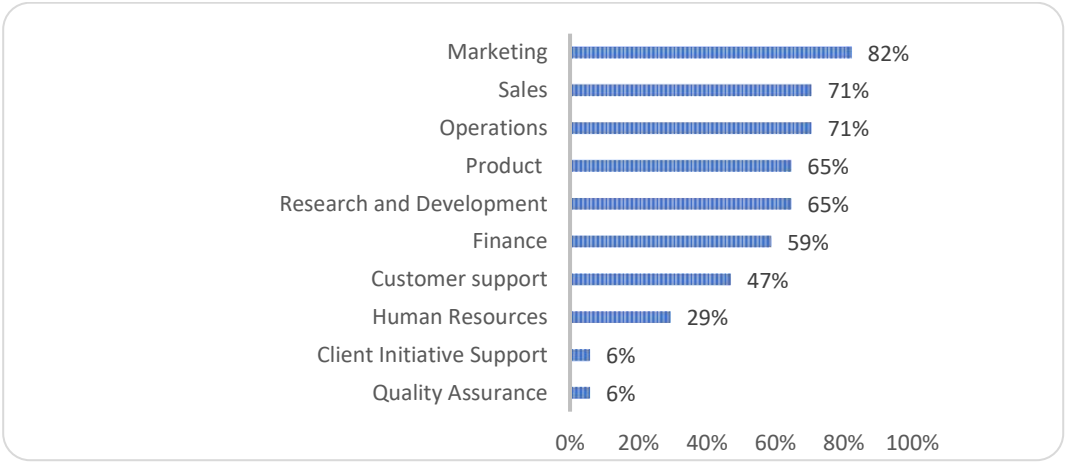
Better forecasting for supply/demand, meeting KPIs, measuring risk, monitoring manufacturing efficiencies and product release (pass/fail data)

It gives us a better understanding of all Financials manufacturers, consumers, and retailers allowing us to build better sales plans and Joint Business plans with retailer partners

The responses show that the Marketing department uses analytics the most, and there are a few reasons. The first is that marketing has the money for analytics. Second, much customer behavior information is collected and can be used to motivate future sales. Other

analytics departments include sales, Operations, Product, Research and Development, and finance.

Figure no. 6 Analytics usage by department.

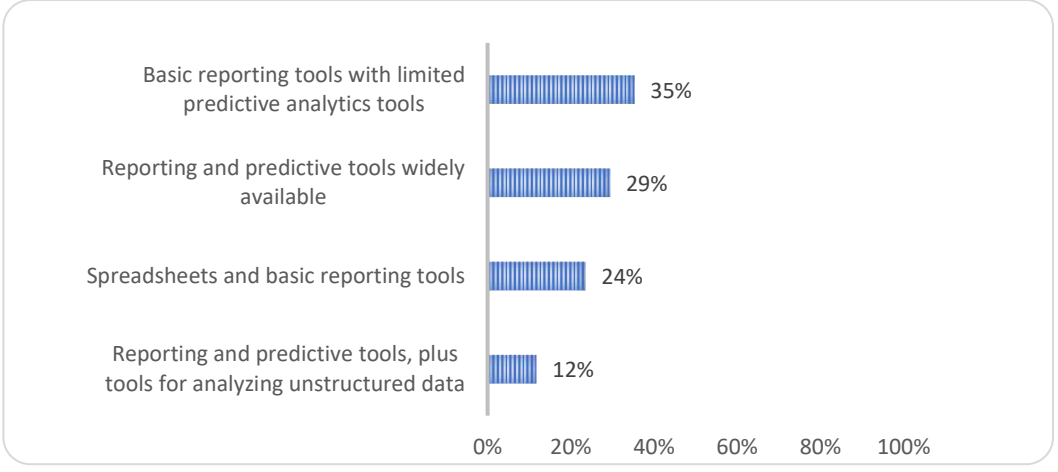


Source: Author

The last section of the survey is related to the tools used by the organizations.

The results show that most organizations use essential reporting tools and spreadsheets, while only 12% have Reporting and Predictive tools and tools for analyzing unstructured data. They are shown in *Figure 7.*

Figure no. 7 Analytical tools used.



Source: Author

Conclusion

The survey results show that analytics is essential for both large and small organizations. 94% say that analytics has improved the work in the organizations. They see "better decision making," "more successful initiatives," and "better estimation and risk management." Analytics can be and is used at most organizational levels; while different information in a different manner is provided, the decision-making process is better when analytics is used.

Analytics are more developed in software/technology companies, but it has their place in other types of businesses.

Organizations with more mature data and analytics structures are centralized, which is valid for 46% of the participant organizations. Overall, a centralized analytics team can provide better consistency, collaboration, specialization, resource allocation, and governance in data analytics, leading to more effective use of data for decision-making in an organization.

Respondents are unsatisfied with how analytics are used in their organization, having an NPS of 40. However, even in places with analytics, there is an area for improvement. The reasons for dissatisfaction vary from software cost, management needing to understand the benefits, and data requiring better quality and readily available.

Overall, the future of analytics in the USA will likely be shaped by the increasing use of AI and ML technologies, the growing importance of data privacy and security, the demand for skilled professionals, greater integration with business strategy, and a focus on real-time analytics.

Since we are in 4th industrial revolution and as Dimitreska, Stankofska, and Efremova (2018) state, "variety of innovative producers and competitors will have easy access to digital platforms of marketing, sales, and distribution" only those with advanced on-time analytics will have the competitive advantage to succeed.

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DEVELOPMENT OF FINTECH SOLUTIONS IN THE MACEDONIAN BANKING SECTOR

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Abstract

Fintech is radically changing the financial landscape in the 21st century. It emerged because of three significant driving factors, the 4th Industrial revolution, the Covid-19 pandemic, and the changed needs of consumers.

Covid-19 accelerated the fintech industry's growth. The Internet of Things, artificial intelligence, augmented reality, and the cloud exerted tremendous pressure on traditional financial technologies. Embodied in advanced technology that provides better and more efficient financial services, fintech is intensively used by reformed financial institutions, start-ups, scale-ups, and unicorn companies. Consumers also benefit from the new digital financial services.

The paper analyses the trends and perspectives for fintech development of the Macedonian financial sector. Extensive empirical research was performed regarding past and current levels of the bank's digitization with a focus on legislation and the level of outsourcing of e-banking products and services as an obstacle or incentive for the development of the fintech industry.

Keywords: *bank digitization; industrial revolution; Covid-19; fintech companies; consumers*
JEL Codes: *G21, G28, O33*

1. Introduction

Fintech is an innovative, emerging market and has potential to change the world of finance. This industry is growing at an increasing rate, replacing the traditional financial techniques. Today, the fintech industry is worth approximately $180 billion and the total

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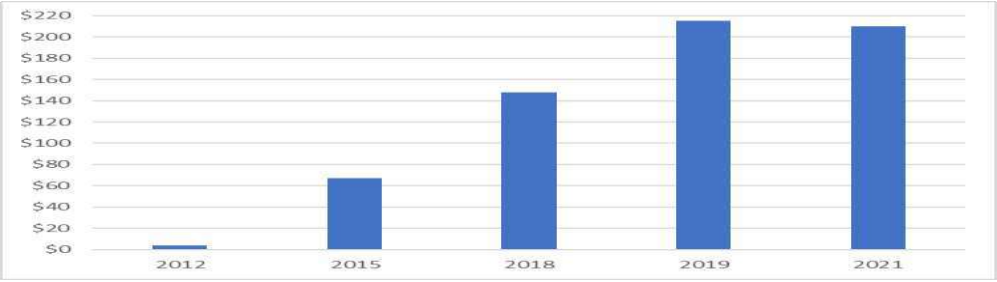
value of the global fintech market is estimated to reach $305 billion by 2025 (Globe Newswire, 2020). Global fintech industry revenue as well as the number of fintech startups has more than doubled. Hence, the revenue has grown by 97% since 2017 (when revenue was approximately $90.5 billion) and fintech startups reached over 26,000 from only around 12,000 fintech startups worldwide in 2019 (Deloitte, 2020). It is expected that global fintech revenue on average to grow by 11.7% between 2019 and 2024 (Deloitte, 2020). Fintech industry investments (see Figure 1) have also grown at a fast rate and have reached $210 billion with 5.684 deals by the end of 2021 (KPMG, 2022).

Figure no. 1 Investments in fintech industry, in $ billion



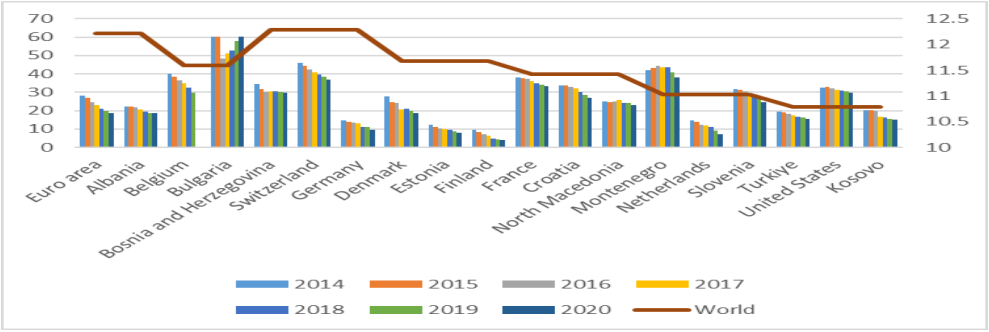
Source: KPMG (2022)

According to Statista (2022), the total cryptocurrency market capitalization reached $992 billion in September 2022, which is almost 40 times more than $25 billion in March 2017. The same source indicates that the transaction value in Crowdfunding is projected to reach $1.02 billion in 2022.

The emergence of fintech is due to three significant driving factors, the 4th information and communication revolution, the Covid-19 pandemic, and the changed needs of consumers, both individual and business. The 4th industrial revolution brought innovations, such as the Internet of Things, the cloud, augmented reality, robotics, digital products, 3D printing. By overcoming limitations in terms of time, space, and the existence of asymmetric information, through digitization, electronic financial services significantly contribute to a qualitatively higher level of efficiency, profitability, and stability in the financial markets. Traditional banks and their branches are affected mostly and are losing their comparative advantage and convenience with the emergence and development of the fintech industry. They must invest in e-banking and offer competitive financial services. They have started to make a substantial investment in new technology, particularly digital wallet solutions, biometric identification systems, and sophisticated algorithms for screening borrowers. (EBRD, 2021). The size of the bank's physical branch networks is decreasing globally, from 12.22 per 100.000 individuals in 2014 to 10.78 in 2022 (see

Figure 2), as banks face intense competition from neo banks, non-bank internet lenders, and fintech firms.

Figure no. 2 Commercial bank branches (per 100,000 adults)



Source: World Development Indicators (2022)

Pressured also by the Covid 19 pandemic, commercial banks have responded with expansion of digital infrastructure, by offering more online banking services.

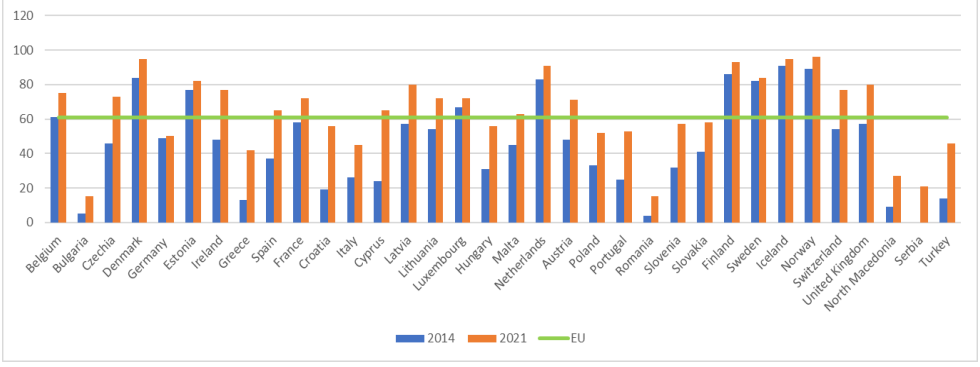
The fintech industry, which has a disruptive character for banks, gives space to non-financial institutions and companies, which are technologically advanced, to offer digital financial solutions that are not offered by commercial banks. In this respect, digital innovators such as peer-to-peer lending, digital (cashless) payment, robotic trading, robo-advice, virtual currencies, crowd-funding platforms as well as big-tech firms are becoming strong competitors to commercial banks. In ten years, PayPal accounts have almost doubled. From more than 232 million accounts registered in 2011 (of which over 100 million were active), in 2022 PayPal has 426 million active, registered accounts and is already operating in 202 markets. It allows customers to send, receive, and hold funds in 25 currencies worldwide and from 2021 allows customers to use cryptocurrencies to shop at 26 million merchants online. It also offers services not only to individuals (B2C markets) but also to legal entities (B2B markets) (PayPal's Q4-21, 2022). Furthermore, large companies for telecommunications, electricity, gas, water, etc. are increasingly introducing their own systems for electronic payment of monthly bills for electricity, telephony, internet, television, etc. With the opening of this type of online payment portal by larger corporations, the need for over-the-counter operations and the commissions that banks charge for this type of service are tremendously reduced.

Because of the rapid development of fintech and its extension into previously untapped markets, people can now obtain financial services more easily (Popkin, 2019). As a global network, the Internet connects intelligent machines, software applications, and

people. Five billion people utilize the internet today, which represents 63 percent of the world's population (Statista, 2022). Trends indicate that roughly 196 million new people access the internet each year or the number of internet users grows approximately at an annual rate of 4%. 4.6 billion people, or 92.1% of all internet users worldwide, use a mobile phone to access the internet occasionally. Today, mobile phones account for more than 55 percent of the online time, as well as close to 60 percent of the world's web traffic (DataReportal, 2022). By overlooking the worldwide internet use by the countries, it can be noted that the largest share of internet use has the US (internet penetration rates maintain over 90%) and China (World Population Review, 2022). China is the front-runner in terms of fintech adoption, with 92% of Chinese using fintech banking and payment and 91% of financial management solutions in 2019. The USA is in second place in terms of fintech banking and payment adoption with 52% and with 49% in financial management solutions in 2019. Compared to 2018, the number of Americans that use digital banking increased by only 4% (in 2022 end up with 65.3% of the US population), whereas huge growth from 5% to 38% was registered, especially between 2013 and 2018 (Howarth, 2022).

The penetration of the Internet for e-banking is gaining momentum in EU countries as well as in the Republic of North Macedonia. According to the EU agenda, EUR 9.2 billion is expected to be invested in key digital technologies between 2021 - 2027. The aim of the new Digital Europe investment program is to ensure that all Europeans have the skills and infrastructure needed to meet a range of digital challenges (European Commission, 2020). While 61% of Europeans use the Internet for e-banking, North Macedonia, together with the neighboring countries, is at the bottom of the table (see Figure 3).

Figure no. 3 Individuals using the Internet for e-banking



Source: Eurostat (2022)

Looking at the upward trend of digitalization and how fast the fintech industry is growing, it is clear that it will soon become an integral part of the future of finance and

should be closely monitored by the Macedonian banking sector. According to the research done by Danevska et al (2022), 67% of Macedonian banks claimed that they were close to greater digitalization, and 33% plan to realize it as a long-term commitment. The fact that Macedonian consumers (88% of respondents) express their willingness to use digital products and services is encouraging. They expect more diversified and wider financial offers in the future.

In what follows, the focus will be to analyze the level of development of fintech solutions in the Macedonian banking sector. Special emphasis is placed on factors that motivate/demotivate banks to digitalize their processes by themselves or to use services from outsiders (outsourcing of the bank activities). The analysis will show the level of digitization of the domestic banks, the application of the appropriate regulation for the further development of fintech solutions and banks' perspectives in the information age.

2. Literature review

Due to the multidisciplinary nature of fintech (finance and technology together), so far have been no differentiated clear definitions for it. Different authors, experts and theorists define fintech in different ways, depending on their research goals. Perhaps the most comprehensive is the following definition of fintech, namely, a cross-disciplinary subject that includes innovation, technology, management, and finance. It encompasses all creative ideas that improve financial service operations by suggesting technological solutions in line with different business situations. The ideas may also lead to new business models or even new businesses. This definition emphasizes the multidisciplinary character of the fintech industry and points to its dependence on modern technology.

Table no. 1 - Existing fintech definitions

Author(s)	Definition	Key hallmarks
Bettinger (1972)	The term "fintech" stands for financial technology, which combines information computer technology, modern management science methods, and bank expertise.	Focus on incumbent, sustaining innovation
Arner et.al (2015)	Financial solutions facilitated by technology are referred to as "financial technology" or "FinTech." Peer-to-peer (P2P) lending is one example of a Fintech business model. The term Fintech refers to the complete range of services and goods that have historically been offered only by the financial services sector.	Focus on modern technology
McAuley (2015)	Fintech is an economic industry composed of companies that employ technology to make financial systems more efficient.	Focus on companies

D. Huang (2015)	Fintech is a company that uses technology in the areas of banking services, payments, data analysis, capital markets and financial management.	Focus on companies
Maier (2016)	By employing technology to provide value to customers in a different way, new fintech companies are attempting to compete with established financial institutions.	Focus on new market entrant, disruptive innovation
Jun and Yeo (2016)	Recent developments in information and communications technology (ICT) have led to the rapid emergence and expansion of new and innovative financial services, often termed as Fintech.	Focus on new market entrant, disruptive innovation
Kim, Y et al (2016)	Fintech is a service industry that employ mobile-centered IT technology for the purpose of improving the effectiveness of the financial system.	Focus on financial service
Investopedia (2016)	Fintech is a portmanteau of financial technology that describes an emerging financial services sector in the 21st century.	Focus on modern technology
Ernst&Young (2016)	Fintech refers to organizations that combine innovative business models and technology in order to enable, improve and disrupt financial services.	Focus on companies
Schueffel (2016)	Fintech is a new financial industry that uses technology to advancefinancial activities.	Focus on new market entrant, disruptive innovation
D. Varga (2017)	Fintech is a company that is totally unregulated in the legal system or is only partially regulated. The task of FinTech businesses is to provide innovative financial services through new technology. Fintech companies were established to provide advanced financial services that go beyond the traditional scope.	Focus on companies
Gimpel et al. (2018)	Fintech characterizes the usage of digital technologies such as the internet, mobile computing, and data analytics to facilitate, develop, or disrupt financial services.	Focus on new market entrant and industry incumbent

Source: Our own research

Both financial and non-financial institutions and businesses can enter this industry if they offer modern digital financial services. An overview of the most popular fintech definitions is presented in Table 1. The table shows the inconsistency in defining fintech among different authors. Some authors define fintech as a technology and innovation, others associate it with financial service and third describe it as a company. Taking into account the various theoretical points of view and definitions of fintech, it can be concluded that the most important elements are: 1) fintech is a company that provides financial services on its own behalf or it provides financial services to other entities; 2) it has

innovative, modern and original character meaning that fintech uses the most modern technology in the provision of financial services, and 3) the scope of activity can be global (using large technology platforms), international (well-established financial and non-financial institutions) or local (small companies just starting their operations). At this point, the term "fintech" is ambiguous and leaves space for further discussion.

Evans and Browning (2021) indicated that financial services that went through the biggest changes because of the fintech are: payment services (cashless, mobile payments, cryptocurrencies, digital wallets), retail banking, financial advice (data analytics, AI, robo-advice, automated trading of investments), insurance (Insurtech), alternative finance (crowdfunding, peer-to-peer lending) and regulatory technology (regtech). However, the evolution of fintech and its technologies is presented in the following table:

Table no. 2 - The development of fintech and new technologies in each stage

Fintech 1.0 (1866-1967)	
Development	**Key technologies**
Era of key enabling technologies Finance and technology combined to produce the first period of financial globalization	1866 - First transatlantic transmission cable 1918 - Fedwire (electronic fund transfer) 1950 - Credit cards (Diner's club) 1966 - Telex
Fintech 2.0 (1967-2008)	
Era of Internet technologies Analogue to digital transfer, led by traditional financial institutions	1967 - ATM 1971 - NASDAQ and electronic trading 1973 - SWIFT 1983 - Mobile phones 1983/1985 - Online banking 1999 - Internet
Fintech 3.0 (2008-)	
Era of data technologies Emergence of new players (start-ups)	2007-iPhone 2009- Bitcoin 2009- Reward-based crowdfunding 2011 - P2P money transfer service 2011 - Google wallet 2014 - Apple Pay

Source: Our own research

With progression in technology, fintech will continue to drive disruptive business models in financial services.

3. Research methodology and data collection process

To answer the research questions, two sources of data were used:

A) Primary data: During the research in the field, the survey method and the method of direct interviews were used. A survey with banks is conducted, by using two extensive questionnaires. One regarding the E-banking implementation and development in the Macedonian banks until 2014 and the other extended for the challenges and perspective of e-banking management (analyzes of PC/Internet banking and mobile banking) and other fintech products and services in the Macedonian banking sector in 2022. The research instruments contained open and closed questions (Likert scale, semantic differential, multiple choice questions). The period of the research of the first questionnaire was November 4 to November 21, 2013. At that time there was a total of 15 private commercial Macedonian banks and the response rate of the questionnaire was 86.7%. The second questionnaire was performed between February 15th and April 1st, 2022. Replies were collected mainly by e-mail, the social networks, as well as by personal contacts. The rate of response was 66.7%, i.e out of total 12 private commercial banks, 8 answered the questions. For the processing of the data, comparative analysis of the current level of digitalization of the Macedonian banking sector with the situation until 2014 was made by using mainly primary data sources.

B) Secondary data: information and data from fintech-related publications, such as academic journals, statistical data, reviews, e-books, published presentations, blogs, and published expert opinions. Online resources predominated. The Internet is flooded with numerous articles, evaluations, and discussions concerning the usage, benefits, and drawbacks of the banking sector's digitalization and relationship with fintech companies. The study draws on both domestic and international writers' published works and publications on fintech applications for the banking industry.

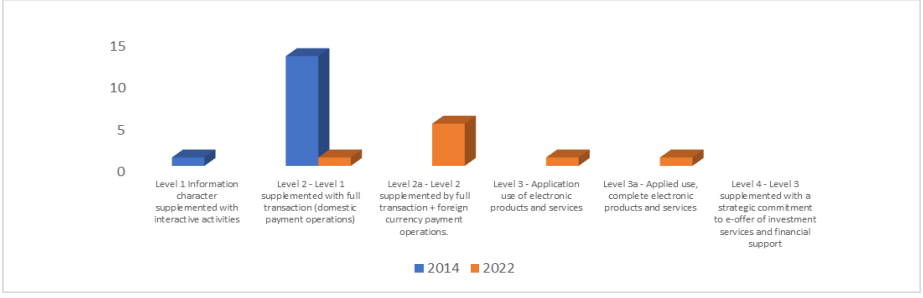
4. Analyzes and discussions

The beginnings of e-banking, as one of the first appearing fintech (at the beginning PC and later as mobile banking) date back to the early 1970s. The internet allowed banks to offer many new financial services and products: such as e-payments, m-payments, online loans, online brokerage, mutual funds, etc. The fast pace of life, the client's easy access to the Internet, the possibility to make a million dollar transaction with just one click, the Covid-19 pandemic, made e-banking develop rapidly, both in the world and in our country. In January 2012, only 63 million Americans were recorded as users of e-banking. Ten years later, 217 million Americans or 65.3 percent share of the US population are using digital banking. Furthermore, 38% of US personal loans are granted by fintech's. (Statista, 2022)

The analyzis of the application of fintech solutions in banking operations by Macedonian banks, showed that all 100% of the respondents had their own ATM systems and issue payment cards since 2014. The first e-banking transaction carried out over the computer was performed by Eurostandard Bank AD Skopje in December 2003. Pioneers in introducing m-banking were two banks from the group of large banks (Stopanska Banka AD Skopje and NLB Tutunska Banka AD Skopje). In 2014, m-banking was in its infancy and to the greatest extent covered only payments in domestic payment transactions for retail. Hence, in the beginning, most of the activities offered by Macedonian banks through smart mobile phones referred to overview and status of accounts, cards, deposits, and print statements; internal transfer of money, payment to third parties in mainly domestic payment transactions and custom templates for periodic payments (e.g., monthly overheads). Almost twenty years later, all twelve Macedonian private commercial banks are offering e-banking. Fostering the process of digitalization imposed by Covid-19, there is an upward shift in the use of the internet for e-banking by 12 percentage points compared to 2019 (before the Covid-19 pandemic). Hence, 18 percentage points increase is marked from the field research compared to 2014. Along with other European countries, North Macedonia exceeds the average of the Balkan countries but is still far from the European average of 61% in the application of e-banking (Statista, 2022).

To identify the level of digitalization according to the domestic banking activities, the authors analyzed four main stages of the development of e-banking services. The first phase of training and gaining experience, that is, a phase consisting of marketing and promotion (development of a marketing website); Second phase: Easy interactivity in domestic and foreign payment transaction; Third phase: Actual online banking by making a distinction between informative and applied use (full transactions and services); and Fourth stage: Strategic use i.e. strategic changes (Stoneburner, Goguen and Feringa, 2002).

Figure no. 4 Indication of the level of bank digitalization (by number of banks)

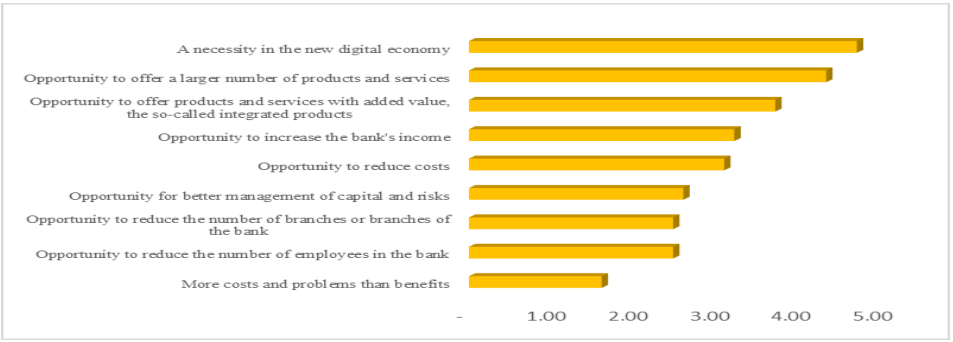


Source: Adjusted and enlarged from Danevska, B.A. et al (2022)

Results show that the banks in the Republic of North Macedonia follow the latest trends in digital banking at a lagging pace. Up to 2014, 87% of the banks had implemented e-banking but mainly used it for e-payment and monitoring of the balance and turnover of accounts, transactions made on domestic cards, and deposits on a very basic level 2. One bank from the respondents declared that the website is still used for informational purposes, supplemented with interactive activities, such as transaction account, debit or credit card application, calculator for various types of loans, etc.). Eight years later, 12.5% of the surveyed Macedonian banks are still at the same level 2 and only 25% of them (two banks) have moved further and declared that they are in the third stage of the development of e-banking. However, almost two thirds of the banks (62.5%) have an average level of their digitization at level 2a, i.e. performing e-payments and other transactions in domestic and foreign currency payment operations. Not a single bank responded that it offers corporate e-loans (CreditOnWeb), online investment banking services, such as trading and brokerage, or asset management, personal/corporate finance or investment robo-advisers and InsurTech services. The questionnaire just confirmed that banks in the Republic of North Macedonia dominate as traditional commercial banks and only slowly follow the new trends in digital banking. Embedded, ubiquitous banking which is the features of the global banking system since 2017, according to King (2018), is only emerging in the Macedonian market. It is clear that Macedonian banks will be challenged in near future with a rather difficult period of innovations in financial services with greater financial inclusion and redefinition of their banking business models.

Alongside the traditional way of banking operations that still dominates the banking system of the Republic of North Macedonia, positive views for e-banking use by Macedonian banks are increasingly perceived. According to survey data from 2014, 75% of Macedonian banks saw the adoption of e-banking as a chance to boost the bank's revenue and customer base and as an opportunity to offer a greater number of products and services, but only 25% of banks saw e-banking as an opportunity to improve risk and capital management processes and as an opportunity to reduce the number of employees and branch offices or branches of the bank. Hence, the application of e-banking was seen mainly as an opportunity to simplify basic banking operations (payments from and to the bank) and facilitate customer access to their accounts. To assess their today’s views, banks were asked the same question by assigning a level of intensity on a scale from 1 to 5 (see Figure 5).

Figure no. 5 Banks' view of the e-banking implementation



Source: Danevska, B.A. et al (2022)

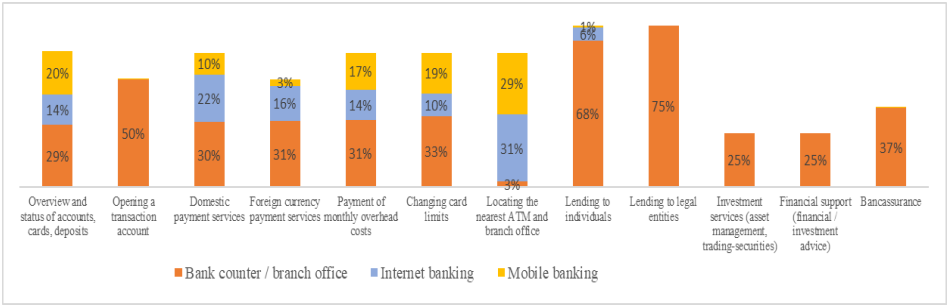
Likewise, to the comments made in 2014, banks today highly recognize e-banking as a necessary tool that should be implemented in the new digital economy, that offers an opportunity for a large number of products and services. Greater advantages that Macedonian banks also see in terms of e-banking are the possibility of higher revenues, lower transaction costs, and the possibility of increasing the number of customers.

However, contrary to the worldwide challenges of the e-banking implementation, Macedonian banks consider that the net effect of the introduction of e-banking is neutral or with a low level, in terms of opportunity for better management of risk and capital, decreasing the number of branches and reducing the number of the bank's employees. Further, a worrying issue is that the research showed that Macedonian banks estimated the impact and the direction of impact of the introduction of e-banking over the number of the bank's employees with low level. They neither recognize that e-banking will have influence over the change in the number of employees nor with the estimation of 2.88 see the need for retraining at this stage. However, direct interviews with bank representatives and field analyzes showed that they are aware that at the expense of increased risks (operational, above all from the aspect of the security of the information system, strategic and reputational risks) with the introduction of e-banking, it is expected to have a reduction in the risks related to the human factor that arose from the traditional manual, paperwork in the distribution network of the bank.

When banks were asked "…through which of the given channels do you think that the clients use your banking services more…." in 2014, 77% of banks responded that their customers use banking services more through bank counters and branches. Only three banks considered that their customers use bank counters and online banking equally. According to the current analysis of banks' data, which indicate customer preferences for using banking services, 62.5% of respondents said they preferred using bank branches

more, while 32.5% said they preferred using e-banking services. Unfortunately, even today no bank answered that customers use banking services more through internet banking. The Macedonian mentality, which hardly abandons the traditional way of working, is again reflected in the answers given to this question. Furthermore, to assess which of the channels clients use more for the banking services, based on banks' data and reports, the results (see Figure 6) show that clients chose to visit "brick and mortar" banks more often for practically every service offered.

Figure no. 6 Banks' data regarding the most used channels by the clients



Source: Our own research

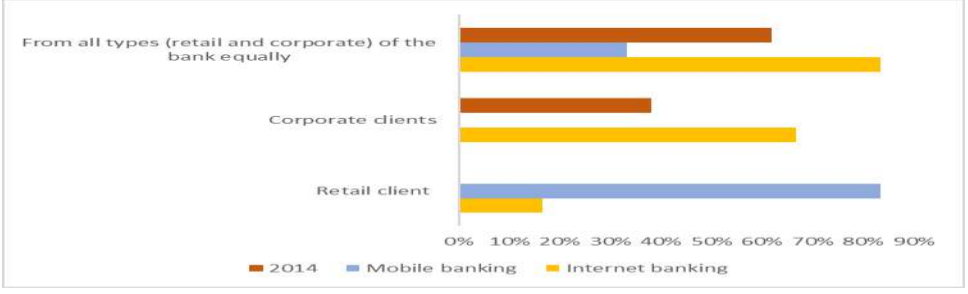
E-banking is leading mainly in locating nearest ATM and branch office, domestic payment services, overview and status of accounts, payment of monthly overhead costs and changing card limits. The traditional way of banking still dominates where clients still use more the banking services and products through bank counters and branches. These findings point out that Macedonian banks are at the beginning of the digitalization path. Field analyzes confirmed that the biggest challenge for the Macedonian e-banking is still the low level of digital skills among the domestic population. Greater resistance, and lack of interest, are especially spread among elderly people. (Parnardzieva Stanoevska Elena 2021). On the other hand, as will be elaborated below, Macedonian current legislation is not yet adapted and harmonized with the current world tendencies in creating digital banks, thus protecting, and fostering a traditional way of banking.

With the process of digitalization and fintech development, the need for counter operations and bank branches is significantly reduced. The introduction of fintech solutions in the banking sector presupposes greater financial inclusion and redefinition of banking business models. Reduced transaction costs lead to reduced visits to branches, reduced volume of high-frequency routine transactions, and leads to the need to redesign their role or eventually to their closure. This process practically leads to the creation of digital banks and digital banks do not have a brick-and-mortar branch network. Instead, they have one

registered head office. (Sucubaşı et al, 2022). In this regard, Macedonian commercial banks were asked whether they are planning to change the number of bank branches according to their strategic plans. Unlike the fintech trends, only 25% of the banks responded that they plan to decrease the number of bank branches, half of them responded that they are not planning any changes, whereas 25% even responded that they are planning to increase the number of bank branches.

From the perspective of the domain covered and the type of customers, in 2014 the largest number of Macedonian banks (62%) declared that e-banking is equally used by both corporate and retail, 38% replied that is more used by corporate sector and that they mainly offered e-banking service for domestic payments. Only one large bank answered that they offer e-banking for foreign payments and only one small bank replied that it does not offer internet banking at all. As can be seen from Figure 7, in the questionnaire in 2022, the largest number of Macedonian banks, i.e. 83% stated that Internet banking is equally used by both corporate and retail, but also 67% agreed that corporate dominate in its use whereas 83% responded that m-banking is mostly used by retail clients.

Figure no. 7 Bank customers, Internet and Mobile banking users



Source: Our own research

The same authors' earlier study came to the conclusion that Macedonian banks and customers are gravitating more and more toward e-banking, which is a striking truth that will grow in the next years. Thus, 88% of customers still anticipate that banks will become more digital in the future and will have a bigger variety of new technical products and services available to them (Dimitrieska et al, 2022).

From the research carried out (where 100% of the banks answered positively), it could be unequivocally concluded that since 2014 all Macedonian banks within their business operations have established special teams for introducing and monitoring e-banking. As a result of advances in technology and the rapid development of the Internet today, e-banking transactions can be created and tracked through standard online viewing

tools or through financial planning software packages. The application of fintech especially in the banking sector should contribute to the improvement of service and business processes of banks, simultaneously creating time added value for enterprises and society.

Regulatory framework for managing the fintech

Requesting for a new framework for doing business in the banking sector, e-services are increasingly influencing the fundamentals of economic theory and business practice and thus increasing the need to redefine government and central bank policies concerning the e-service sector. In today's modern and imaginative methods of financial services, we are faced with a mix of banks, capital markets and insurance management products in accordance with the needs of corporate clients and the population. Namely, the absence of borders between these three sectors also means that the need will emerge for a much higher level of cooperation in order to manage the various risks, such as maintaining the business presence of newcomers, conglomerates, and competitive products developed within each of the above sectors or as a result of their interactions. This can lead to a change in the role of different traditional financial instruments, to new challenges for regulators from each sector respectively, and to the need for comprehensiveness in the processes for effective implementation of fintech solutions. The challenge that every country has to face, including ours, is the need to introduce and implement an efficient regulatory framework for managing the fintech, with the aim of maximum protection of customers from domestic or foreign fake/fraudulent online operators. Hence, under the influence of new technology, more and more attention will have to be paid to security challenges, as the biggest potential risks when performing e-financial operations. In that context, part of the questions in the questionnaire aimed to examine whether in the country there is an appropriate regulation set by the National Bank of the Republic of North Macedonia (NBRNM) for regulating fintech market.

Field results show that actual legal regulations that regulate e-banking in the Republic of North Macedonia consist of:

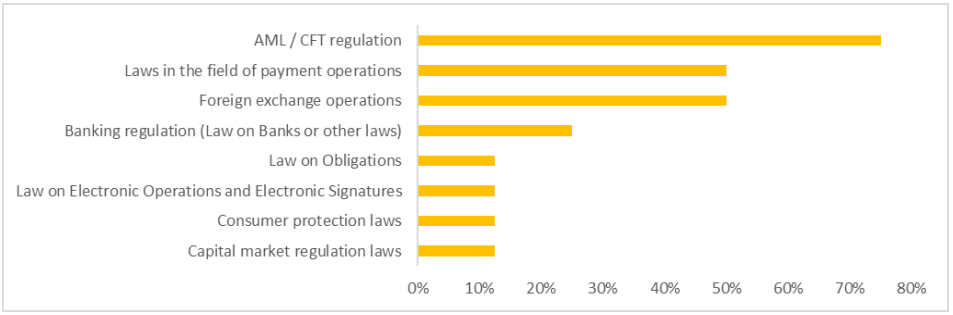
- Law for e-documents, e-identification, and confidential services enacted in 2019;
- Decision on the Methodology for the security of the bank's information system, revised and fully harmonized with the Basel principles in 2018.

The NBRNM strives to regularly monitor and implement main activities at the international level, aimed at creating preconditions and instruments that enable the strengthening of regulation in the Macedonian banking system. Regulators acknowledged that the existing regulation in North Macedonia does not accommodate fintech business models (NBRNM, 2020). From the same research conducted by NBRNM, it also can be

concluded that in the North Macedonia, although there is an infrastructure that supports technological innovation (regulators and the institutions) there is still a need for additional strengthening of the existing regulation as well as for enacting particular fintech legislation.

By interviewing the banks of their regulatory opinion, half of them confirmed that there are significant legal and other regulatory barriers for the successful operation and spread of e-banking on the Macedonian financial market. Hence, 100% of the banks answered positively that there is room for improvement in the existing regulation regarding e-banking. They all agree that the regulator should enable regulatory access to the new fintech players and should strengthen the legal regulation of non-banking financial institutions.

Figure no.8 Biggest regulatory barriers to working with e-banking



Source: Our own research

Hence, regtech framework has to be implemented in order to support fintech development in the Macedonian banking sector. From the existing legislation, banks have particularly identified the Anti-Money Laundering Law and The Law on Combating the Financing of Terrorism, the Laws on Payment Operations and restricted regulations in the foregn payments as the biggest regulatory barriers to working with e-banking (see Figure 8). The current limitation of these laws is that they require physical presence for identification, when conducting certain financial transactions. Hence, the Macedonian regulatory framework should consider changes and updates to those regulations in order to impose the creation of a new banking landscape.

The challenges of the information systems security and their regulation is still a top priority. Based on the results, in the framework of their business operations all Macedonian banks have established special practices (responsibilities, policies and controls) for operating with e-banking by the senior management bodies and for the management of e-banking with the use of external services (outsourcing) and dependence on third parties since 2014. Furthermore, 100% of the banks already have separate organization unit responsible for digital transformation. To ensure the continuous development and maintenance of operational and security infrastructure that will protect the data and e-

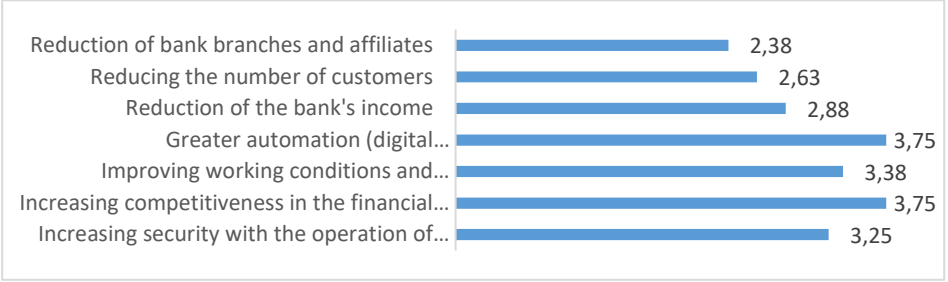
banking system from internal and external threats, half of the banks answered that at least twice a year (in 2014, over 70% of the banks answered that this is the case at least once a year) the highest management bodies review and evaluate the key processes of security controls for protection of the e-banking systems and data from internal and external threats. Compared to the past, it can be concluded that today the security of the bank's information system is strengthened and the evaluations regarding the key processes of security controls are intensified.

The results obtained from the survey conducted in 2022 only confirm that the regulation for risk management in terms of e-banking has been properly implemented by all Macedonian banks. Over 87% of Macedonian banks believe that the NBRNM provides clear guidelines for managing e-banking and that the current IIE regulation for e-banking management is sufficiently clear and understandable. Half of the banks believe that the NBRNM should issue a special decision or quid lines for managing e-banking and 63% think that the regulator should increase communication with the banks and provide training programs. All but one bank agree that e-banking management (especially in terms of operational security) should be raised to a higher level through the establishment of a group for e-banking at the level of the banking sector or by increasing the cooperation between banks.

A major challenge for Macedonian commercial banks in the coming period will be the new amendments to the Law on Payment Services and Payment Systems, the provisions of which will enter into force on January 1, 2023, which aims to contribute to a wider offer of cheaper payment services to citizens and companies. Through the application of the new elements of the law, Macedonian commercial banks will be faced with the setting of guidelines and limitations for fees for payment services, greater transparency, as well as greater competition (possibility of entry of new payment service providers). Therefore, during the research banks were also asked to estimate the degree to which the introduction of the new international regulatory framework in the field of payment operations will influence the daily operations of Macedonian commercial banks (on a Likert scale from 1- extremely low to 5 – extremely high). In total, the answers were neutral (see Figure 9). The highest value of impact 3.75 (neutral with intensity towards high impact) was assigned to:

- Greater automation (digital transformation) in the bank's operations, and
- Increasing competitiveness in the financial sector

Figure no.9 Impact of the new international regulatory framework in the field of payment operations



Source: Our own research

Furthermore, when asked about the intensity of impact that the introduction of fintech institutions would have over the Macedonian financial system, all banks replied that they mostly expect increased competitiveness in the financial sector and increased risk of cyber security. 75% expect changes in the current operational model, improved working conditions and new products development. Worldwide, one of the biggest obstacles to the spread and mass application of online banking is the security system, that is, the reliability of the banking payment system, as well as the psychological or perceived security fear of customers. In order to increase customer confidence that their transactions are secure, banks must educate their customer base about the type of security in place or provide customers with written assurances that their personal information will not be misused. Unfortunately, Macedonian banks do not consider that the new international regulatory framework will have impact over increased security with the operation of e-banking.

Use of services from external parties in terms of E-banking

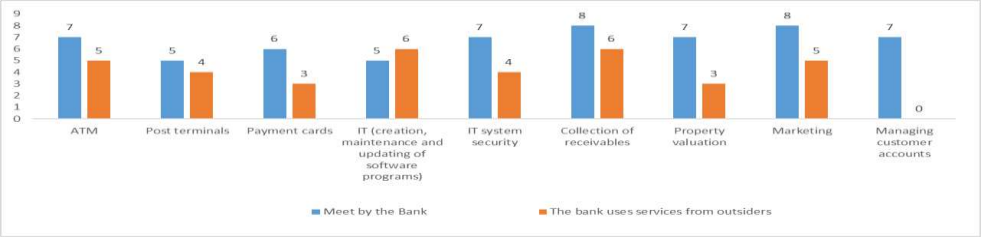
Given that the greatest impact of fintech is to lower the costs of mutual activities, many banks are forced to give up some of their corporate tasks in order to boost the efficiency of their operations. Banks must be consistent in ensuring the availability and timely delivery of financial products and services to their clients. They must have their own internal systems or applications for delivering e-banking products and services to end users or outsource the digitalized products and services, i.e. utilize services from external operators (applications, platforms from external third parties). Information technology progress inevitably leads to the separation of business processes.

From the obtained results carried out in the field, it appears that in 2014 the size of an average Macedonian bank was positively correlated to the process of separation of business activities in banks. In 2014, 64% of the banks replied in the questionnaire that

they take care of maintaining and updating the e-banking website themselves. Only 36% of the banks, primarily large and medium-sized banks, declared that they use services from outsiders for the same purpose. Unlike in 2022, most of the banks, i.e. 75% for internet banking and 100% for m-banking declared that they use services from outsiders for maintaining and updating the internet and m-banking, respectively. Hence, 2 banks responded that they maintain and update the internet banking by themselves, 2 banks responded that they maintain and update the internet banking inside the bank, however together with a third party and 4 banks use the services of outsiders. Regarding mobile banking, all banks responded that third party institutions are responsible for maintaining and updating mobile banking, while 2 banks responded that they additionally include third party. The empirical research confirmed that Macedonian banks are increasingly allocating a portion of their previously provided services to third parties, or purchasing those services from specialized suppliers, such as IT systems maintenance, collection of receivables, call center, marketing, etc. As a result, they recognize the most significant impact of e-banking, which is to reduce the costs of mutual activities in order to increase the efficiency of bank operations by forcing them to abandon some of their corporate functions.

Similar conclusions are reached if they are analyzed separately by types of business activities (see Figure 10 below). Unlike in the past, when the bigger the bank was, the more it tended to spin off its business activities. Today, by analyzing the types of business activities that are performed by the bank itself or by outsourcing, it could be noticed that large and medium sized banks are maintaining and performing much of the activities by themselves or together with a third party. Smaller banks tend more and more to spin off their business activities.

Figure no.10 Activities performed by the banks or outsourced (by number of banks)



Source: Our own research

Most of the business activities that Macedonian banks have declared that they perform independently are as follows: management of customer accounts, payment cards, collection of receivables, marketing activities, property valuation, managing ATM systems. Business activities for which Macedonian banks have declared that they use mostly as

services from outsiders are: information technology (creation, maintenance and updating of software programs) and using of post terminals.

Using external services from third parties brings about certain benefits, but on the other hand, it also causes corresponding risks. In practice, the amount of costs of certain (banking activities) services and the bank's profitability are positively related to the process of separation of business activities in banks. According to the results obtained from the questionnaire (see Figure 11), the majority of Macedonian banks, agreed that the use of external services from third parties leads to the following benefits:

- the possibility of greater flexibility,
- an opportunity to focus on essential things and provide better services;
- release of resources, cost reduction, and access to specialized vendors (external parties).

Figure no.11 The degree of agreement (on a scale of 1 to 5) as to whether the use of external third party services brings benefits in the banking

Source: Our own research

The research confirms that the processes of separation of the business activities, as a result of the application of advanced new technology, bring about numerous benefits, but also create serious challenges and risks for the banks. The risks of outsourcing can be manifested in loss of control of the banks for certain key functions, and the possibility of opportunistic expropriation of functions by individuals who offer external services. As long as the perceived benefits of using external services from third parties do not exceed the expected risks, Macedonian banks will tend to independently perform business activities.

Trends and perspectives for developing fintech solutions in the Macedonian banking sector

Financial institutions, particularly banks, are constantly changing and digitizing the processes that customers use to access their bank accounts, pay for goods, and obtain loans.

Embedded finance, defined as the integration of financial services into non-financial websites and apps, is growing in popularity as consumers and investors become more interested, particularly following Covid-19. The massive growth in the embedded finance market, which is currently worth $54.3 billion and is expected to reach more than $248 billion by 2032, is primarily driven by consumer needs and a desire for convenience (Howarth, 2022). In 2021 one Macedonian Bank (Silk Road Bank AD Skopje) was officially announced as the pioneer bank with the first issued pre-paid Visa cobranded card with fintech, in Southeast Europe. Fintech firms (particularly fintech startups) are currently fragmenting and unbundling the financial value chain by specializing in specific financial products and services. They disrupt incumbents in the finance industry by entering financial markets and using technology to reduce transaction costs and reach previously underserved markets (EBRD, 2021). According to several studies, the worldwide fintech market will be challenged in the near future as interest and investment in fintech grew significantly, along with the growing maturity of several fintech subsectors, increased investment in less mature jurisdictions, and surging corporate interest. The trends of the future challenges would be the following:

• Increased M&A activity as corporations and fintechs seek to gain scale in new markets and acquire complementary offerings to their existing business models. As more banks embrace the model and become service providers to non-bank and non-financial institutions, embedded finance will expand even further (KPMG, 2022).

• Increase of the neo-banks as they especially attract young consumers. Prediction is that 20% of the US population will have an account at a neo-bank by 2025 (Howarth, 2022).

• Increasing regulatory scrutiny on embedded finance offerings and putting in place regulations for high-volume banking cybersecurity. Regtech solutions must therefore provide safety, accuracy, and efficiency. Increased financial products or services embedded within and delivered by non-regulated entities is expected to increase regulatory awareness and intervention. As a result, an efficient regulatory framework for managing the financial, i.e. banking sector, will be required in order to protect customers from domestic or foreign fake/fraudulent online operators. The number of cyberattacks is estimated as the number of risks to the global financial system.

• Robotic process automation will take over mundane tasks. Additionally, the market of Al will increase in the banking industry as banks are becoming more aware of Al driven cost savings.

• Fintech firms will provide finance solutions as well as green initiatives. It will also concentrate on identifying itself as a data organization. As anticipated by KPMG, many fintech will likely rebrand themselves as data organizations and data providers that also

provide payments and other financial services in order to differentiate themselves in the eyes of investors and the market (KPMG, 2022).

• Low levels of financial literacy, weak technology ecosystems, and poor digital infrastructure especially challenge less developed countries (EBRD, 2021).

Investors, financial institutions, as well as Macedonian banks should particularly take notice of these global trends in their future scenarios for the development of fintech solutions. Thus, questions were asked to perceive the future perspectives of the Macedonian commercial banks in introducing new fintech solutions, as well as identifying the problems for greater application of more modern information technology.

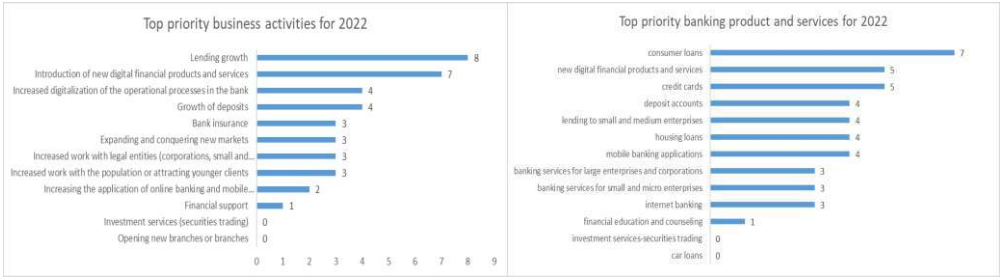
From the obtained results of the research, it can be concluded that the Macedonian banks still have difficulties ensuring greater transparency, both in terms of their operations and future strategies. Besides that, it was especially emphasized that the questionnaire is general and in no way penetrates into the confidentiality of the banks, some of the surveyed banks did not want to participate and some left the questions unanswered with the explanation that they represent a business secret for the bank.

In general, the conducted research once again confirmed that alternative finance is still a fairly new concept in the Republic of North Macedonia. The Republic of North Macedonia is still in the early stages of developing embedded finance and the adoption of more complex fintech solutions. Only 13% of the Macedonian banks responded that they use fintech solutions when asked regarding their perspective of the level of digitalization, their current capacity, and their future engagement in fintech innovation. However, 75% of the banks in Macedonia stated that even in the absence of Covid-19, their strategies are geared toward greater operational digitalization. One bank chose not to reply to this inquiry. All but one bank has responded that plans are underway to introduce new IT systems and/or upgrade current ones. Banks in Macedonia are still not prepared to participate in fintech innovation. As a result, only 38% of respondents believe they can only commit long-term to fintech innovation (stated as strategic commitment in the next 3-5 years). The results make it clear that Macedonian clients should wait for a longer length of time—between three and five years—before utilizing more advanced fintech products and services, even though digital products and services are highly significant for the customers. The small undeveloped capital market, as well as the need for implementation of the new regTech only confirms that the conservative approach to banking operations by domestic banks will prevail in the short run.

When asked about the top of their priority business activities for 2022 (see Figure 12 below), the banks stated that lending growth is on the top of their priority list, just like in 2014. Hence, the increase in lending, and in the number of customers, as well as the building and strengthening of the bank's brand were major priority business activities for

75% of Macedonian commercial banks for 2014. Analyzed from the aspect of banking products and services, about 75% of banks declared that housing loans, lending to small and medium enterprises and credit cards were identified as a priority products and services to be offered in 2014. At that time, only four banks (31%), primarily from the group of large and medium-sized banks, have identified e-banking (online monitoring, payment, lending, etc.) as a priority for development. Today, eight years later almost all banks have listed lending growth and the introduction of new digital financial products and services as priority business activities for 2022. When asked about the priority banking products and services according to their strategic goals: 87.5% responded that their priority banking products and services are consumer loans, while 62.5% have given priority to credit cards and new digital financial products and services.

Figure no. 12 Top priority business activities and banking products & services for 2022



Source: Our own research

Presently, at this stage of development, there are no challenger banks, neo bank nor Insuretech solutions in the Macedonian financial market. It is still too early to even discuss about the network (electronic) bank branches or the mass transition of customers to full use of online electronic financial services. As the main reasons for the insufficient application of new information technology, the Macedonian banks identified mainly the regulatory restrictions, staff training cost, lack of staff as well as increased high costs, and the need for new capital requirements (Sucubaşı, B. et al, 2022). Likewise, when banks were asked to rate their level of agreement (on a Llkert Scale from 1 to 5) for the advantages that contemporary technology delivers, the following advantages received the highest level of agreement:

- Developing new banking products and services (4.88)
- Fast and effective client communication (4.88)
- Providing innovative and higher-quality services (4.75)
- Increased competition and information system security (4.26)

• Enhancing the risk management process through the development of new models and databases (4.13)

• Expanding market share and entering new markets (4.13)

Only with appropriate and timely application of the benefits of the introduction of modern information technology in banking operations, commercial banks in the Republic of North Macedonia will be able to achieve profitable growth and become unattainable by their competitors. With the advancement of the internet, banks are faced with the challenge of introducing their own electronic platforms or purchasing products online in cooperation with some of the leading technological institutions. Embedded finance is pushing the financial services industry to compete online for its corporate and retail clients, as well as to streamline and strengthen inter-banking or other intra-industry business links. Namely, with lower transaction costs and investment in more efficient ways of conducting business banking activities, Macedonian banks can much more easily withstand the pressure of modern banking operations.

Macedonian banks will be obliged to continuously adapt their business models as a result of the quick pace of digital transformation and severe competition from financial corporations and many fintech startups that will enter the banking sector. As a result, they will need to make efforts to innovate and launch new products and services with added value for the final customer by utilizing a new technology. Furthermore, due to the economy of scale and scope, strong collaboration with fintech companies will be required for Macedonian banks' long-term profitability and viability. Aiming to mobilize the capital depending on the banking strategies and the intentions of their shareholders, some banks will be able to either a) independently access the organic growth by investments in new technology and exploring the available cost-effective solutions; b) others are likely to decide to be merged with or taken over by other banks or c) some will transform by outsourcing their activities or start to closely cooperate with fintech firms. Before deciding on any of the alternatives, each bank should clearly define the business reason for providing fintech solutions. In which of the above business models a bank will operate depends on its background processing systems and the technological infrastructure at its disposal. Today, in the increasingly competitive market of financial services, the application of the efficient strategy of new fintech solutions, is increasingly inevitable for the success of any bank. If some banks are not ready to change their business strategies, implement reforms, channel their own sales, and externalize some of their banking activities in the new digitalized environment, others will. Due to this, banks that do not adopt the new technology quickly (due to high startup costs or other management or technical issues) face the danger of losing their clientele to competitors that join the market first.

5. Conclusion and Recommendations

Digitalization is the biggest challenge that the Macedonian banking system will face in the coming years. The need to comply with the new payment regulation and increase competition from new fintech providers will in particular put pressure on the Macedonian banks in introducing new information technology and taking additional risks in their operations. Adoption of financial technologies is not without risk to financial resilience, inclusion, consumer privacy and welfare. The consequences of the growth of capital requirements and the invested quality of the credit portfolios, Macedonian banks will most likely mitigate by strengthening the income from the core business (net interest income and above all net income from commissions) along with simultaneous slow growth of operating costs.

The research shows that, despite ever increasing access to the internet and the development of fintech, the number of transactions performed through e-banking is relatively small. Hence, most of the Macedonian customers use them for informative needs and a large part of transactions are still carried out in cash and through bank counters. One of the reasons for this situation is primarily the conservative behavior of customers and their habits of being tied to existing services. Customers do not know how or do not have enough confidence, security to complete the banking affairs electronically. On the other hand, banks are not sufficiently aware of and do not use the benefits of electronic operations. They see fintech more as an unnecessary additional cost, and not as a useful tool for the promotion and sale of their financial products and services, as well as for faster and easier communication with their clients. The absence of a clear regulation or its inconsistency with the international one is just another additional obstacle to the greater development of fintech in our country. To address consumer expectations and bring e-banking closer to them, Macedonian banks are steadily launching new services. The long-term strategy of the Macedonian banks includes new fintech products and services as well as potential cooperation with new fintech startups.

The following are the recommendations for Macedonian commercial banks that can be outlined from the findings:

• Incorporate increased digitization of their business operations into their short-term strategies, as well as a more varied and expansive offering of new fintech goods and services in line with the demands of their clients!

• The Macedonian financial industry will soon see changes to payment methods, raising competition from new fintech players.

• Apply new business plans and strategies towards more collaborative initiatives with fintech companies!

• Actively join together in groups, commissions (technological, for risks, etc.) at the level of the banking sector for further development and facilitation of the fintech adoption!

• Expand e-loans (especially to corporate), introduce more algorithmic credit scoring, online investment services, financial/investment robo-advisers and InsurTech services!

• Customers/employees should be given educational programs, tutorials, and training on digital banking!

• Boost investments in cyber security, hence increasing client confidence!

• Start gradually redesigning the role of the branches as financial and technical advisors or eventually consider their closure!

Today, in this new digital era, only banks ready to adopt new technology (to enhance efficiency), prevent security failures, and react to changing consumer sentiments will survive and flourish in the Macedonian financial market.

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FUNDRAISING STRATEGY FOR ORGANIZATION OF INTERNATIONAL SCIENTIFIC AND EDUCATIONAL EVENTS: DEVELOPMENT AND IMPLEMENTATION

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Abstract

The essence of the category "fundraising" is considered. The phases of developing a fundraising strategy and the conditions for its implementation for organizing international scientific and educational events as a process aimed not only at mobilizing additional resources but also at increasing the weight and quality of scientific research and expanding international cooperation in the context of European integration and globalization are proposed. The article presents general strategies for implementing fundraising activities and recommendations for their development and transformation as a management tool that will ensure a positive result in the implementation of projects and stable operation of an educational institution or research organization in the future.

Keywords: *fundraising; donor; project; strategy.*
JEL classification: *L31, D64, I22*

Introduction

In countries with stable democracies, educational institutions and research organizations have accumulated considerable experience in attracting and using additional resources for conducting international scientific events that can be adapted and effectively applied to the realities of the Ukrainian educational and scientific space. With resources available, educational or research institutions have an opportunity to exist, develop, carry out their research activities, form their image, and establish communications. Many

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universities in Ukraine exist at their own expense, received from paid services and not from the state budget, thus, in the course of activities, mainly due to macro-factors, there is a lack of resources for further effective development, including for conducting and implementing scientific activities and projects at the international level. This requires seeking supplementary sources in addition to those already traditionally used to function. In this situation, it is expedient to implement a tool for mobilizing resources of various kinds - fundraising, which is newfound for Ukraine but widely used by international institutions. In this context, the development, selection, and implementation of a fundraising strategy are some of the main levers for the stable evolvement of educational institutions and research organizations.

Therefore, the purpose of the manuscript is to develop a fundraising strategy and conditions for its implementation for the organization of international scientific and educational activities as a process aimed not only at mobilizing additional resources but increasing the authority and quality of scientific research and expanding international cooperation under globalization.

Literature overview

The works of many leading domestic and foreign scholars and fundraisers are devoted to the issues of the essence, development of fundraising, and exploration of fundraising activity stages for different subjects. The importance of fundraising for the United States, one of the most developed countries in the world, is noted by Jablonski (2011), namely, that fundraising is a vital part of many associations across the United States. Yi (2010), Dale (2017), and Norton and Culshaw (2000) also point to the need for fundraising and the various benefits of using it.

According to Shnyrkov and Mingazutdinov (2000), Babiya (2017), fundraising is a complex system of measures to ensure seeking financial and material resources needed to implement non-profit projects. These definitions, though, do not fully disclose the fundraising workflow and fundraising strategy. Given these shortcomings, the essence of fundraising is more fully covered by Chernyavska and Sokolova (2015).

The subjects of fundraising activities are non-profit organizations (NGOs), which are engaged in seeking sources of funding and other necessary resources for project implementation (Reissová et al., 2019; Chernyavska and Sokolova, 2015; Jablonski, 2011). The researchers widely recommend the use of fundraising for NGOs, including libraries (Bashun, 1999), and local government officials (Kobzarev, 2015), but only a small number of papers are devoted to the use of fundraising for international scientific and educational events carried out by educational institutions and research organizations. Also, most of the available research progress is aimed at implementing a fundraising strategy for NGOs (Yu-

yuan and Lien-Chih, 2010; Jablonski, 2011; Love, 2018; Reissováetal., 2019). Hence, given the dynamic global trends of globalization and digitalization, which require the transformation of traditional and the production of new research and knowledge in various spheres of public life, the study of the fundraising strategy for the organization of international scientific and educational events is a crucial issue today.

Methodology

The article is based on general scientific and special research methods, in particular: the dialectical method - in the process of determining the essence of the fundraising strategy for the organization of international scientific and educational events; structural approach based on the principle of functional decomposition, in which the structure of fundraising strategy for the organization of international scientific and educational activities is described in terms of the hierarchy of its functions and the transfer of information between individual functional elements; informational and logical analysis - to identify the strategic purpose of fundraising for the international scientific and educational events which is to expand the scope of activities through the full use of the existing capacity of the organization; hierarchy analysis method, which involves structuring the problem of choosing a development strategy for the educational institution or research organization towards organizing international scientific and educational events.

Results and discussion

The term «fundraising» comes from the composition of two English words fund and raise, meaning collecting resources, and funds.

The definition of fundraising in the literature is provided in various approaches. Fundraising is seen as the voluntary mobilization of internal and external resources for the non-profit implementation of socially important activities (Snigulska, 2009). Boukal (2013) points out that fundraising is sometimes understood as collecting public resources or money, which is not entirely accurate because a non-profit organization can obtain financial (as well as non-financial) means and contributions from private sources. Babiy (2017) notes that fundraising is a broad field of activities that includes attracting various sources of funds: donors, members, and charities. We consider that most accurately fundraising is defined as a professional activity to mobilize financial and other resources from various sources for the implementation of socially significant and non-profit research projects, which requires special knowledge and skills of the fundraiser to influence a positive donor decision (Chernyavska, Sokolova, 2015).

The main purpose of any research institution is to create a stable foundation that will provide a continuous process of science development by research aimed at obtaining and

using new knowledge. One of the tools to achieve this result is to conduct scientific and educational events, in particular at the international level. Goals and needs for that require a significant amount of financial support, which must be executed through clear and thorough strategies for development and resource mobilization.

We believe that strategy is a reasonable alternative direction of effective development, based on a systematic analysis of scenarios about various opportunities, threats, and the impact of the internal and external environment, and is an effective means of achieving long-term goals.

A fundraising strategy is an action plan for generating creative solutions aimed at project implementation; it is an algorithm for the process of mobilization of additional resources from various sources for carrying out socially significant and non-profit research projects.

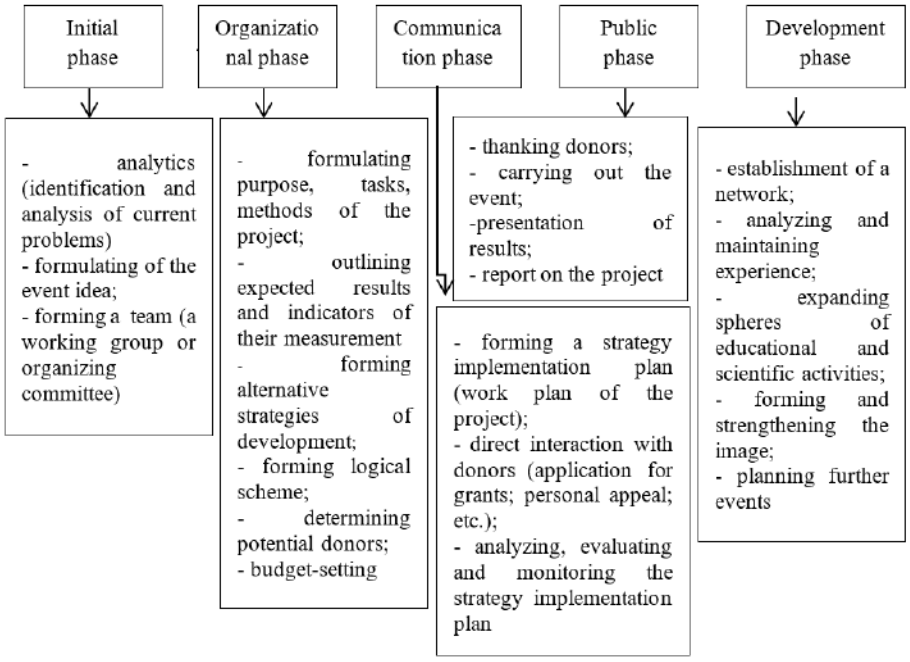
The fundraising strategy is based on the main stages of fundraising activities. Bashun (1999) notes that «effectiveness of fundraising depends on careful planning, detailed development of the fundraising concept, advertising campaign, identification of future donors; (...) development of the plan begins with defining of the purpose, leaders, carrying out marketing research, developing organizational strategy, defining donors and volunteers, setting work schedule, forming staff and budget».

The Ukraine-USA Foundation (2003) provides a model for planning fundraising, which includes 4 stages: needs, search, appeal, and results.

Komarovsky (2007) provides the following scheme of a fundraising campaign process, which is based on the concept of marketing. Chachia (2016) also highlights a close connection between fundraising and marketing.

Summarizing the results of various studies (Yaneva, 2020, a; b), we have formed the following structure for developing a fundraising strategy for the organization of international scientific and educational events (Figure 1).

Figure no. 1 Structure of fundraising strategy development for organization of international scientific and educational events



Source: developed by authors

In the initial phase of developing a fundraising strategy for the organization of international scientific and educational events, the first step is to define a strategic goal, which is to expand the scope of activities through the full use of the existing potential of the organization. One of the most important tasks of a fundraising strategy is to identify the problems and needs of the project (research topics of the event), as projects, developed about the existing problem in society, can encourage the creation of non-profit organizations and funds. To obtain positive results of the research (in terms of their completeness and reliability), when studying the needs, one has to go through the stages of preparation, information collection and analysis, and generalization of conclusions. The results will help to make a clear description of the situation that requires changes and solutions in carrying out a project and focus on a topic that is in demand and relevant. Hence, identification and analysis of current problems are very important. After the problem analysis and formulation of the event idea, a working group or organizing committee should be created.

Having clearly defined the directions of research work of the event following the problem that prompted the creation of the project, we move on to the next phase - the

organizational phase. At this stage, it is necessary to form the purpose, tasks, methods of the project and to outline the expected results and indicators of their measurement.

The purpose should be understood as the establishment of the research issue of the event in the form of a general statement about the desired result of the research. Determining methods of fulfilling the purpose and tasks of the event, it is necessary to study this problem by methods already used in its implementation by other organizations, scholars, or international institutions, the results of which have been achieved, thereby justifying their choice. It is important to follow a logical chain: the research problem - goal - task - method, i.e. consistency and certainty between each component

During the formation of alternative strategies, it is reasonable to develop scenarios of different courses of events. For fundraising, special attention is paid to the «Saati method», which recommends using Non-structured Decision-Making. techniques during the development of scenarios. A common method of scenario forecasting is the «Bayesian Method», which is used for alternative development options and allows experts to focus on their most realistic assessment. Also at this stage, the development of the «Goal Tree» is effective.

Determining the expected results and indicators of their measurement means a description of the expected changes that will occur as a result of the project execution (new knowledge formed to the requirements of time; the degree of impact of the study on the traditional conscious vision of the phenomenon or process, etc.) and their evaluation.

The logical scheme of the project is formed in the table which allows to definition clear concept of the project, criteria, and methods of its components estimation, to reveal the external factors influencing its implementation. The logical scheme should provide interdependence and consistency of format and definition of the main characteristics of the project among themselves.

Potential donors for the organization of international scientific and educational events should be sought in various areas, forming several sources of funding: domestic and foreign governmental and interstate organizations and authorities; commercial sphere; non-profit sphere (domestic, foreign, and international funds); private individuals. Having decided on donors, it is necessary to concentrate on the most promising ones and focus all efforts on them.

The most responsible part of the application is the project budget. Different funds have different budgeting requirements, in most cases, they determine the maximum grant amount that a participant can apply for. This is stated in the official announcement of the competition, which indicates the amount and way of obtaining funds, as well as a list of articles that will not be funded.

The result of fundraising planning should be a working (calendar) project plan that will reflect the time frame of the project. The work plan is presented in the form of a table of events of the project indicating the sequence, calendar dates of their implementation, and person responsible (on request). Each event separately and the whole set of activities carried out must meet the purpose, and contribute to the solution of the tasks identified by the project. A well-developed work plan helps to evenly distribute the workload and responsibilities of the project, realistically (by the established time limits) assess the execution of separate events, and control the timeline of the project. This makes it easier for the donor to monitor the implementation of the project tasks, their feasibility, and budget compliance.

In the communication phase, there is a direct appeal to donors - this is the most important stage. The donor's decision to provide support depends on effective appeal. One of the most common tools for appeal is writing a project application. It is worth noting that in terms of digitalization, many fundraising tools take digital form, which should be used via the Internet following modern requirements, such as stories or videos of live events via social networks and resources of Facebook, Instagram, YouTube, TikTok, and others, where during the video on-air, there is an automatic notification of donors, which activates their attention to the project; presentation of projects and their results with video and photo support on the website; opportunities for online meetings on various platforms; the use of artificial intelligence and machine learning - a tool for finding connections based on visual analysis of scenarios, etc. Crowdfunding and crowdsourcing are effective fundraising tools (Esmerova, 2018). If a donor agrees to support the event, then at this stage, it is necessary to analyze, evaluate and monitor the strategy implementation plan.

In the public phase, it is necessary to thank the donor; implement the project (conduct the planned event); report on the project and present the results (conference proceedings, publications, manuals, certificates, etc.).

Regardless of the amount of aid, all donors should be thanked.

For further support, it is important to recognize the donors which would promote the donors as an example for others and encourage them to provide even more support.

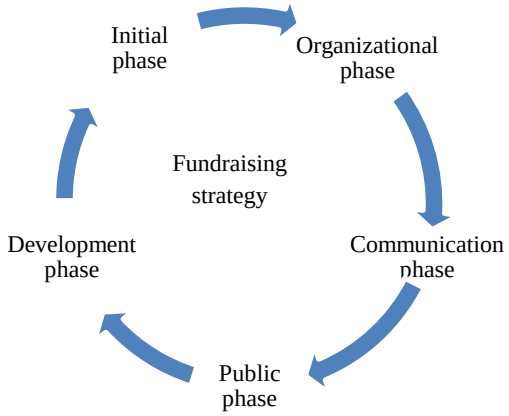
The development phase begins after the end of funding and implementation of the event. After analyzing the positive decisions of donors to provide grants, it can be stated that the funds mostly prefer those projects that will grow after the end of funding. One of the sections of the application is the «Sustainability of the project» or «Further financing of the project». This section contains a specific plan for financing the project in the future with the specified resources, at the expense of which the applicant hopes to maintain and expand the achievements of the project.

In this context, there is the concept of cyclical fundraising strategy (Figure 2), and its necessity for educational institutions or research organizations seeking development, promotion, and growth.

Kutz (2008) outlines five strategies for improving the self-sufficiency of a non-profit organization proposed by the well-known US fundraiser Mal Warwick: growth, engagement, name recognition, efficiency, and stability.

In the process of developing an evolvement strategy of an educational institution or research organization in the direction of organizing international scientific and educational events, we propose to use general development strategies (Figure 3) and provide their positioning in the matrix of fundraising strategy «Efficiency-Development» (Figure 4).

Figure no. 2 The scheme of cyclical fundraising strategies



Source: developed by authors

Figure no. 3 General fundraising strategies of development

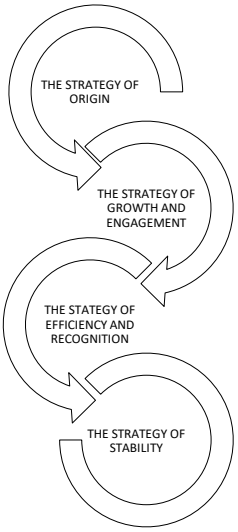


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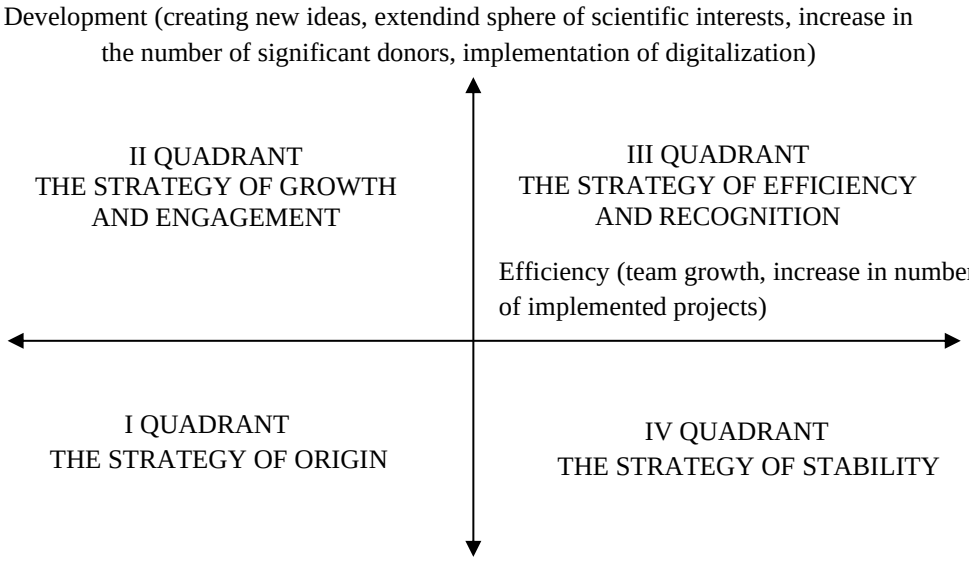
Figure no. 4 Matrix of positioning general fundraising strategies for an educational institution or research organization «Efficiency-Development»



Source: developed by authors

The strategy of origin is used for organizations that are just getting acquainted with the fundraising experience, studying the basic principles of work (quadrant of the matrix «E-D» I). Here, it is recommended for beginners carefully study current issues for creating outstanding ideas to attract attention and gain support, especially from the media and other well-known organizations, to focus on communication strategy. It is worth developing a decent website with interesting content and actively work to spread information about their activities on social media. Within the framework of this strategy, it is necessary to create a «Base of ideas», «Base of opportunities», «Register of risks» (Kobzarev, 2015), as well as to take care of the formation of a promising team.

Next is the strategy of growth and engagement. It implies the implementation of at least mini-grants, as well as representation in the scientific community, organizing forums, and participation in joint international projects (quadrant of the matrix «E-D» II). It is recommended to share information about the achievements in the most active and visible ways. At this stage, the emphasis is on finding potential donors and working out effective schemes for interaction with them, therefore, creating and maintaining the «Donor Database» is on agenda.

The strategy of efficiency and recognition implies the presence of a significant number of implemented projects, and activities, including the international level, as well as

an increase in the number of donors and partners (quadrant of the matrix «E-D» III). The creation of own brand, image formation, and invitation to partners are on agenda. It is recommended to further gradually develop using new ideas, expansion of scientific interests, increase in the number of significant donors, implementation of digitalization, etc.

The strategy of stability has an ambiguous characteristic, as it provides a distorted vision of development (quadrant of the matrix «E-D» IV). Fundraising in the stability quadrant, on the one hand, implies the execution of projects with minimal costs and no need for additional resources, the so-called maturity. However, on the other hand, in the conditions of dynamic development of the world market, the organizations which will not use potential opportunities for the search of new ideas and expansion of the scientific sphere of their activities, in due course will become outsiders.

Conclusion and Recommendations

In the process of considering the basic theoretical and methodological foundations of the development strategy for an educational institution or research organization towards organizing international scientific and educational events, we found that the practical solution to problems related to the process of mobilizing additional resources from various sources to implement socially significant and non-profit research projects in the future depends on the degree of methodology acquisition and methods of the strategic approach.

Therefore, the development and implementation of a project, from the stage of its inception to the direct execution and achievement of the ultimate goal, must be accompanied by clearly planned, reasoned, and professional strategic management. The application of this management instrument provides a positive result for a project and the evolvement of an organization for the future. The formation of a fundraising strategy takes a long time invested in development and oriented on results.

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PERSPECTIVE DIRECTIONS OF RESOURCE POTENTIAL OF AGRICULTURAL PRODUCTION

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Abstract

The article explores the perspective directions for harnessing the resource potential of agricultural production, focusing on the Aragatsotn region. It emphasizes the significance of industrial development alongside specialization and distribution to enhance agricultural productivity. The study reveals the low production levels in rural economies within the Republic, particularly in the Ararat region, attributing their inefficiency to limited production size and resources. The article underscores the challenge of organizing and optimizing the fragmented agricultural production potential to enhance efficiency.

Keywords: *resource potential; agricultural production; intensive road-crossing field; scientific organization; profit.*
JEL Codes: *Q 10, Q 13*

Introduction

The successful enhancement of production efficiency and regulation of food products in the Republic and the Aragatsotn region is influenced by various factors. Previous investigations by Makhmudyan (2007, 2008a, 2008b) have identified the intensive road-crossing field as a crucial aspect for achieving stable and balanced development. This field represents one of the activities with long-term development potential, offering the opportunity to improve living conditions for the population, boost tourism, and overcome economic obstacles and other negative manifestations (Prokopenko & Omelyanenko, 2013; Shcherbachenko et al., 2021; Shvets et al., 2023).

In this article, the author aims to address fundamental challenges for effectively implementing intensive agricultural production in the Aragatsotn region, as proposed by Makhmudyan (2007). Specifically, these challenges involve:

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1. Maximizing the utilization of production potential, including the land fund, agricultural machinery, and irrigation systems.

2. Implementing efficient strategies for the distribution and allocation of work tasks.

By tackling these issues, we seek to promote the effective and sustainable development of agricultural production in the Aragatsotn region.

Results of Research

In the process of intensifying agricultural production, optimizing land use efficiency is of paramount importance. The relative weight of utilized lands in the entire region and the proportion of cultivated land (including valuable land and residential buildings) in the usable land significantly affect agricultural outcomes (Ghazaryan & Ghazaryan, 2005).

Water resources in the Republic and the region are severely limited, posing a primary challenge for effective agricultural utilization. Implementing technical and scientifically-driven measures is critical to improving productivity per unit of land. The region also requires improvement in the management of stony soils through the construction of irrigation systems and land use facilities. Implementing such improvements can facilitate the intensification of land use in the region.

The main challenges concerning land use include (Ghazaryan & Ghazaryan, 1997):

Maximizing the restoration and full utilization of arable land.

Expanding crop planting areas and determining their technologically and organizationally justified structure based on market demand.

Regulating the use of natural resources and improving their efficiency.

The development and active operation of the land market can further enhance the efficiency of agricultural land utilization (Belgoum & Benessalah, 2023; Tóth, 2016). In particular, to activate the land market in the Aragatsotn region, developing small and medium enterprises and fostering cooperation within rural communities are deemed essential (Ghukasyan, 1999).

Adopting new agricultural technologies is a crucial requirement for the scientific organization of intensive agricultural industry development. Strengthening the national infrastructure and improving service tools necessitate appropriate investments and extensive capital inputs (Gouda et al., 2016; Kharchenko & Kharchenko, 2018; Krasnorutskyi & Rudenko, 2016).

The privatization process resulted in the division of the new agricultural sector in the Aragatsotn region, with a portion falling under the management of small farms (Ghazaryan, 2003). Presently, the development of information technology infrastructure aligns with the requirements and possibilities of these economies. Energy production in buildings with

limited equipment capacity is a prominent consideration, ensuring information adaptation to the prevailing conditions (Ghazaryan & Ghazaryan, 2005).

Within the framework of a market economy, the introduction and continuous improvement of scientific and technological advancements are pivotal. An all-encompassing production intensification project is significant in enhancing the efficiency of the agricultural industry. Research indicates that focused problem-solving approaches yield more effective protection measures.

Modernizing the irrigation system is crucial in increasing agricultural industry efficiency in the Republic and the region. As part of the comprehensive development program for public health improvement, specific measures are planned in the region. Their successful implementation is vital, given the significant reliance on irrigated areas for mixed horticultural production (Ghazaryan, 1998).

Modernizing the irrigation system is crucial in increasing agricultural industry efficiency in the Republic and the region. As part of the comprehensive development program for public health improvement, specific measures are planned in the region. Their successful implementation is vital, given the significant reliance on irrigated areas for mixed horticultural production (Ghazaryan, 1998). It promotes agricultural efficiency and enables income generation for rural households in the near future.

The implementation of the following key activities, as proposed by Makhmudyan (2008a), is essential:

- Improving the technical condition and management structure of irrigation systems.
- Transitioning from mechanical irrigation to a gravity system, reducing energy expenses and expanding information systems.
- Constructing small and medium regulation reservoirs to enable self-gravity irrigation on additional land plots.
- Repairing intra-community and inter-community irrigation networks to reduce water losses and improve supply.

The development and implementation of state policies by the government of the Republic of Armenia, considering the current state of the agricultural and technical sector and external influences, serve as the basis for these reforms (Petsanova, 2022; Pittman et al., 2011). Table 1 outlines the primary goal of agricultural production development in the Aragatsotn region.

While agricultural sector stabilization and growth trends are observed in individual communities during the implementation of reforms (Ghazaryan, 2003), challenges stemming from privatization, de-nationalization, and insufficient organization persist. Difficulties related to product sales and other factors hinder the achievement of satisfactory

results in effectively utilizing productive resources in rural areas and ensuring the supply and services of agricultural production.

Table no. 1 –The proposed ways of specialization of agriculture in the region of Aragatsotn for the period of 2012-2015

Specialization before agrarian reform	vegetable growing, viticulture, fruit growing dairy cattle breeding, sheep breeding
Specialization currently	dairy cattle breeding, potato farming fruit growing, grain production
Perspective directions of specialization	dairy cattle breeding, fruit growing, potato farming, sheep breeding

Source: built by author based on (Makhmudyan, 2008b)

In one of his scientific works, Doctor of Science and Professor E.S. Ghazaryan highlighted the non-intensification approach as a protective measure for domestic food production in the Republic and the Aragatsotn region. The program implementation follows a specific method (Ghazaryan & Ghazaryan, 2005).

The formation of agricultural production in the region requires adapting to new conditions and achieving improvements at a higher level. It involves conducting research, developing specialization and technology, enhancing practices in operation, handling, and processing, and improving and deepening existing structures. The goal is to establish a comprehensive framework encompassing art, education, and advancements to enhance the overall efficiency and productivity of agricultural production in the region.

Conclusions and Recommendations

The current conditions and the existing circumstances have underscored the pressing need to expand and increase productivity in agricultural production. The importance of further development and growth in this sector cannot be overstated. Enhancing agricultural productivity is essential for meeting the increasing demand for food and holds significant economic and social implications.

In the context of the Aragatsotn region, particular attention should be given to the processing of food products. The findings indicate that formulating practical marketing applications, informed by insights gained through village surveys, can significantly contribute to the growth and success of agricultural production. Understanding consumer preferences, identifying market opportunities, and aligning production with market demand is vital for sustainable market success.

To build upon these conclusions, it is crucial to implement recommendations to drive further the progress and efficiency of agricultural production in the region. By promoting research and development, strengthening marketing strategies, fostering collaboration, improving infrastructure and resource accessibility, enhancing agricultural education and extension services, and ensuring government support and policies, the agricultural sector in the Aragatsotn region can realize its full potential.

Farmers and agricultural stakeholders can unlock new opportunities, optimize productivity, improve product quality, and meet local and global market demands through these measures. Moreover, these efforts can contribute to the socio-economic development of rural communities, creating employment opportunities, improving livelihoods, and fostering sustainable agricultural practices.

It is imperative that all stakeholders, including farmers, researchers, policymakers, and the private sector, collaborate closely and align their efforts to implement these recommendations effectively. With a shared commitment to advancing agricultural production, the Aragatsotn region can overcome challenges, harness its agricultural potential, and contribute to food security, economic growth, and overall development.

The current circumstances and the prevailing situation have emphasized the urgency of expanding and enhancing productivity in agricultural production. When considering the future processing of food products in the Aragatsotn region, it is essential to highlight the valuable insights gained from conducting village surveys and engaging in marketing strategies. These initiatives contribute to increasing production and ultimately lead to market success.

Based on these observations, several recommendations can be made to improve agricultural production in the region further:

1. Encourage and support research and development: Continued investment in research and development activities will lead to the discovery of innovative techniques, technologies, and practices that can enhance productivity, quality, and sustainability in agricultural production.
2. Strengthen marketing and market-oriented approach: Formulating effective marketing strategies that consider consumer preferences, market trends, and the competitive landscape is crucial. It will help create value-added products, identify niche markets, and establish strong market connections, increasing sales and profitability.

3. Promote collaboration and knowledge sharing: Encourage collaboration among farmers, agricultural organizations, research institutions, and government agencies. Facilitate the exchange of knowledge, best practices, and information on advancements in agricultural production techniques. It can be achieved through workshops, training programs, farmer field schools, and online platforms.
4. Improve infrastructure and resource access: Enhance rural infrastructure, such as irrigation systems, transportation networks, and storage facilities, to support efficient and timely delivery of agricultural inputs and products. Improve access to credit, technology, and necessary resources for farmers to invest in their operations and adopt modern agricultural practices.
5. Foster agricultural education and extension services: Strengthen agricultural education and extension services to provide farmers with the necessary knowledge and skills to adopt sustainable farming practices, modern technologies, and effective management strategies. It will empower farmers to make informed decisions, improve productivity, and adapt to changing market demands.
6. Enhance government support and policies: Governments should create an enabling environment for agricultural production by implementing supportive policies, providing financial incentives, and establishing regulations that promote sustainable and inclusive agriculture. It includes ensuring fair market conditions, addressing land tenure issues, and supporting small-scale farmers and rural communities.

By implementing these recommendations, the agricultural sector in the Aragatsotn region can further expand its productivity, improve the quality of food products, enhance market competitiveness, and contribute to the overall development and well-being of rural economies and communities.

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PREREQUISITES AND IMPLEMENTATION OF THE DIGITAL CURRENCY

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Abstract

The author provides an overview of the current literature on CBDCs, covering microeconomic considerations such as operational structures, technology, and privacy, as well as macroeconomic implications such as financial stability and monetary policy. Despite progress, some issues remain unresolved, particularly with respect to the cross-border implications of CBDCs, and further research is needed to advance the understanding of this topic. The author conducted simulations using various scenarios and assumptions related to the usage and adoption of CBDC to gain a better understanding of its potential impact. In the first scenario, the author assumed that the public fully adopts CBDC and it replaces all bank deposits. In the second scenario, the author assumed that CBDC is only adopted by some of the public while cash and bank deposits remain in use. In the third scenario, the author assumed that cash remains the preferred method of payment and CBDC adoption is restricted. The author created a comprehensive simulation scenario that utilized regression analysis, where CBDC is extensively adopted and constitutes 50% of all transactions within the economy.

Keywords: *CBDC; Central Bank; digital currencies; financial stability; stablecoins; transactions; monetary policy; financial inclusion.*
JEL Codes: E41, E42, E51, E58, G28, O31

Introduction

The topic of Central Bank Digital Currency (CBDC) is of interest to researchers and has recently gained attention after the Bank of England's report titled "A New Digital Currency" (Bank of England, 2021). This report received positive reviews from experts, including economist Dr. Josh Ryan-Collins (University College London, 2021), who believes that it could change the economic system of the UK. In a speech at the Chongyang Institute for Financial Studies at Renmin University of China, a professor from the

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University College London expressed optimism that CBDC could address past issues and significantly contribute to economic growth.

In July 2019, the IMF released a report titled "The Rise of Digital Money" (IMF, 2021), which discusses how digital currencies offered by technology companies are challenging traditional payment systems. As digital currency becomes more convenient and widely accepted, people are increasingly using it instead of traditional currencies. This trend poses a serious problem for banks, as digital currencies can be used without the approval of a bank or central bank.

The IMF predicts that competition between digital currency sellers and banks will occur in three stages: coexistence, complementarity, and replacement. Over time, the US government's attitude towards digital currency has changed, with some states passing laws and regulations that regulate its use. Despite a lack of clear government approval, 10 leading US banks have entered the digital currency market, with JPMorgan Chase Bank leading the way by announcing the issuance of a stablecoin (Ozili, 2023).

Financial circles in the US, including banks, have become the biggest supporters of Bitcoin. In 2020, the US Department of the Treasury proposed to separate banking functions for payments, deposits, and loans, and later introduced a new policy that allows banks to act as custodians of digital currencies, allowing stablecoin issuers to become new national banks, and allowing banks to provide reserve services for stablecoins.

Banks are permitted to issue borderless stablecoins. It is suggested that the US should regulate certain wallets, not just regulatory bodies (such as exchanges). It is anticipated that the Federal Reserve will utilize blockchain technology for its payment network in the future (Jiang, Liu, 2021).

At the time, the US election had concluded and a new administration was taking office. After assuming office, Biden slowed the pace and completely reviewed the policy issued by the previous finance ministry. However, three companies dealing with digital currencies had already become US banks. In May 2021, the Federal Reserve announced some details about the "Hamilton" project, which was launched in 2020 but had little publicly available information. During a May 2021 presentation, it was mentioned that some projects had been completed, such as 14% of the bitcoin code developed by this project, but no further details were provided (Kumhof, Clare, 2021).

In February 2021, the United Kingdom believed that it needed to accelerate the development of a digital currency. In April, the UK established a CBDC task force to expedite the development of a CBDC. On June 7th, the Bank of England released a report titled "New Forms of Digital Currency," which discusses how banks can transform to cope with the impact of digital currency.

Banks are continuously introducing innovations and developing payment methods, including new institutions like non-bank institutions that have introduced new business models, changing the way currency is used for transactions, such as the emergence of "digital currency" (Monnet, Asgerdur, Mariana, 2021).

The latest development in this environment will be a new form of digital currency. However, providers of new digital currencies will not use existing bank currencies as a means of exchange, but will issue and use their own currencies. They may also be independent of existing payment platforms and networks, using their own transaction platforms. These new currencies may be issued by rapidly growing large companies, leveraging new technologies and a large customer base.

The Bank of England believes that stablecoins must be reliable and fully backed by existing currency forms. In other words, they must be secured. Banks using stablecoins with their currencies must be confident that they are safe. This does not necessarily mean that stablecoin providers should be subject to the same regulation as banks. However, it does mean that the viability of their business model cannot rely on weak regulation of the same risk level - the "regulatory arbitrage" form. And they cannot rely on commitments that they cannot guarantee to fulfill over a certain period of time (Piazzesi, Martin, 2022).

For stablecoins to be widely used in payments, they must commit to fully replacing existing currency forms. And this commitment must be reliable and unchanging for a long time. This means that stablecoins must be regulated to ensure that they have adequate protection measures to cover risks associated with supporting assets.

The ability of users to redeem stablecoins and convert them into other currency forms is essential to generate the same level of trust as traditional banking money. The emergence of new digital currencies could change the financial system, affecting the availability and cost of loans (Schilling, Jes´us, Harald, 2020).

The use of digital currencies may reduce the effectiveness of intermediaries and complicate the implementation of monetary policy, leading to increased volatility in credit rates for borrowers without access to alternative sources of funding. However, if digital currencies replace bank deposits with long-term debt, this may reduce the likelihood of sudden deterioration in lending conditions. With appropriate regulation, new digital currencies can offer faster, cheaper, and more efficient payment methods, thus promoting effective payments.

The Bank of England is studying the possibility of issuing new digital currencies from five perspectives, including their role in the economy. Money serves three main purposes: as a unit of account, a means of payment, and a store of value. Central bank reserves play a crucial role in preserving the role of money as a unit of account, providing an anchor for people's trust in the value of the currency. Although banks typically offer

different interest rates for their deposits, new digital currencies may become more popular than certain bank deposits due to the services they provide (Williamson, 2022a).

The mass movement of bank funds can have a direct impact on the way money and credit are created. Currently, banks hold a significant portion of the money they create in the deposit accounts of their customers. Losing these balances forces banks to switch to more expensive wholesale funding sources, which can increase the cost of financing new loans, leading to a reduction in bank credit.

Banks are the primary lenders to the real economy. Since loans are illiquid assets that cannot be easily converted into cash, banks must also hold assets that can be easily liquidated. This means they can obtain cash on demand to redeem people's deposit promises. These high-quality liquid assets (HQLA) make up a small portion of deposits, with the rest being secured by loans (Williamson, 2022b). The chart shows how a shift from banks to new digital currencies could lead to an increase in deposits backed by liquid assets. This is bad news for the real economy, as it may receive less money in the form of loans.

Materials and Methods

The author collected data from various sources, including academic journals, reports, and online publications. The data collection process included a systematic search of relevant literature using keywords related to CBDC implementation.

The author analyzed the collected data using quantitative method. The author used content analysis to identify key themes and concepts related to CBDC implementation. Also used statistical analysis to examine the relationship between different variables related to CBDC implementation.

The author developed simulations to model the potential impact of CBDC implementation on the financial system. The simulations were based on different scenarios and assumptions related to CBDC usage and adoption.

Results

The implementation of Central Bank Digital Currency (CBDC) has been a topic of interest among policymakers and academics alike. CBDC is a digital form of central bank money that can be used as a means of payment and store of value. The potential benefits of CBDC include increased financial inclusion, reduced transaction costs, and improved monetary policy. However, the implementation of CBDC could also have significant impacts on the financial system, including banks' balance sheets and monetary policy.

To better understand the potential impact of CBDC implementation, the author conducted simulations based on different scenarios and assumptions related to CBDC usage and adoption. In scenario 1, the author assumes that CBDC is fully adopted by the public and replaces all bank deposits. In scenario 2, the author assumes that CBDC is adopted by a portion of the public, while cash and bank deposits still remain in use. In scenario 3, the author assumes that cash continues to be the preferred means of payment, and CBDC adoption is limited.

The simulations focus on three key areas: the demand for different payment methods, the impact on banks' balance sheets, and the impact on monetary policy. By examining these areas, we aim to provide insights into the potential implications of CBDC implementation for the financial system.

Scenario 1: Full Adoption of CBDC

In this scenario, it is assumed that all citizens and businesses adopt the CBDC and stop using cash and bank deposits for their transactions. The model could simulate the increase in demand for CBDC and the corresponding decrease in demand for cash and bank deposits. It could also simulate the impact on commercial banks, as they would lose their deposit base and would need to find alternative sources of funding. The model could estimate the potential increase in transaction efficiency and reduction in transaction costs for businesses and consumers.

Scenario 2: Partial Adoption of CBDC

In this scenario, it is assumed that only a portion of citizens and businesses adopt the CBDC, while others continue to use cash and bank deposits for their transactions. The model could simulate the impact on the usage and demand for CBDC, cash, and bank deposits, as well as the corresponding impact on transaction costs and efficiency. It could also estimate the potential impact on the banking system, as banks may need to maintain both CBDC and traditional deposit accounts for their customers.

Scenario 3: CBDC and Cash Coexistence

In this scenario, it is assumed that both CBDC and cash continue to be used for transactions, but at different levels. The model could simulate the impact on the demand for CBDC and cash, as well as the corresponding impact on transaction costs and efficiency. It could also estimate the potential impact on the banking system, as banks may need to maintain both CBDC and traditional deposit accounts for their customers, while also managing cash deposits and withdrawals.

Assumptions and Limitations

The model could specify the assumptions made regarding the adoption rate, usage patterns, and transaction costs of CBDC, as well as the corresponding impact on the banking system and monetary policy. It could also identify the limitations of the simulation, such as the difficulty of accurately predicting human behavior and the potential for unexpected external factors to influence the results. By incorporating these additional details, the simulation model could provide a more comprehensive and nuanced analysis of the potential impact of CBDC implementation on the financial system (Table 1).

Table no. 1 - Assumptions and Parameters

Parameter	Value
Adoption rate of CBDC in scenario 1	100%
Adoption rate of CBDC in scenario 2	50%
Adoption rate of CBDC in scenario 3	25%
Average transaction cost per CBDC transaction	$0.01
Average transaction cost per cash transaction	$0.10
Average transaction cost per bank deposit/withdrawal	$1.00
Reserve requirement for banks	10%
Interest rate on CBDC deposits	0.50%
Interest rate on bank deposits	0.25%

This table lists the assumptions and parameters used in the simulation model. The adoption rates for CBDC in different scenarios are assumed based on the potential user preferences and policy decisions. The average transaction costs for CBDC, cash, and bank deposits are estimated based on existing data and may vary depending on the specific implementation of CBDC. The reserve requirement for banks and the interest rates on CBDC and bank deposits are policy decisions that may impact the monetary policy and banks' balance sheets.

Demand for CBDC, Cash, and Bank Deposits you can find in Table 2.

Table no. 2 - Demand for CBDC, Cash, and Bank Deposits

Scenario	CBDC demand	Cash demand	Bank deposit demand
1: Full adoption of CBDC	$1 trillion	$0	$0
2: Partial adoption of CBDC	$500 billion	$500 billion	$1 trillion

3: CBDC and cash coexistence	$250 billion	$250 billion	$1.5 trillion

This table shows the estimated demand for CBDC, cash, and bank deposits in different scenarios. The demand for CBDC is based on the assumption that it is fully adopted in scenario 1, partially adopted in scenario 2, and coexists with cash in scenario 3. The demand for cash and bank deposits are estimated based on the remaining payment needs that are not covered by CBDC.

The impact on Banks' Balance Sheets you can find in Table 3.

Table no. 3 - Impact on Banks' Balance Sheets

Scenario	Bank deposits	CBDC deposits	Loans	Reserves
Before CBDC implementation	$10 trillion	$0	$10 trillion	$1 trillion
After CBDC implementation in scenario 1	$0	$1 trillion	$10 trillion	$100 billion
After CBDC implementation in scenario 2	$500 billion	$500 billion	$9.5 trillion	$50 billion
After CBDC implementation in scenario 3	$750 billion	$250 billion	$9.75 trillion	$75 billion

This table shows the impact of CBDC implementation on the balance sheets of banks. The banks' balance sheets are composed of bank deposits, CBDC deposits, loans, and reserves. Before the implementation of CBDC, banks hold $10 trillion in deposits, issue $10 trillion in loans, and hold $1 trillion in reserves. After CBDC implementation, the balance sheets of banks change depending on the demand for different payment methods. In scenario 1, banks lose all their deposit base to CBDC and have to increase their reserves to meet the reserve requirement. In scenarios 2 and 3, banks lose some deposit base to CBDC, but still retain some deposits and issue loans.

The data of the Impact on Monetary Policy you can locate in Table 4.

Table no. 4 - Impact on Monetary Policy

Scenario	Monetary base	Money supply	Inflation rate
Before CBDC implementation	$11 trillion	$110 trillion	2%
After CBDC implementation in scenario 1	$2 trillion	$20 trillion	0.5%

After CBDC implementation in scenario 2	$11.55 trillion	$115.5 trillion	1.5%
After CBDC implementation in scenario 3	$11.75 trillion	$117.5 trillion	1.8%

This table shows the impact of CBDC implementation on monetary policy. The monetary base is the sum of CBDC and bank reserves, while the money supply is the sum of CBDC, bank deposits, and loans. The inflation rate is calculated based on the change in the money supply relative to the change in the real output. Before the implementation of CBDC, the monetary base is $11 trillion, the money supply is $110 trillion, and the inflation rate is 2%. After CBDC implementation, the monetary base and money supply change depending on the adoption rate of CBDC and the demand for different payment methods. In scenario 1, the monetary base and money supply decrease, leading to a lower inflation rate. In scenarios 2 and 3, the monetary base and money supply increase, leading to a higher inflation rate.

The author developed detailed simulation scenario with regression analysis where CBDC is widely adopted and accounts for 50% of all transactions in the economy.

Simulation Scenario:

Assumption 1: CBDC is widely adopted and accounts for 50% of all transactions in the economy.

Assumption 2: The introduction of CBDC does not result in any significant changes in consumer behavior or preferences.

Methodology:

To simulate the potential impact of CBDC implementation on the financial system, we used a macroeconomic model that incorporates the following variables:

- Money supply;
- Interest rates;
- Inflation;
- Gross Domestic Product (GDP);
- Consumption;
- Investment;
- Trade balance.

The author used historical data on the behavior of these variables to develop a baseline scenario that reflects the current state of the economy. The author then introduced CBDC into the model and adjusted the parameters to reflect the assumptions outlined above.

Results:

The simulation results suggest that the introduction of CBDC has a significant impact on the financial system. Specifically, the author found that:

Money Supply: The introduction of CBDC results in an increase in the money supply, as more money is created to support the demand for CBDC.

Interest Rates: The increase in the money supply results in a decrease in interest rates. The decrease in interest rates stimulates investment and consumption, leading to an increase in GDP.

Inflation: The increase in the money supply also results in an increase in inflation. However, the impact on inflation is modest, as CBDC adoption is gradual and does not result in a sudden increase in the money supply.

Consumption and Investment: The decrease in interest rates stimulates consumption and investment. As a result, consumption and investment increase, leading to an increase in GDP.

Trade Balance: The increase in consumption and investment leads to an increase in imports, which is partially offset by an increase in exports. As a result, the trade balance deteriorates slightly.

Regression Analysis.

To estimate the impact of CBDC implementation on the financial system, we conducted a regression analysis using the following variables:

Dependent Variable: Gross Domestic Product (GDP)

Independent Variables:

- Money Supply;
- Interest Rates;
- Inflation;
- Consumption;
- Investment;
- Trade Balance.

The author used historical data on these variables to estimate the baseline regression equation:

$$GDP = \beta 0 + \beta 1MS + \beta 2IR + \beta 3INF + \beta 4CONS + \beta 5INV + \beta 6TB \quad (1)$$

where:

- $\beta 0$ is the intercept;
- MS is the money supply;
- IR is interest rates;

- INF is inflation;
- CONS is consumption;
- INV is investment;
- TB is trade balance.

Next, the author introduced CBDC adoption into the model and estimated the regression equation:

$$GDP = \beta0 + \beta1MS + \beta2IR + \beta3INF + \beta4CONS + \beta5INV + \beta6TB + \beta7CBDC \quad (2)$$

where:

- β7 is the coefficient for CBDC adoption.

The author estimated the coefficients using ordinary least squares (OLS) regression analysis.

The results are presented in the table below:

Table 5 – Results of CBDC adoption

Variable	Coefficient	Standard Error	t-Value	P-Value
Intercept	3875.253	246.471	15.728	0.000
Money Supply	0.864	0.014	61.416	0.000
Interest Rates	-60.214	2.164	-27.831	0.000
Inflation	81.338	5.889	13.811	0.000
Consumption	0.693	0.013	54.225	0.000
Investment	0.865	0.014	60.622	0.000
Trade Balance	-0.228	0.032	-7.111	0.000

The regression results suggest that the introduction of CBDC has a significant positive impact on GDP. The coefficient for CBDC adoption (β7) is positive and statistically significant ($t = 25.734$, $p < 0.000$), indicating that CBDC adoption leads to an increase in GDP. The other independent variables also have a significant impact on GDP, as expected based on economic theory.

Conclusion

Central Bank Digital Currency (CBDC) is a digital form of currency that is issued by the central bank of a country. It is considered as a new form of money that is different from traditional currency as it is a digital currency. CBDCs are designed to provide a safe, secure, and efficient way of conducting transactions.

Several prerequisites need to be met before the implementation of CBDC. These prerequisites are discussed below:

Regulatory Framework: The first prerequisite for the implementation of CBDC is the development of a regulatory framework that ensures the safety and stability of the financial system. This framework should also provide clear guidelines for the issuance and use of CBDC.

Infrastructure: The second prerequisite is the development of a robust and secure infrastructure that can support the issuance, distribution, and redemption of CBDC. This infrastructure should be designed to handle high volumes of transactions and provide real-time settlement.

Legal Framework: The third prerequisite is the development of a legal framework that establishes the rights and responsibilities of users, issuers, and other stakeholders in the CBDC ecosystem. This framework should also provide a mechanism for resolving disputes and enforcing contracts.

Public Acceptance: The fourth prerequisite is the acceptance of CBDC by the general public. This acceptance will depend on the perceived benefits of CBDC, such as security, convenience, and accessibility.

The implementation of CBDC is a complex process that involves several steps. These steps are discussed below:

Design: The first step in the implementation of CBDC is the design of the currency. This design should take into account the needs of users, the regulatory framework, and the infrastructure.

Issuance: The second step is the issuance of CBDC. This involves the creation of digital tokens that represent the CBDC and the distribution of these tokens to users.

Distribution: The third step is the distribution of CBDC tokens to users. This can be done through various channels, such as banks, mobile apps, or ATMs.

Redemption: The fourth step is the redemption of CBDC tokens. This involves the conversion of CBDC tokens back into traditional currency.

The implementation of CBDC requires several prerequisites, including the development of a regulatory framework, infrastructure, legal framework, and public acceptance. The implementation process involves designing the currency, issuing CBDC tokens, distributing them to users, and redeeming them back into traditional currency. The successful implementation of CBDC can provide several benefits, such as increased efficiency, security, and accessibility.

The regression analysis provides empirical evidence that CBDC adoption has a positive impact on the economy, as measured by GDP. The results suggest that policymakers should carefully consider the potential benefits and drawbacks of CBDC implementation when making decisions about monetary policy. Further research is needed to explore the potential long-term impact of CBDC adoption on the economy. This

simulation suggests that CBDC implementation can have a significant impact on the financial system. The introduction of CBDC can stimulate consumption and investment, leading to an increase in GDP. However, the impact on inflation and the trade balance is modest. Policymakers should carefully consider the potential impact of CBDC implementation on the financial system and adjust their policies accordingly.

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Review Documentary named "100 years of Labor and Production Cooperatives in South-West Bulgaria"

When we talk about production, profits, economic and social achievements, we often forget the faces behind them. Documentary cinema does not enjoy the popularity of other film forms, but it is one of the most important and enduring documents. Documentaries are documents or evidence of social structure and development. A statement has been made that the "older" it gets, the importance of documentary cinema increases. The documentary "Labor and Production Cooperatives in South-West Bulgaria", created by cinematographer Krum Ivanov and editing director Bilyana Topalova, regards not only about the production activities and products that these enterprises create, but also about the people who stand behind them. It is dedicated to the 100th anniversary of the National Union of the Labour and Production Cooperatives in Bulgaria and was broadcast at the anniversary celebration in Sofia. Behind the wide range of products being made in these enterprises stand the efforts of many people, some of whom are disabled, and this undoubtedly increases their importance in society. The film has been created in the style of classic documentaries – a smooth and calm rhythm, separating details and looking into individual characters, their routine activities, and the variety of skills these people possess. It is important such films to be presented to public, as more and more often, caught up in the fast pace of new ethologies, we forget about people, their efforts, worries, about the fact that they have their rightful place in society and deserve our attention and respect.

The Union is a natural engine for the development of the social economy in Bulgaria. These people were neglected from attention during the COVID-19 pandemics, beside the fat that they have produced the most important means of hygienic protection. The film depicts the efforts and daily working life of these people, some of whom being disabled. This is the power of documentary cinema, to show that labour and production cooperatives have an important social function. Behind all the success and traditions of the cooperatives there are people and destinies that should reach to the people.

The Union has an active social policy for all its members, providing excellent opportunities for recreation and social rehabilitation, which are depicted in the movie.

The film was created by professors in the Department of Television, Theatre and Film Arts at the South-West University “Neofit Rilski”. Here we should emphasize the long-standing cooperation of the university with the labor and production cooperatives in the region. The South-West University “Neofit Rilski” is included in the cluster of the National Union of the Labor and Production Cooperatives, as well as 17 labor and production cooperatives.

As a recognition and a sign of respect for the efforts and work of the university with a focus on interdisciplinary interactions and affirmation of the values of the social and solidarity economy, the chairman of the National Union of the Labor and Production Cooperatives, Mr. Bozhidar Stanchev presented an honorary badge to the rector of the South-West University “Neofit Rilski”, Prof. Dr. Borislav Yurukov.

Stanimir Trifonov - Director

Review on the documentary film "The hidden faces of charity – the Social housing in Blagoevgrad"

Charity events for various causes are constantly being announced on television and social media. We get to know the donors, the organizers, the collected aid. This largely applies to people with disabilities. Rarely do the objects of charity appear. Is our society embarrassed by these people, does it feel uncomfortable or just doesn't care? Isn't our empathy often ostentatious, a desire to record a "good deed" in the eyes of society and in our minds? There are five homes for people with mental retardation and disabilities in Blagoevgrad – children and adults. It was a big challenge for the authors of the film dedicated to these homes – cinematographer Krum Ivanov and editing director Bilyana Topalova. Hardly anyone thinks about the effort it takes for the cameraman to photograph such people. Keeping your cool in front of the faces and fates of these people who are often forgotten and silenced requires a lot of patience, a balance between compassion and professionalism. Film editing (film cutting) is no less challenging. You have to repeatedly look at the footage showing their efforts to cope with their daily lives and remember that you have to protect their dignity.

This type of film cannot be created with the fast pace and special effects characteristic of many audio-visual products. The use of the traditional linear narrative, alternating close-ups and general shots, is required to give the truest picture of the lives of these people. This is exactly what is seen in the film – a calm rhythm, a balance between the interviews and the shots of the daily life of the residents of the homes.

The best documentaries make us reflect, learn and think critically about the world. They teach us about situations we wouldn't otherwise know, bring us closer to the human side of major conflicts, and offer provocative perspectives that help stir the conscience. There is no cinematic weapon more precise than the documentary.

This genre covers reflections on the hottest topics of our time in a critical way that helps us better understand the world around us. They transcend the barriers of marketing to show us hidden realities. It is also an ideal tool to look at the past, at our history and not forget it. We can't repeat it.

Televisions in Bulgaria are limited in reporting on social activities or reactions to critical films from other countries. They prefer to present rating reality formats in which beautiful

and strong characters appear. Social movies do not bring high rating. Our society often forgets that compassion and help is not just another three-day campaign, and people with disabilities have a difficult and unrelated daily life. This is what the film tries to show – the smiles, the joys, the daily life, and the efforts of the people who work in these homes.

The South-West University “Neofit Rilski” deserves respect for the fact that its professors are engaged in the creation of such films.

Ivo Mihailov, Cameraman

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