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A RESEARCH ON THE EXAMINATION OF VUCA PERCEPTION IN THE FURNITURE INDUSTRY

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To Sevgi, Elif Cemre & Ece Eren, my preciouses…

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Program: Master Thesis (X) Ph.D. Thesis ( )

Thesis Title: A Research On The Examination Of VUCA Perception in The Furniture Industry

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ABSTRACT

A RESEARCH ON THE EXAMINATION OF VUCA PERCEPTION IN THE FURNITURE INDUSTRY

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In recent years, especially after the COVID-19 pandemic, VUCA has become an important term to describe the new business environment. Digitalization, globalization, interdependencies of economies in the world, political and economic instabilities like Brexit, refugee crisis in EU zone, logistic issues, global recession during the pandemic have converted the business world to a VUCA environment. The manufacturers have to be aware of new challenges and adapt their businesses and even themselves to new conditions. The main purpose of this study is to find out the VUCA perception of the employees of furniture manufacturer businesses. Quantitative research method has been used in this research. As a result of this study, it was found out that, employees and managers have a higher perception of volatility among the VUCA components. The perception of VUCA components in employees differs due to the gender, year of birth, education level, position and work seniority. It was observed that demographic characteristics of managers did not make a difference in their perception of VUCA components.

Keywords: VUCA, Covid-19, furniture, manufacturers

ÖZ

MOBİLYA SEKTÖRÜNÜN VUCA ALGISININ İNCELENMESİ ÜZERİNE BİR ARAŞTIRMA

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Son yıllarda, özellikle COVID-19 pandemisi ile birlikte yeni iş ortamını tanımlamak için VUCA önemli bir terim haline gelmiştir. Dijitalleşme, küreselleşme, dünyadaki ekonomilerin birbirine bağımlılığı, Brexit gibi siyasi ve ekonomik istikrarsızlıklar, AB bölgesindeki mülteci krizi, lojistik sorunlar, pandemi sürecinde yaşanan küresel durgunluk, iş dünyasını VUCA ortamına dönüştürmüştür. Üreticilerin bu yeni dönemde ortaya çıkan zorlukların farkında olması, işlerini ve hatta kendilerini yeni koşullara uyarlaması gerekmektedir. Bu araştırmanın amacı, mobilya üretici firma çalışanlarının ve yöneticilerinin VUCA algılarının ortaya konulması; demografik özelliklere göre farklılıkların belirlenmesidir. Araştırma sonucunda, çalışanların ve yöneticilerin VUCA bileşenlerinden değişkenliğe yönelik algısı daha yüksek bulunmuş; cinsiyet, doğum yılı, eğitim düzeyi, pozisyon ve kıdeme göre çalışanların VUCA bileşenlerine yönelik algılarının farklılık gösterdiği tespit edilmekle birlikte, yöneticilerin demografik özelliklerinin VUCA bileşenlerine yönelik algılamalarında farklılık oluşturmadığı gözlemlenmiştir.

Anahtar kelimeler: VUCA, Covid-19, mobilya, üreticiler,

TABLE OF CONTENTS

ABBREVIATIONS

CEO	: Chief Executive Officer
ECI	: Economic Complexity Index
EU	: European Union
FSI	: Fragile States Index
IMF	: International Monetary Fund
NLP	: Neuro Linguistic Programming
OECD	: Organization for Economic Co-operation and Development
SME	: Small and Medium-sized Enterprises
USA	: United States of America
USD	: United States Dolar
USAWC	: United States Army War College
USSR	: Union of Soviet Socialist Republics
VUCA	: Volatility, Uncertainty, Complexity, Ambiguity
WHO	: World Health Organization
WTO	: World Trade Organization
WUI	: World Uncertainty Index

LIST OF TABLES

LIST OF FIGURES

LIST OF APPENDIXES

1. INTRODUCTION

In many periods of humankind history, there have been uncertain, complex, struggling conditions such as clashes, wars, pandemics, natural disasters, and major climate changes. Humanity is trying to survive and improve under such challenging conditions through the ages.

Commercial activity has been seen since the Neolithic Age, starting as agricultural production. As the result of developments in means of production and inventions, there has been rapid advances in the field of commercial activities. Specifically, after the Industrial Revolution in the 18th and the 19th century, production capabilities increased significantly and selling the products became the priority.

In the first half of the 20th century, the world had faced two world wars which have changed the world both politically and economically. The manufacturers and traders struggled in a bipolar world which is mainly divided as communist block and liberal economy block. Economic crisis in 1929 and 1973, several political conflicts, emerge of the European Union affected the economic activities.

After the collapse of Soviet Union, a new era has emerged. The VUCA term was first used by the USAWC to illustrate the volatile, doubtful, arguable, staggering characteristics of the multidimensional global system as a result of interconnected globalization after the end of the Cold War declared by the USA and the USSR. (Kinsinger & Walch, 2012). VUCA is an acronym of four terms which are volatility, uncertainty, complexity, and ambiguity.

The world has been facing a new challenge which can be described as a VUCA environment due to its consequences. The coronavirus epidemic, which started to take effect based in China in early 2020 and is now a major problem for the whole world, affects all areas in a multidimensional way. The COVID-19 pandemic is happening at a global level and involves many uncertainties, complexities, instability, and volatility in the situation. In other words, the environment we are in is the VUCA environment. (Kırpık, 2020, s. 30)

The restrictions applied to prevent the spread of the coronavirus affected the social and economic life globally. The way of working and production started to change dramatically. Working from the home, barriers in front of the transportation of the goods and people,

closing the schools and transforming to distance learning created a new environment for all actors of economic life.

In the world of 2020, the manufacturers have to adapt to new conditions to survive and reach sustainable profitability. Digitalization, globalization, access to knowledge, competitive markets and factors gaining importance like consumer satisfaction creates a more complex economic environment for businesses. The key six megatrends of VUCA in organizations described by Vielmetter and Sell (2014) are accelerated globalization, digitization, environmental catastrophe, changes in demography, technological convergence, and value multiplicity. The megatrends and increasing disruptions affect organizations in several areas disturbing stable operations and well-defined decision-making matrices. (Vielmetter & Sell, 2014)

The Problem Statement

The furniture manufacturers encounter variable challenges which affect their effectiveness and profitability in a VUCA environment. These challenges can be based on internal or external factors. The health condition of staff, maintenance of the equipment can be described as the internal factors. These two factors are the main components of the process of production. As we assume that there are not any other external factors, these internal factors are obligatory to ensure the continuity of the production process. The external factors are logistic issues, consumer behaviours, raw material supply, competitors in the industry, national and global macro-economic situation, and legal regulations.

Therefore, investigating the perception of the VUCA components in the employees of furniture industry can be able to lead the company to designate how existing organization can improve the planning and production processes more effectively.

The Purpose of the Study

In this research, the researcher aims to identify the perception of VUCA components, - volatility, uncertainty, complexity and ambiguity- of the employees of the furniture manufacturers. Defining the purpose of research compass the researcher along with the importance of study for fulfilling the unity of research subjects to be researched and reaching the ultimate findings. The purpose of the research conducted is in two different dimensions

that provides researchers to observe research study comprehensively. The two dimensions of purpose of study are examining the VUCA term and its factors and inquiring the relationship between each VUCA factor and perceptin of the employees of furniture manufacturing companies.

The Significance of the Study

Organizational leaders in the 21st century face dynamic and profound change that is unprecedented with the speed, intensity, and frequency of change ascending rapidly to produce volatile, uncertain, complex, and ambiguous (VUCA) operating environments (Bereznoy, 2017; Johansen & Euchner, 2013; Matthysen & Harris, 2018).

Studies on VUCA as a phenomenon focus mostly on North America and other developed nations such as China, Australia and New Zealand, Italy, and the European and Asian markets. A gap exists in studying VUCA as a phenomenon in the African market. Additionally, existing VUCA studies cover areas such as deeper understanding of the elements of VUCA and resulting responses, organizational ambidexterity, leadership skills for VUCA, agility models, and leadership responses to VUCA, yet, the concept of VUCA-readiness remains empirically unstudied. (Rimita, 2019)

According to the reports of the Ministry of Trade, Turkey's export income from furniture is 3.415.000.000 TL. (Table 1) Adana is the sixth biggest furniture manufacturer city in Turkey. The furniture export from Adana has reached 88.000.000 USD by the end of October 2020.

Defining the perception of VUCA components of the employees can provide VUCA readiness for the businesses and create opportunity to adapt the new VUCA environment more successfully.

Table 1.

Furniture Exports due to Country (Million USD)

Country	2017	2018	2019
Iraq	428	448	513
Germany	177	204	345
Lebanon	75	118	201
Saudi Arabia	172	170	200
USA	87	118	188
France	132	151	171
England	79	93	132
Israel	75	94	118
Netherlands	59	68	87
Qatar	36	63	87
Romania	61	70	85
UAE	56	62	71
Czechia	6	8	67
Italy	52	61	66
Azerbaijan	38	46	53
Total of list above	1.534	1.774	2.383
TOTAL	2.360	2.687	3.415

Note: Retrieved from İhracat Genel Müdürlüğü Maden, Metal ve Orman Ürünleri Dairesi Mobilya Sektörü Raporu, 2020

The Hypothesises of the Study

H1a : Volatility perception of employees differs according to gender.

H1b : Uncertainty perception of employees differs according to gender.

H1c : Complexity perception of employees differs according to gender.

H2a : Volatility perception of employees differs according to marital status.

H2b : Uncertainty perception of employees differs according to marital status.

H2c : Complexity perception of employees differs according to marital status.

H3a : Volatility perception of employees differs according to birth year range.

H3b : Uncertainty perception of employees differs according to birth year range.

H3c : Complexity perception of employees differs according to birth year range.

H4a : Volatility perception of employees differs according to work place status.

H4b : Uncertainty perception of employees differs according to work place status.

H4c : Complexity perception of employees differs according to work place status.

H5a : Volatility perception of employees differs according to education level.

H5b : Uncertainty perception of employees differs according to education level.

H5c : Complexity perception of employees differs according to education level.

H6a : Volatility perception of employees differs according to work seniority.

H6b : Uncertainty perception of employees differs according to work seniority

H6c : Complexity perception of employees differs according to work seniority.

The Limitations of the Study & Assumptions

The first limitation of the research is the research will be executed in the second half of 2021 under the conditions of the coronavirus pandemic. Due to the measurements applied by legal authorities, distance conversations can be used instead of face-to-face meetings.

The second limitation is the search is conducted in Adana and the manufacturers in the industry of furniture. The businesses which employ 30 or above 30 will be chosen for this research. The participants of the research will be the employees of the businesses, workers, mid-level managers, white-collar employees, and board members.

The research is limited between the dates of the survey. Only questionnaire form was used as data collection tool. The fact that the perception of VUCA is measured only by some demographic factors in this study also emerges as a separate limitation.

It is assumed that the furniture manufacturers encounter various problems in the VUCA environment.

The VUCA Term

In a rapidly globalizing world, political scientists, economists, and strategists invented various concepts to describe the changeable feature of military, political and economic conjuncture and the unexpected, unforeseeable problems and conclusions of these factors. None of the terms could describe the current world as successful as the VUCA can. VUCA is the acronym for the volatility, uncertainty, complexity, and ambiguity. United States Army War College used the term for the first time in 1987, to describe the volatile, uncertain, complex, and ambiguous structure of the post-Cold War era and it is still relevant in the context of the modern world. (Yarger, 2006)

One of the most important events in the twentieth century is the end of the Cold War. The bipolar system of the world came to an end in 1990. The whole economic, political, and economic paradigms used during the Cold War had to be replaced with the new paradigms because they became useless. The new world faced multiple enemies and threats instead of the very well-known enemy of the old time. The biggest rival of the Western civilization, the USSR was collapsed but several small countries ruled by dictators, large and small terrorist groups, fulfilled the gap that emerged after the USSR. The political, economic, and military threats in the new world system were unpredictable. The development of communication technology also accelerated in those years, and the world was on the way to globalization like it was never. The fact that the new states that emerged after the dissolution of the USSR would be included in the international political system brought along many political and economic uncertainties. Considering all these conditions, the volatile, uncertain, complex and ambiguity nature of the current political, economic, and military environment revealed the concept of VUCA.

With the beginning of the new millennium, especially the developments in computer and communication technology, the emergence of 3G, 4G and nowadays 5G internet infrastructures, respectively, created an environment that the world has never witnessed before. The fact that the Internet has become faster and cheaper has made this technology widespread in the world and every point on the globe communicates with each other. This situation provided many economic and military benefits. International trade, collaborations, giant acquisitions accelerated in this period. Giant companies such as eBay, Amazon, and Alibaba could emerge thanks to the fact that shopping sites can supply goods from all over

the world and sellers from every country can sell their products on these very large sites. Smartphones and social media applications, which emerged as a result of the development in mobile technology, enabled even individual users in the remotest corners of the world to communicate with each other, and as a result, everyone learned everything very quickly.

The developments of military satellites and military technologies such as drones have made it much easier to monitor the movements of suspicious groups and states and to obtain intelligence. Thanks to this intelligence, states started to provide their security inside and outside the country with much less personnel and cost than before. The terrorist attack on the WTO Twin Towers in 2001 revealed the importance of intelligence and the action capacity terrorist organizations have achieved. However, thanks to this globalization movement, the world has become a big village, and this creates opportunities and advantages in terms of politics, economy, and military; globalization also creates weaknesses and threats which have never been experienced before.

The beginning and spreading of the Arab Spring are exactly an example of the unpredictability and complexity of these threats. A mobile shopkeeper, who was not allowed to sell in Tunisia, burned herself out of desperation because he was punished, this incident was recorded by those present on their mobile phones and uploaded to social media platforms and it became viral. This incident, which would not have been known to anyone if it had been done twenty years ago, was soon learned by the whole Tunisia and even the whole world, and protests the government began throughout the country. As a result of these events, the president, who has ruled the country for 23 years, had to leave his post and flee the country. Protests started in Egypt, Yemen, and Algeria as a result of this trend that spread to the Middle East and North Africa with the domino effect. Hosni Mubarak, who ruled the country in Egypt for thirty years, resigned.

Due to the spread of protests and internal conflicts in the Middle East, an influx of refugees from these countries to Europe began. Turkey and EU countries were economically from the influx of refugees and politically the most affected countries. These refugees not only caused economic difficulties for the countries they went to, but also caused permanent changes in the political environment in those countries. Due to these problems, Great Britain put a project into action to exit from the European Union called Brexit. With the concern of political and economic instability and uncertainty due to Brexit, the US, EU currencies USD

and Euro lost value, and stock markets declined. Political and economic volatility gained momentum after Trump took office in White House in 2016. Political and economic events such as trade wars, taxes imposed on customs, and the withdrawal of the US from the Paris Agreement created an economic turbulence all over the world. Brexit and the election of Trump, these two developments caused unpredictable crises in the political and economic structure of the world.

Today we are faced with a continuous fast technological development, increasing product and process complexities, shorter product lifecycles, globalization, and high interrelatedness of the global economy. This environment can be described by the acronym VUCA, meaning an environment that is highly volatile, uncertain, complex, and ambiguous (Mack and Khare 2016). In this kind of environments, we see three major aspects moving into focus: First, companies are moving away from a stable vertically hierarchical structure towards more fluid, dynamically changing organizational forms. This can lead to fully network-oriented structures, where traditional hierarchies and one-company approaches are replaced by a set of independent but closely interrelated organizations. (Mack et al., 2016) Covid-19 virus was detected in December 2019, in Wuhan China. The virus led to sudden Covid-19 was identified as a pandemic by the World Health Organization in March 2020. The World Health Organization defines Coronavirus as a group of viruses that may cause diseases in mammals and birds. They are known to infect humans typically leading to infections in the upper respiratory system. Seven different strains of coronavirus that can infect humans have been identified. According to the website of WHO, there have been 270 million cases of Covid-19 including 5.310.502 deaths all over the world. This pandemic is one of the greatest health challenges the world has encountered. In Turkey, there have been 9 million confirmed cases including 79.322 deaths. (who.int, 15.12.2021). Economic activities have also shrinked in 2020. As IMF Managing Director Kristalina Georgieva has noted, "our world is turned upside down by the pandemic—by the loss of more than a million lives, by the economic impact on billions of people. In low-income countries, the shocks are so profound that we face the risk of a "lost generation." This is a crisis like no other, and there is substantial uncertainty about its impact. A lot depends on the epidemiology of the virus, the effectiveness of containment measures, and the development and deployment of therapeutics and vaccines, all of which are hard to predict. In addition, many countries now face multiple

crises—a health crisis, a financial crisis, a drop in tourism and travel, and a collapse in commodity prices, which interact in complex ways. Policymakers are providing unprecedented support to households, firms, and financial markets, and, while this is crucial for a strong recovery, there is considerable uncertainty about economic prospects. (Imf.org, 2021)

According to the International Monetary Fund, the global real Gross Domestic Product is expected to shrink by % 3,5. The advanced economies have been affected worse. The estimated recession in the EU Ares is % 7,2. The estimated average recession in advanced economies is % 4,9. (Table 1) The crisis will lead to a worsening of living standards compared to pre-crisis projections for many countries. The adverse impact on low-income people will be particularly acute, imperilling the significant progress made in reducing extreme poverty in the world since the 1990s. The pace of recovery will notably differ across countries and be prone to setbacks. (imf.org, 2021)

Table 2.

Latest World Economic Outlook Growth Projection

	ESTIMATE	PROJECTIONS	
(Real GDP. annual percent change)	2020	2021	2022
World Output	-3,5	5,5	4,2
Advanced Economies	-4,9	4,3	3,1
United States	-3,4	5,1	2,5
Euro Area	-7,2	4,2	3,6
Germany	-5,4	3,5	3,1
France	-9,0	5,5	4,1
Italy	-9,2	3,0	3,6
Spain	-11,1	5,9	4,7
Japan	-5,1	3,1	2,4
United Kingdom	-10,0	4,5	5,0
Canada	-5,5	3,6	4,1

Other Advanced Economies	-2,5	3,6	3,1
Emerging Markets and Developing Economies	-2,4	6,3	5,0
Emerging & Developing Asia	-1,1	8,3	5,9
China	2,3	8,1	5,6
India	-8,0	11,5	6,8
ASEAN-5	-3,7	5,2	6,0
Emerging & Developing Europe	-2,8	4,0	3,9
Russia	-3,6	3,0	3,9
Latin America & the Caribbean	-7,4	4,1	2,9
Brazil	-4,5	3,6	2,6
Mexico	-8,5	4,3	2,5
Middle East & Central Asia	-3,2	3,0	4,2
Saudi Arabia	-3,9	2,6	4,0
Sub-Saharan Africa	-2,6	3,2	3,9
Nigeria	-3,2	1,5	2,5
South America	-7,5	2,8	1,4
Memorandum Low-Income Developing Countries	-0,8	5,1	5,5

Note: Retrieved from IMF, World Economic Outlook Update, January 2021

The uncertainty of how long the pandemic will last, the volatility in the prices of commodities such as oil and gold, the ambiguity of the new political and economic order that will occur with Biden's election in the USA, and the complex structure of the world that all these conditions allow us to define the world we live in exactly as a VUCA world.

Charles Darwin, the very well-known biologist, during his visit to Galapagos Islands made a revolutionary observation. The beaks of some birds were altered in shape and size rapidly than the birds on the other islands. Despite the species of these birds are the same, they became completely different in a few generations due to the changes in their food sources and environment. Darwin discovered that the living birds were not the most dominant or

biggest birds but the ones who fitted the environment most. His core message was the survival of the fittest.

Transformative skill is not easy, as Kodak, Nokia, and many others have experienced first-hand. (Schoemaker, 2018) Nokia, one of the greatest mobile phone companies in early 2000's, is a concrete example of this theory. In the first quarter of 2007, Nokia's global smartphone market share was %46,7. In 2007 Apple launched the next generation smartphone, iPhone. This was the start of the end of Nokia's story. Nokia's market share shrinks to one-digit shares. Former CEO of Nokia Stephen Elop summarized the whole story with a sentence, "We did not do anything wrong but somehow, we lost". Nokia did not do anything wrong, but the company could not embrace the change, forecast the future of the mobile phone sector, and respond to the changes agile. Vecchiato states that Nokia's response of environmental scanning and roadmaps for digital transformation failed due to erratic change drivers, which blindsided the total mobile phone market. The iPhone, especially, and later Google's Android phones revolutionized the mobile phone market affecting Nokia and other brands. Vecchiato found that roadmaps were the wrong tool for Nokia to adopt at that specific VUCA time, as roadmaps were historic in nature and the cell phone industry was playing by new eclectic rules that required responses that were more agile, current, and futuristic. (Vecchiato, 2015)

Fig.1

Global Market Share held by Nokia Smartphones
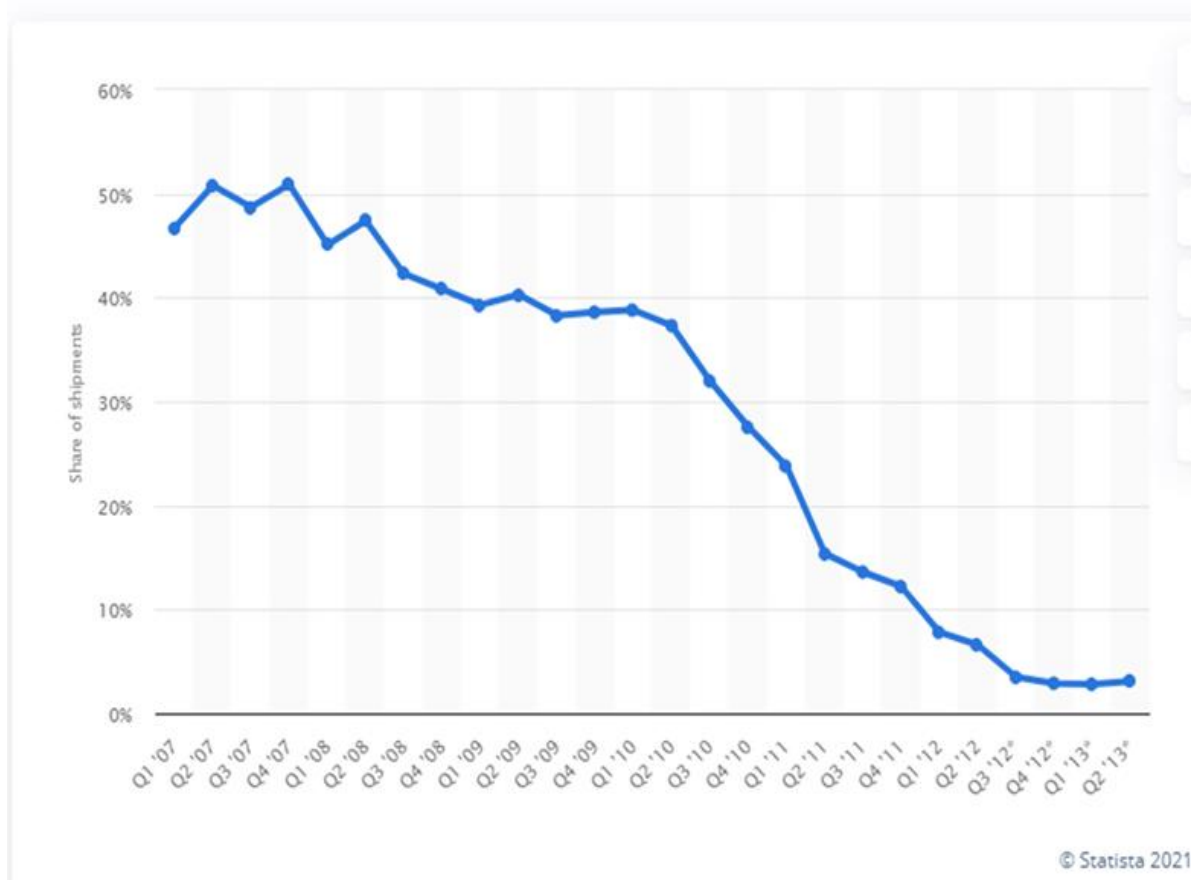
Note: Retrieved from Statista.com

Although the managing board of Nokia did not do anything wrong, they also did not do right things to survive in a VUCA environment. The failure in interpreting the future of mobile phone technology led them to lose their leading role in the market. In a market shaped by technological development and digital transformation, technological inferiority and lack of vision caused vital conclusions.

The change is the only constant in a VUCA world. Every organization, business should embrace change, manage the process, and prepare its staff and employees due to the needs of this environment.

The four components of VUCA are,

● Volatility

- Uncertainty
- Complexity
- Ambiguity

What are the different aspects of VUCA? Volatility is the liability of something to change rapidly and unpredictably. Stock markets, for example, are considered volatile because of how quickly they change and therefore how notoriously challenging they are to predict. Uncertainty relates to the quality of information one has—or the degree to which the outcome of an event is knowable in advance. Complexity increases when there is a greater number of relevant variables or interrelationships; the more variables, the more complex the situation is. (Laukkonen, Biddel, Gallagher, 2019) The components of VUCA are interconnected and can reinforce each other (Millar, Groth, & Mahon, 2018).

Fig.2

Links between VU.C.A. Components
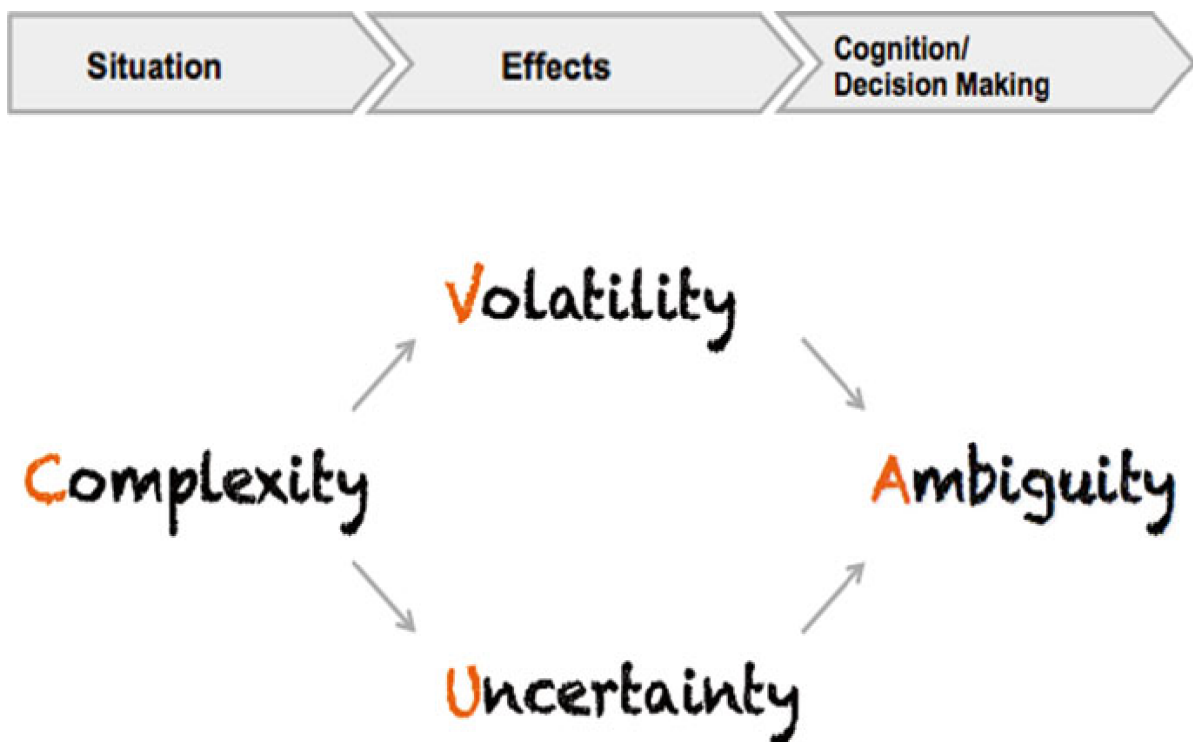
Note: Retrieved from Mack & Khare (2016), p.7

Fig. 3

VUCA Portfolio

Note: Retrieved from Mack & Khare (2016)

Volatility

Volatility is the noun form of adjective volatile. A volatile situation is likely to change suddenly. A volatile person is someone whose moods change suddenly and who quickly becomes angry. (Longman Dictionary, 1999, p.745)

In the contemporary meaning, the concept of volatility can be used for describing the instability and changing conditions via graphs or tables. In volatility, challenge is unexpected or unstable and may be of unknown duration, but it is not necessarily hard to understand; knowledge about it is often available. (Bennett & Lemoine, 2014)

Volatility is characterized by quick changes that usually are violent and uncontrollable. Moreover, it's virtually impossible to predict their duration. In terms of running projects, unpredictability makes long- and medium-term planning tricky due to the dynamic changes. It's very common to terminate or redirect developments before finalizing them. Some of the more bitter specialists claim that the more time you invest in planning, the greater the chance that the plan will be out of date at the time of its presentation. (Bielinska, 2021)

A volatile environment is represented by all the turbulence occurring within an organization in the course of a project, often it is necessary to rethink the implementation methodology, in order to achieve the expected results. Most mathematical models and algorithms for solving an unforeseen situation describe a system that starts from a past situation that has reached a point, following threats from the external environment, from global or local level, but in a volatile environment this is becoming more and more difficult. When a manager faced with volatile changes the best means of action consists in the allocation of resources (human, informational, material, time) in order to quickly solve all the problems, which apparently do not have a solution. It is true that in general a strategy is elaborated after studying and monitoring all the factors (market evolution, and implicitly the prices, the wishes and needs of the consumers, the methods applied by the competitors) that influence the activity of the company for a long time, but in a volatile environment frequently an instant evaluation can provide more results than one obtained over time. (Minciu & Berar & DIMA, 2019)

As a result of the recent developments in mobile communication technologies emergence of the volatility does not take days or weeks as it used to be. The world changes rapidly and

it will change even more rapidly in the future. The interdependence and interconnectivity catalysed by globalization made the economic and political environment more fragile. Any news, a tweet or an expression of a leader can cause volatility in stock markets, price of raw materials or oil prices. The price changes of new brand crypto currency Bitcoin are an excellent example of volatility. Elon Musk, the founder of technology company Tesla, added the symbol of bitcoin to his twitter bio and the prices of bitcoin increased % 20 percent in a few hours. Tesla bought bitcoin for 1.500.000.000 USD and declared they can make sales by bitcoin and the price level increased % 20 again. In a volatile environment, information is available, and the consequences are understandable.

Fig. 4

Crude Oil Prices
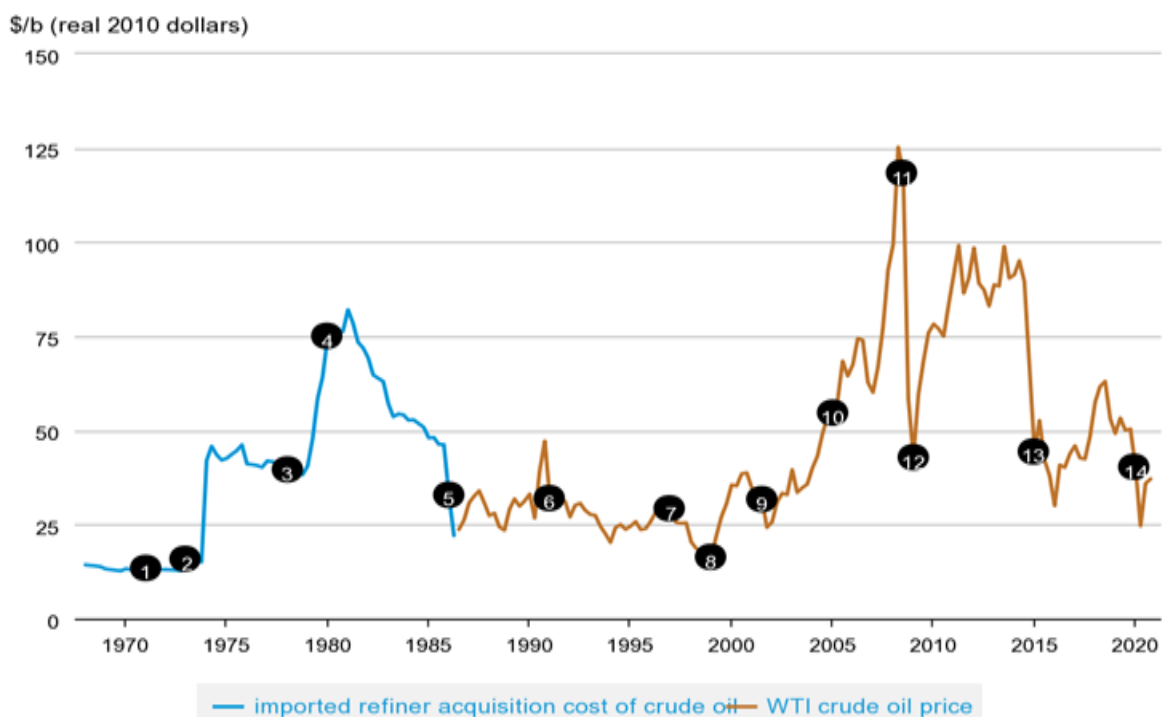
Note: Retrieved from U. S. Energy Information Administration

From the chart, by far the greatest decrease in oil prices happened in 2020. The volatility of prices used to stem from the supply shocks, but Covid-19 pandemic created a new form of shock, demand shock. The greatest price movements were the results of the crises below;

1. US spare capacity exhausted

2. Arab Oil Embargo

3. Iranian Revolution

4. Iran-Iraq War

5. Saudis abandon swing producer role

6. Iraq invades Kuwait

7. Asian financial crisis

8. OPEC cuts production targets 1.7 mmbpd

9. 9-11 attacks

10. Low spare capacity

11. Global financial collapse

12. OPEC cuts production targets 4.2 mmbpd

13. OPEC production quota unchanged

14. Global pandemic reduces oil demand

Uncertainty

"If I had to identify a theme at the outset of the new decade it would be increasing uncertainty."

Kristalina Georgieva

Managing Director of the IMF stated the theme of the next decade as increasing uncertainty. Uncertainty is described as noun form of "uncertain" and uncertain is something undecided or unable to decide. (Longman Dictionary, 1991, p 722) Despite the lack of other information, the cause and effects of the basic event are known. (Mark & Kahre, 2016) Uncertainty is a lack of predictability caused by constant changing environment and limited knowledge. Conventional solutions and models are inadequate in an uncertain environment caused by constant changes. In a constant changing environment, experiences fail to interpret the future and leaders suffer lack of experience. Uncertainty arises in many areas including finance, economy, meteorology, and many sciences**.**

The concept can be used to characterize a situation which exists a lack of knowledge with unpredictable outcomes especially causing vital cause and effects to any environment, group of people, businesses, and states despite a lack of other information, the event's basic cause and effect are known. Change is possible but not a given.   (Bennett & Lemoine, 2014)

With increased volatility of the environment, it is increasingly hard to predict the future. While in the past statistical regression models were able to predict the future, today it becomes more and more difficult to extrapolate future developments and link them with a probability distribution. Uncertainty can be also described as a lack of clarity to evaluate a situation properly to identify challenges and opportunities. (Kail, 2010)

Uncertainty embedded in changes prevents people from using past experiences and lessons learned. In such an environment, rules not only become quickly obsolete but they're impossible to act on due to the overwhelming number of unknowns. Forecasting and predicting outcomes of any actions and preparing for the future is challenging and risky. (Bielinska, 2021) Nandakumar et al. (2012) differentiate between different kind of environmental uncertainty: State uncertainties, when parts or the whole business environment is unpredictable. Effect uncertainties, where effects of these uncertainties influence parts of the business or a company. Response uncertainty, where the consequences of choice in decision making cannot be judged. All three types of uncertainty make it difficult for humans feeling comfortable in observing uncertainty and making decisions.

In economic context, uncertainty leads the firms behave unwillingly to hire new employees, invest in business, and search new markets. Customers tend to spend less in an uncertain economic environment and global economic growth tends to slow down. International Monetary Fund (IMF) constructed a new quarterly measure of uncertainty, the World Uncertainty Index (WUI). It covers 143 countries which have a population of at least two million. It measures uncertainty due to economic and political perspectives in both short term and long-term concerns.

Fig. 5

Uncertainty in the World

World Uncertainty Index (GDP weighted average)

Note: Retrieved from *www.imf.org, 2021*

The index investigates data in a sixty-year range. It is constructed by text-mining from the country reports which cover the economy, policies, and politics of each country. As seen in figure, global uncertainty reached a record high point. The interconnectedness provided by technological developments caused shift of uncertainty in a global manner. Brexit, US presidential elections, US – China trade wars and the last unprecedented Covid-19 pandemic caused a huge uncertainty in the global environment.

Complexity

I think the next century (21st century) will be the century of complexity.

Stephen Hawking (1942-2018)

Complexity is the noun form of adjective complex and complex is described as something difficult to understand, explain or deal with and something consisting of many closely connected parts. (Longman Dictionary, 1991, p.149) Complexity as a VUCA component in an interconnected and networked environment, it becomes more and more difficult to connect cause and effect. The idea of linear causality hits the limits. Complexity can be defined as a situation, where interconnectedness of parts and variables is so high, that the same external conditions and inputs can lead to very different outputs or reactions of the system. A real-life example is organizations or even more complex inter-organizational alliance networks where the same inputs can cause very different outputs at different points in time. (Kail 2010c). Mack et al., emphasizes that an increase of environmental complexity can only be handled by an increased complexity of the individual mind model or the organizational system. (Mack et al., 2016)

Fig. 6

Types and sources of complexity
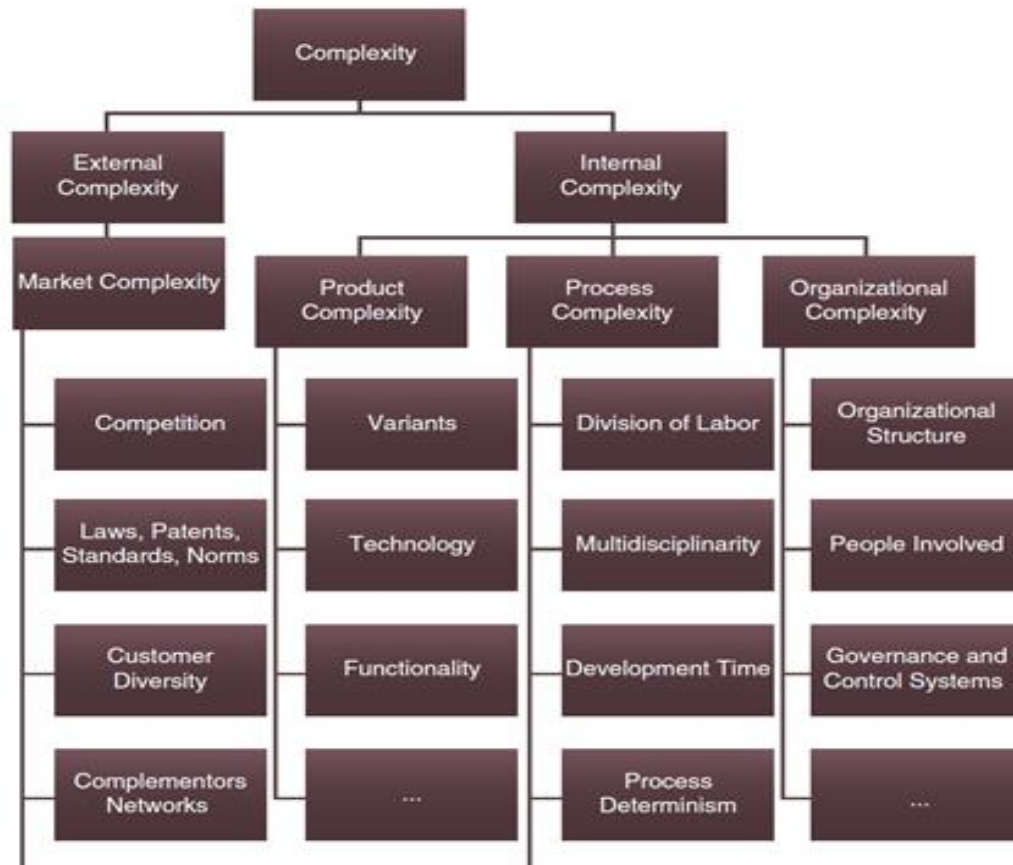
Note: Retrieved from Mack & Khare, Managing in a VUCA World, p.12, 2016

In a complex environment people tend to act immediately in complex situations. They also tend to reduce the system to one central parameter or fail to view the system from a higher level to determine general rules. Often also feedback loops or side effects, which are essential in complex situations are not considered and only linear extrapolations are used. Instead of acting too fast based on too simple assumptions, people tend to expand the planning and information collection phase as they have the feeling to need more information to decide (paralysis). (Mack et al., 2016)

The situation has many interconnected parts and variables. Some information is available or can be predicted but the volume or nature of it can be overwhelming to processes. As an

example, a business which is doing trade with multinational customers all with the unique regulatory environments, tariffs, and cultural values. (Bennett & Lemoine, 2014)

The concept of complexity is defined not only as a dictionary meaning but also as being dependent on themselves from a global perspective rather than profound knowledge and easy comprehension. With the globalization trend developing in today's world, more available ongoing partnerships, travel, and cultural changes between countries reveal a more complex and cumulative heterogeneous structure. For example, the globalization that emerged mainly after the cold war and the regional formations such as NATO, EU, and BRICS established in order to provide relative peace in the world create a multi-dimensional and multivariate complex system. (Döner, 2020)

Complexity interrupts the basic cycle of actions and their consequences since there's a significant difficulty in decoding cause-and-effect relationships. It stems from the fact that we're surrounded by unmanageable big data: a huge amount of knowledge, many variables, and interconnected elements. Making up one's mind with so much information is hard to master. That's why people often highlight that with so much going on, things can often feel chaotic and confusing. (Bielinska, 2021)

In an interconnected and networked environment, it becomes more and more difficult to connect cause and effect. The idea of linear causality hits the limits. Complexity can be defined as a situation, where interconnectedness of parts and variables is so high, that the same external conditions and inputs can lead to very different outputs or reactions of the system. A real-life example are organizations or even more complex inter-organizational alliance networks where the same inputs can cause very different outputs at different points in time. (Kail, 2010)

Complexity refers to a situation which has many interconnected parts and variables. Some information is available or predictable in complex environments, but the volume or nature of the information can be overwhelming to process. Due to the revolutionary process in information and mobile technologies, interconnectedness between the economic factors such as states, multinational companies, local manufacturers increased inevitably. Increased mobility of people around the globe or simply the burning of frontiers via intensive use of technology, along with diversity of mental patterns contributes to an increased complexity of the surrounding world and inherently difficulty in mastering if not at least understanding

the current intricacies underlying the external and internal environment of states and organizations. (Codreanu, 2016) Unprecedented behaviours of these actors contribute to the complexity of economic environment. Trade war between the USA and China, increase or decrease of interest ratings by the FED, Brexit process complicates the actual economic issues. In 2009 a new complexity measurement index has developed to interpret and measure the complexity of the world economy. The index was developed by Cesar A. Hidalgo, from the MIT Media Lab and Ricardo Hausmann, from Harvard University's Kennedy School of Government. The Economic Complexity Index (ECI) is the measure of the relative knowledge intensity of an economy or a product.

Table 3.

Economic Complexity Rankings (2019)

		Value of Economic Complexity Index								
Ranking	Country	2019	2018	2017	2016	2015	2014	2013	2012	2011
1	Japan	2,391	2,43	2,55	2,41	2,36	2,34	2,42	2,51	2,52
2	Chinese Taipei	2,265	2,28	2,32	2,17	2,09	2,02	1,99	2,05	2,05
3	South Korea	2,127	2,06	2,08	2,02	1,95	1,89	1,82	1,79	1,74
4	Switzerland	2,029	2,13	2,20	2,18	2,16	2,16	2,22	2,13	2,12
5	Germany	1,997	2,03	2,11	2,03	2,02	1,96	2,01	2,01	2,06
6	Singapore	1,982	1,87	2,05	1,95	1,90	1,82	1,87	1,94	1,91
7	Czechia	1,713	1,76	1,75	1,73	1,72	1,72	1,76	1,74	1,74
8	Austria	1,688	1,68	1,74	1,68	1,70	1,66	1,68	1,70	1,75
9	Sweden	1,661	1,71	1,75	1,72	1,78	1,82	1,86	1,82	1,84
10	Slovenia	1,655	1,68	1,68	1,65	1,67	1,70	1,68	1,64	1,70

11	United Kingdom	1,579	1,62	1,69	1,61	1,64	1,64	1,71	1,71	1,80
12	Finland	1,549	1,53	1,56	1,46	1,59	1,61	1,65	1,64	1,72
13	United States	1,501	1,51	1,60	1,60	1,60	1,59	1,59	1,63	1,65
14	Hungary	1,470	1,52	1,51	1,53	1,54	1,50	1,51	1,50	1,51
15	Israel	1,371	1,32	1,44	1,30	1,26	1,26	1,24	1,20	1,12
41	Turkey	0,676	0,66	0,60	0,63	0,62	0,65	0,62	0,59	0,53
157	Chad	-3,031	-2,46	-1,89	-1,75	-2,01	-2,50	-2,43	-0,78	0,19

Note: Retrieved from www.oec.world/en/rankings/eci/hs4/hs92

The ECI basically measures the complexity of an economy due to export goods of any country. Countries which have high ECI like Germany or Japan produce and export high sophisticated export products. The countries which have low ECI like Chad produce and export less sophisticated and high ubiquity products. The more sophisticated and low ubiquity products demonstrate the economic complexity of the country.

Complexity is seen as the key concept to understand the other components of VUCA. The other elements are the consequences of complexity. (Mark & Kahre, 2016, p.6)

Ambiguity

Ambiguity is noun form of ambiguous, ambiguous is not clear and able to be understood in more than one way. (Longman Dictionary, 1991, p 41) There are two types of ambiguity: Genuine ambiguities, where a sentence really can have two different meanings to an intelligent hearer, and "computer" ambiguities, where the meaning is entirely clear to a hearer, but a computer detects more than one meaning. Ambiguity is a reflection of situations that contain decision-making inability under mass information and knowledge such as being confused during the preferences being selected. (Döner, 2020)

Ambiguity can be defined as the dilemmas and suspicions that cannot be predicted due to the lack of similar situations in the past despite the information available (Bennett &

Lemoine, 2014). In real life, business decisions become more and more ambiguous, as there is often more than one possible solution to a problem and there is no analytical process to decide, which option should be chosen. If one asks different people for an evaluation of a specific situation and plans for action, one will get different answers which would be equally valid. (Kail, 2011)

Genuine ambiguity is not a serious problem for NLP problems; it's comparatively rare, and you can't expect computers to do better with natural language than people. Computer ambiguity is a very serious problem; it is extremely common, and it is where computers do much worse than humans. Ambiguity is characterized by the fact that causal relationships are completely unclear (Bennett and Lemoine, 2014) and the meaning or interpretation of a situation cannot be definitely resolved according to a rule or process consisting of a finite number of steps (Ambiguity 2014). In contrast to vagueness that characterizes a situation by a lack of clarity, in ambiguity specific and distinct interpretations are permitted (Ambiguity 2014; Vagueness 2014).

Ambiguity is described by Bielinska as our current world is full of "unknown unknowns." No precedents exist in most events. We lack clarity, and we don't know what the root cause of our problem usually is. When relations and connections between elements became obscure, it's extremely easy to over-interpret meanings of facts and to come to a faulty conclusion. (Bielinska, 2021)

Same as uncertainty, this is not a new phenomenon. What makes it challenging is our expectation based on the mechanistic world model, which has its roots in René Descartes work, following "I think, therefore I am" (cogito, ergo sum) and the scientific approach of splitting up a problem into smaller ones until it can be solved. Today, especially in business, we only feel comfortable in decision making if we have the impression that we can deduce a clear solution from collected facts and figures. We often neglect the fact that decision making is a process that includes cognition, judgement, and action. (Mack & Kahre, 2016, p.10)

The ambiguity of the environment is the result of all the above features. It is rendered by the inability to provide "yes/no" solutions and, hence, by the multifariously valid alternatives that might prove true depending on how, when and where a butterfly flaps its wings. (Codreanu, 2016).

The Furniture Industry

Furniture is described as movable articles that are used to make a room or building suitable for living or working in, such as tables, chairs, or desks. (Longman Dictionary, 1991, p.289) Furniture industry is all the companies and activities involved in the design, manufacture, distribution, and sale of functional and decorative objects of household equipment. (Hayward, 2001) In ancient ages furniture was made of stone as wood or metal was not available in the Neolithic ages. As evidence for the existence of constructed furniture in the Neolithic age, a statue of sitting woman was found in Çatalhöyük in Turkey, dating between 6000-5500 BCE. (Smardzewski, 2015) Modernization of the manufacture of furniture has mainly started in the 20Th century. The development in mass production techniques emerged in this century due to the demand of mass consumer market. In earlier ages manufacture of furniture was a handicraft business.

Fig. 7

Major Furniture Importing Countries 2014-2020 (USD Billion)
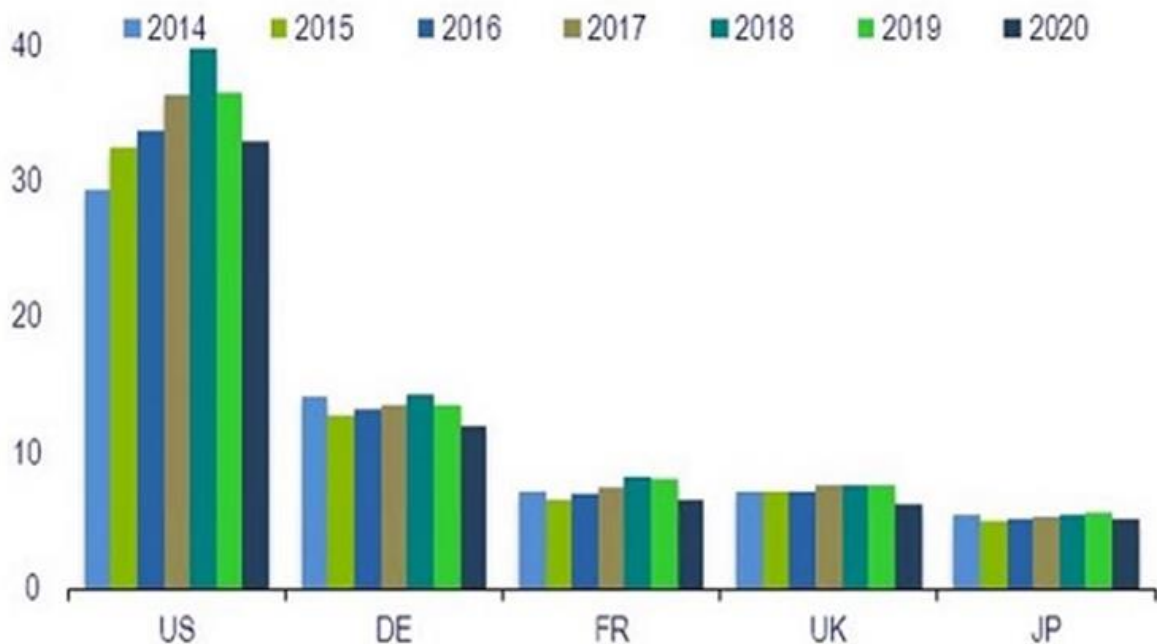
Source: CSIL processing of UN, Eurostat and national data

Note: Retrieved from CSIL processing of UN, Eurostat and National Data (2020)

By the end of 2019, the global furniture market revenue reached 609.000.000.000 USD. The biggest furniture importing countries are United States, Germany, France, United Kingdom and Japan. The United States of America is the main furniture importing country on a global level and it is followed at a distance by Germany. Global furniture market is expected to grow in next four years contrary to many industries. The forecast of growth is 44 billion USD by the end of 2024. The boom of construction industry and the growth in real estate market are the main factors driving the furniture market. (Businesswire, 2020)

Table 4.

The Country-based Furniture Export of the World (by USD)

COUNTRY	2017	2018	2019
CHINA	59.295.789	64.286.687	64.629.387
GERMANY	12.986.934	14.080.209	13.769.747
POLAND	11.552.801	13.386.689	13.399.545
ITALY	11.243.911	12.202.904	11.454.493
VIETNAM	6.318.220	6.997.682	8.984.681
MEXICO	8.214.535	8.193.411	8.110.555
USA	8.456.174	8.355.029	7.862.606
CANADA	4.661.276	4.714.162	4.759.604
CZECHIA	4.548.238	4.791.775	4.516.535
ENGLAND	3.142.740	3.127.014	3.392.420
TURKEY	2.360.407	2.686.740	3.055.447
NETHERLANDS	2.754.355	3.082.819	3.022.412
FRANCE	2.946.224	3.034.875	2.949.758

MALEYSA	2.447.121	2.535.617	2.902.176
ROMANIA	2.421.299	2.749.590	2.714.082
SPAIN	2.454.185	2.680.338	2.656.295
DENMARK	2.420.497	2.573.257	2.623.361
LITHUANIA	1.847.878	2.115.066	2.203.277
SWEDEN	2.088.343	2.143.517	2.164.279
PORTUGAL	2.022.389	2.281.126	2.051.792
LIST ABOVE	154.183.316	166.018.507	167.222.452
TOTAL WORLD	179.308.604	193.266.904	194.404.230

Note: Retrieved from www.ticaret.gov.tr (2021)

The greatest furniture exporter of the world is China. China exports approximately one third of the global furniture exports, 64 billion USD. European Union zone countries export one third of the global exports especially Germany, Poland, Italy are the main furniture exporter countries of the union. Turkey is one of the emerging markets in the world. Turkey's share of the global market increased from 1.39 to 1.57 between 2018 and 2019. (ticaret.gov.tr, 2021)

Due to the reports of the Ministry of Trade, the furniture industry has a major role in Turkey economy. The furniture industry has providing foreign trade surplus since 2001. The export revenue from the furniture industry was 3.2 billion USD in 2020. Despite the negative effects of Covid-19 pandemic, the export revenue increased % 12 compared to 2019. The biggest furniture manufacturer cities in Turkey are İstanbul, Ankara, Bursa (İnegöl), Kayseri, İzmir and Adana.

Table 5.

Turkey's Country-based Furniture Export (Value: Thousand USD)

COUNTRY	2018	2019	2020
IRAQ	448.104	510.871	483.844
GERMANY	204.096	222.596	347.109
USA	118.263	152.349	268.363
SAUDI ARABIA	169.704	197.637	188.971
FRANCE	151.397	146.356	162.961
ENGLAND(GB)	93.223	101.674	143.335
ISRAEL	93.727	118.215	136.700
LIBYA	117.636	200.537	134.567
NETHERLANDS	67.904	75.182	94.342
ROMANIA	70.306	85.243	90.767
QATAR	63.441	86.351	75.493
UAE	61.838	70.506	70.208
HUNGARY	9.188	13.190	69.484
ITALY	61.485	65.299	67.256
CZECHIA	7.626	8.562	62.669
Total of List	1.737.938	2.054.568	2.396.069
Total Export	2.686.740	3.055.447	3.421.602

Note: Retrieved from www.ticaret.gov.tr (2021)

The main importer of Turkish furniture is the neighbour country, Iraq. The export to Iraq has declined in 2020 due to the pandemic and political instabilities of Iraq. The second

biggest purchaser country is where a huge number of Turkish citizens live, Germany. The economic and political instabilities in Arabic countries led Turkey's export to Middle East region decline in 2020. In 2019, the countries Saudi Arabia, Libya, Qatar, and United Arab Emirates imported furniture from Turkey 85.792.000 USD less than 2020.

Table 6.

Turkey' Country-based Furniture Import (Value: Thousand USD)

COUNTRY	2018	2019	2020
CHINA	78.108	61.412	69.534
POLAND	49.606	48.589	56.731
ITALY	74.750	59.902	55.152
GERMANY	78.462	67.001	51.966
ROMANIA	24.148	24.138	26.351
BULGARIA	23.802	23.122	18.816
JAPAN	10.250	13.017	17.292
USA	21.764	33.335	17.088
FRANCE	30.731	22.812	15.326
TAILAND	19.509	11.763	14.449
PORTUGAL	10.596	8.990	12.959
MALEYSIA	10.988	9.144	12.543
SERBIA	12.778	17.706	11.600
ENGLAND	10.293	18.286	9.942
SPAIN	14.732	14.937	9.573
LIST ABOVE	470.517	434.154	399.322

TOTAL IMPORT	592.840	548.160	498.092

Note: Retrieved from www.ticaret.gov.tr (2021)

Turkey as a VUCA environment

VUCA environments requires consistent high levels of change in volatile, complex, uncertain, and ambiguous patterns. In Turkey, continuous issues related in economical instabilities, social issues related with refugees, devaluation of Turkish Lira, increasing income inequality creates a VUCA environment. Continuous devaluation of Turkish Lira deepens the income inequality. Turkey is the 5. worst country among the OECD countries in income inequality.

Fig. 8

OECD Income Inequality (Gini) Index
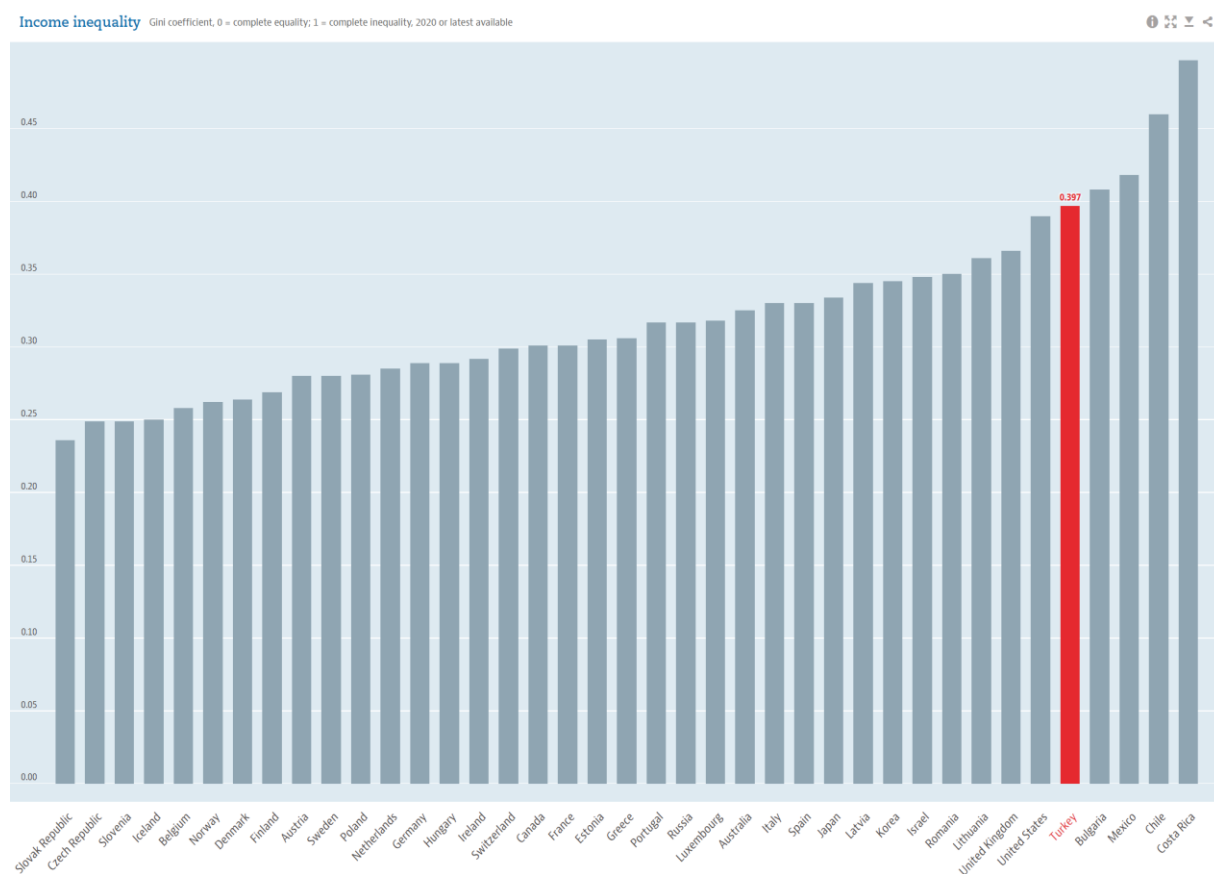
Note: Retrieved from www.oecd.org (2019)

In economics, the Gini coefficient, or Gini index, is a measure of the income distribution of a population. It was developed by Italian statistician Corrado Gini (1884-1965) and is named after him. The Gini coefficient ranges from 0, indicating perfect equality (where everyone receives an equal share), to 1, perfect inequality (where only one recipient or group of recipients receives all the income). Due to the OECD income inequality rankings, Turkey is the 35th between 39 countries with a 0.40 score in 2019. (oecd.org, 2021)

Fig. 9

USD/TL Exchange Rate

Note: Retrieved from https://dolar.tlkur.com/turk-lirasi/10yil#dolarturk-lirasi_PAIR (01.12.2021)

The devaluation of TL in the last decade is a huge problem for Turkish economy and income equality. USD/TL exchange rate shifted from 1.80 TL to 13.40 TL in last ten years. Volatility of currency creates an uncertain and ambiguous economic environment in Turkey.

In a highly interconnected world, pressures on one fragile state can have serious repercussions not only for that state and its people, but also for its neighbours and other states halfway across the globe. Since the end of the Cold War, several states have erupted into mass violence stemming from internal conflict. Some of these crises emerge from ethnic tensions; some are civil wars; others take on the form of revolutions; and many result in complex humanitarian emergencies. The Fragile States Index (FSI) produced by The Fund for Peace (FFP), is a critical tool in highlighting not only the normal pressures that all states experience, but also in identifying when those pressures are outweighing a states' capacity to manage those pressures. By highlighting pertinent vulnerabilities which contribute to the risk of state fragility, the Index — and the social science framework and the data analysis tools upon which it is built — makes political risk assessment and early warning of conflict accessible to policymakers and the public at large. (Fragilestatindex.org, 2021)

Table 7.

Fragile States Index

Country	Rank	Total	C1	C2	C3	E1	E2	E3	P1	P2	P3	S1	S2	XI
Yemen	1st	111,7	9,4	10,0	9,4	9,8	7,7	6,7	9,9	9,8	9,7	9,8	9,8	9,7
Somalia	2nd	110,9	9,3	10,0	8,3	9,2	9,5	8,8	9,2	9,8	8,7	10,0	9,2	8,9
Syria	3rd	110,7	9,6	9,9	9,7	9,6	7,1	8,2	10,0	9,6	9,7	7,6	9,7	10,0
South Sudan	4th	109,4	9,7	9,2	8,8	9,2	8,9	6,7	9,5	10,0	8,7	9,5	9,9	9,3
Turkey	57th	79,7	7,2	8,8	9,7	5,3	4,7	4,1	7,3	5,4	8,0	5,1	8,4	5,7
Madagascar	58th	79,5	6,3	7,8	3,3	7,3	9,0	6,1	6,3	8,7	5,8	9,2	4,1	5,6
Honduras	59th	79,4	7,0	7,0	5,0	6,4	6,9	6,7	7,1	7,6	7,2	6,1	5,5	6,9
Guatemala	59th	79,4	6,8	7,1	9,4	5,0	7,1	7,1	6,5	7,2	7,2	7,2	4,8	4,0
Switzerland	174th	19,9	1,6	1,0	2,7	2,0	1,8	1,1	0,5	1,6	0,8	3,2	3,1	0,5
Denmark	175th	18,8	1,7	1,4	3,7	1,7	1,2	1,3	0,5	1,4	0,9	2,3	2,2	0,5
New Zealand	176th	18,4	1,4	1,4	2,6	3,4	2,1	1,6	0,5	1,4	0,5	1,4	1,6	0,5

Iceland	177th	18,0	0,7	1,8	0,5	3,4	1,3	1,9	0,5	1,2	0,5	1,5	1,5	3,2
Norway	178th	16,6	1,8	1,1	3,3	1,9	1,0	0,8	0,5	1,6	0,5	1,4	2,2	0,5
Finland	179th	16,2	2,5	1,4	0,6	2,9	1,0	1,5	0,5	1,6	0,5	1,7	1,5	0,5

Note: Retrieved from https://fragilestatesindex.org/ (2021)

Due to the table, the Fragile State Index reports 179 countries due to twelve indicators. Twelve conflict risk indicators are used to measure the condition of a state at any given moment. The indicators provide a snapshot in time that can be measured against other snapshots in a time series to determine whether conditions are improving or worsening. Due to the research, Yemen is the most fragile state in the list while Finland is the least state. Turkey's ranking is 57 – worst ranking in the EU zone-.

Solutions for a VUCA Environment

The purpose of this quantitative study is to explore the VUCA perception of furniture manufacturer business employees.

If ever the acronym "VUCA (Volatile, Uncertain, Complex, Ambiguous)" felt appropriate to use, it's now. Organisations at global and domestic levels are experiencing highest levels of uncertainty due to the COVID-19 pandemic, the impact of which is unprecedented. Organisations across industries have been experiencing volatility, uncertainty, complexity, and ambiguity time and again. However, there are no parallels to the COVID 19 pandemic in the recent history. (Nangia & Mohsin, 2020) Nangia and Mohsin suggested that high priority VUCA factors like declining revenues, working remotely, risk of information security, low productivity of employees, communication and motivation are common challenges faced by multiple sectors and organizations but low priority factors like talent hiring, fulfilling client specification on projects are challenges to specific organizations. (Nangia & Mohsin, 2020) In a chaotic VUCA environment, Sucharita suggests, instead of making it more volatile, complex and ambiguous, we come up to a conclusion that we need to focus on the leadership more than management, strategic sense-making more than operational problem-solving, high levels of trust, devolved responsibility more than control, collaborative working - an organizational appetite for flexible, decentralized empowered

networks, organizational and individual learning from life experience, high tolerance for uncertainty and ambiguity. (Sucharita, 2016)

Aghina defines agile organizations as master at stable and dynamic at the same time. They design stable backbone elements that evolve slowly and support dynamic capabilities that can adapt quickly to new challenges and opportunities. (Aghina et al., 2017)

Fig. 10

The Transformation of Organization
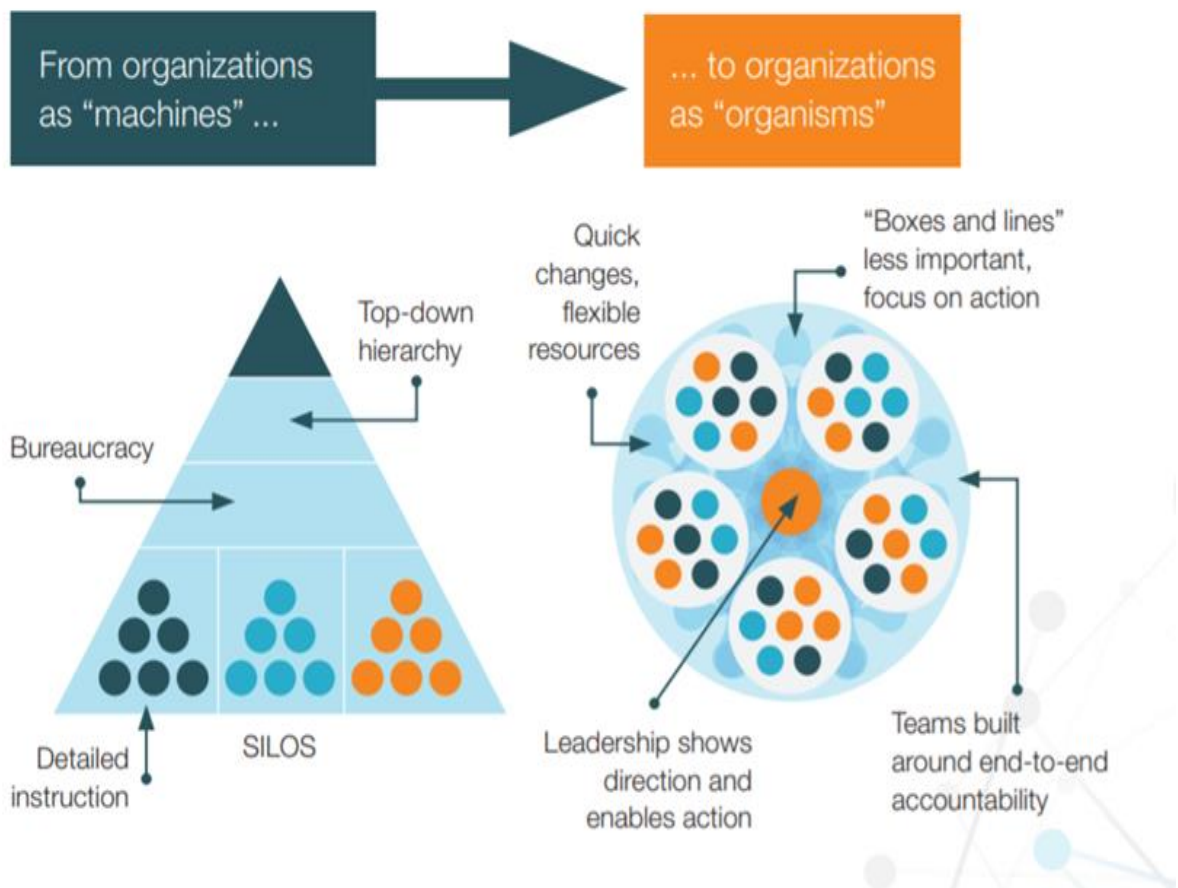
Note: Retrieved from the 5 Trademarks of Agile Organizations, Mc Kinsey

An agile organization is (designed for both stability and dynamism) is a network of teams within a people-centered culture that operates in rapid learning and fast decision cycles which are enabled by technology, and that is guided by a powerful common purpose to co-create value for all stakeholders. Such an agile operating model has the ability to quickly and efficiently reconfigure strategy, structure, processes, people, and technology toward value-creating and value-protecting opportunities. An agile organization thus adds velocity and adaptability to stability, creating a critical source of competitive advantage in volatile, uncertain, complex, and ambiguous (VUCA) conditions. (Aghina et al., 2017)

The importance of agile organizations emphasized in the study of Troise (2021). Focusing on SMEs, the study investigates three antecedents of agility, namely digital technologies capability, relational capability and innovation capability, and the effects of agility on three outcomes, namely financial performance, product, and process innovation. Our findings indicate that these capabilities contribute to build organizational agility in SMEs and that, in turn, agility has a positive impact on performance, thus confirming that agility contributes to the success of SMEs and that digital technologies play a central role in this process. Thus, it is of strategic importance for SMEs to increase their efforts to develop these capabilities to build enduring businesses. (Troise et al., 2021)

The strategic environment of the 21st Century has been characterized as volatile, uncertain, complex, and ambiguous (V.U.C.A) as new technologies, developments, disruptions, change, and transformation continue to accelerate. These trends profoundly impact the ability of any organization to remain relevant and competitive. We are now entering a period where our existing views of leadership need to be reconsidered to pace these changes and our ensure superiority and competitive advantage. (Moore, 2015)

Fig. 11

21st Century Leadership in a VUCA Environment

21st Century Leadership in a V.U.C.A. Environment
(SCAILES Framework)

Figure 1
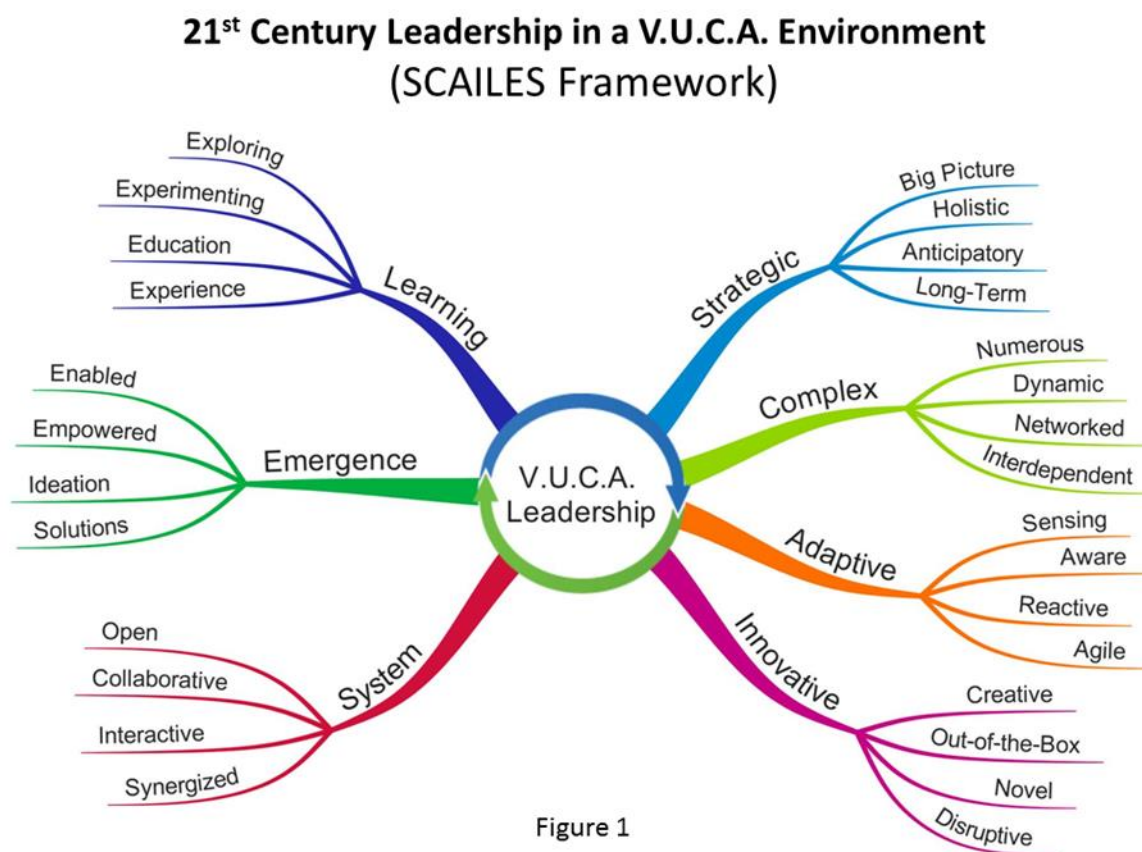
Moore argues 7 key concepts necessary for leaders to succeed in this 21st Century V.U.C.A. environment. The elements of this framework form a system of thought, captured as a: Strategic, Complex, Adaptive, Innovative, Learning, and Emergent System (SCAILES). This framework leverages, extends and broadens concepts grounded in complex adaptive systems' (CAS) theory. SCAILES takes CAS to a new level and makes it more accessible, by addressing needed anticipatory and innovative capabilities, focused on learning, as the pre-requisite for future success. (Moore, 2015) In contrary, Scapinger suggests, VUCA is a vacuous concoction. The suggestion that its components are "the new normal" is misleading. Business leadership has always been tough. The challenges conjured by VUCA have been around for decades. (Skapinger, 2018)

Due to Khalatur et al., institutions should be based on the characteristics of the VUCA world, the unpredictability of the future due to the rapid development of events, the use of tools for studying the environment and the formation of an adequate response from the banking institution as an adaptive response to changes and VUCA-answer, which is focused on the competence of specialists. The main emphasis should be on scanning and flexible situational decision-making, taking into account macro environmental factors. (Khalatur, et al., 2021)

Giles claims specific chain of events shows how complex the world is today. If fewer people had cell phones, as was the case just a decade ago, they wouldn't have been able to capture Bouazizi's self-immolation. If fewer people were connected on social media, the news wouldn't have gone viral. If fewer people had access to TV, radio, and internet, they wouldn't have been inspired to revolt against their own regimes. If fewer refugees had access to transportation to take them from Turkey, Italy, or Greece, they wouldn't have been able to flee to England or Germany, the more affluent countries of the European Union. The increased interdependence among all these variables involved resulted in Brexit. On June 24, 2016, more than $2 trillion of wealth vanished in equity markets around the world in the highest one-day sell-off in history. Never could the British voting public, or perhaps anyone in the world, have imagined that such an outcome began when a fruit vendor set himself on fire in Tunisia six years earlier. The fundamental approaches to survive in a VUCA environment are Move from hierarchy to self-organization. Move from protecting information to democratization of information. To empower employees to make decisions, make communication frictionless. Speed up interactions. Accelerate the speed of interaction as much as possible. In the VUCA age, speed matters more than perfection. Use simple rules to make quick decisions, rather than perfect analyses. (Giles, 2018)

Schoemaker indicates successful leadership in a VUCA world is less about developing detailed plans and more about testing various hypotheses about emerging technologies and changing markets. MasterCard did this stealthily, while operating in the shadow of Visa, by exploring growing market segments ignored by its main rivals. It zeroed in on consumers wedded to cash, recognizing that at times they still wanted mobile payment options, for example when barely catching the tube or bus in London. Amazon elevated such broad exploratory strategies to high art, from its humble start as an online bookseller to a retailer

of nearly everything, while breaking the trillion-dollar valuation ceiling. In its wake, more than 60 companies became collateral damage including such well-known names such as Barnes & Noble, Costco, Best Buy, GameStop, Macy's, Nordstrom, Sears, Target, CVS Caremark, Rite Aid and even Walmart. Companies that successfully navigated waves of technological disruption include Adobe, when it moved to the cloud and Netflix, when it shifted from a video mail order business to on-line streaming and original content, which fuelled its exponential growth. (Schoemaker, 2018)

Achieve success and survive in a VUCA environment is formulated as VUCA by George. (George, 2017) George offers vision for volatility, understanding for uncertainty, courage for complexity and adaptability for ambiguity. Vision is the most important ability of a leader to see through the challenges and chaos in a VUCA environment. They must decide a Polaris for their organization, its values, and missions. They should create clarity around this loadstar and refuse to let external events pull them off course or cause them to neglect or abandon their mission, which must be their guiding light. (George, 2017) Having vision is not enough to succeed. Leaders need in-depth understanding of their organization's capabilities and strategies to take advantage of rapidly changing circumstances by playing to their strengths while minimizing their weaknesses. Listening only to information sources and opinions that reinforce their own views carries great risk of missing alternate points of view. Spending time in the marketplace, retail stores, factories, innovation centres, and research labs, or just wandering around offices talking to people is essential. (George, 2017) Leaders need courage more than ever now. They cannot keep using traditional management techniques to avoid criticism and risk-taking. In fact, their greatest risk lies in not having the courage to make bold moves. This era belongs to the bold, not the meek and timid. (George, 2017) Due to George (2017), the last component of the formula is adaptability. In a constant changing environment, leaders and organization should adapt quickly to new circumstances without altering strategic course.

Koh (2021) suggests another formulation for a VUCA environment. Visioning, Unvacillating, Contextualizing and Agility. Visioning is the versatility of the organization to stay true to its guiding values and mission and not fall into the trap of just changing things because that's what everyone else is doing. Without vision, organizations perish. They don't understand what is truly needed to adapt their own organization. What works for others

might not work for them. Being unvacillating will allow leaders to not be easily swayed by varying opinions. The causalities of uncertainties are fear and expectations of the things to come and a sense of no control. Having a clear understanding of what the priorities are for the organizations will help move the state of ambivalence to a place of resolve. Our world and the social-economic-political environment are getting complex and often complicated. To resolve the complexity, leaders need to contextualize the observable data and the inference associated with the data to sense-make the most judicious decision. Certainty is the solution to ambiguity. However, the reality of the future of work is filled with many ambiguous dimensions that are often unpredictable. Being agile will allow organizations and leaders to be more responsive and adaptable to the changing demands of the economy. (Koh, 2021)

2. METHODOLOGY

In this study, it is primarily aimed to examine VUCA factors and the perception of VUCA of employees of furniture manufacturer businesses. Firstly, a comprehensive literature review approach was implemented along with researches related to the VUCA and its contemporary issues. Turkey is examined as a VUCA environment.

Quantitative research is a type of research that can be observed, quantified, and expressed numerically, and provable by objectifying facts and events. In the quantitative research method, numerical data are gathered from the sample representing the universe related to the subject being analysed. After these data are justified in line with research problems and hypotheses, the results are clearly obtained through interpretations (Morrell & Carroll, 2010) In this part of the research, the model of the study carried out on the employees, the universe and the sample, the data collection tools and the analysis of the data, the research questions and hypotheses are explained.

2.1 Participants

The employees of the furniture manufacturing businesses are the participants of this research in a large scale of positions from worker to the chairman of the board. The purposive sample of this research consists of 155 participants from 7 furniture manufacturer businesses. Participation in the research was carried out on a voluntary basis and as a result of missing data analysis, the results of 155 available employees were analysed.

Descriptive statistics were produced for all variables. Findings showed that 21% workers were female, 79% were male out of a total number 99. The majority of the workers were married (72%), in the birth year range 1980-1999 (64%), employee status (54%), primary grad (42%) and seniorly 11-15 year (29%). Data according to managers: 25% were female, 75% were male out of a total number 56. The majority of managers were married (68%), in the birth year range 1980-1999 (77%), department head status (55%), bachelors' grad (57%) and seniorly 11-15 year (27%).

Table 8.

Descriptive Statistics

	Employees (n:99)		Managers (n:56)	
Gender	f	%	f	%
Female	21	21,0	14	25,0
Male	78	79,0	42	75,0
Maritial status	f	%	f	%
Married	71	72,0	38	68,0
Single	28	28,0	18	32,0
Education level	f	%	f	%
Primary school	42	42,4	4	7,1
High school	29	29,3	10	17,9
Associate degree	3	3,0	2	3,6
Bachelor degree	18	18,2	32	57,1
Graduate degree	7	7,1	8	14,3
Birth year range	f	%	f	%
1946-1964 (Gen. BB)	2	2,0	2	3,6
1965-1979 (Gen. X)	22	22,2	11	19,6
1980-1999 (Gen. Y)	63	63,6	43	76,8
2000[+] (Gen. Z)	12	12,1	-	-
Work seniority	f	%	f	%
Below 1 years	5	5,1	2	3,6
1-5 years	18	18,2	9	16,1
6-10 years	17	17,2	12	21,4
11-15 years	29	29,3	15	26,8
16-20 years	16	16,2	10	17,9
Above 20 years	14	14,1	8	14,3
Workplace Status of Employees	f		%	
Employee	53		53,5	
Craft supervisor	14		14,1	
Chief	19		19,2	
Product manager	13		13,1	

Workplace Status of Managers	f	%
Department head	31	55,4
Director	11	19,6
Member of board	7	12,5
CEO	7	12,5

2.2. Procedure

The research is conducted in 7 furniture manufacturer businesses. The first step of research was a visit to the interested parties to inform about consent and grant the verbal consent for participation. After receiving of consent, the second step of research was to e-mail the businesses for formal consent. Third step was the distribution of survey to the participants. The survey link is distributed online by the researcher at the workplace of participants and participants filled out the survey links at their workplaces.

2.3 Materials Used in The Research

The collection of research data is carried out by the Personal Information Form (Appendix1), developed by the researcher and the VUCA Perception Scale developed by Yurdasever (Appendix 2). A survey form consisting of two sections and 22 questions is used.

2.3.1 Personal Information Form

In the first part of the survey, there is a Personal Information Form created by the researcher in order to determine the demographic characteristics of the participants. In the form, there are 6 questions selected from demographic variables as gender, marital status, birth year range, education level, position in workplace, and work experience in years.

2.3.2. VUCA Perception Scale

In the second part of the survey, the VUCA Scale developed by Yurdasever is used to determine the VUCA perception levels of the participants. The scale, which is a five-point Likert type, is scored between 1-5. In the scale scoring, I am not satisfied at all; 1 point, Not

satisfied; 2 points, Undecided; 3 points, I agree; 4 points, I strongly agree is evaluated as 5 points.

In the present study, all the three components were found reliable measurements for both worker with Cronbach's Alpha reliability; Volatility (ὰ=0.744), Complexity (ὰ=0.729), Uncertainty (ὰ=0.734) and manager with Cronbach's Alpha reliability; Volatility (ὰ=0.849), Complexity (ὰ=0.805), Uncertainty (ὰ=0.658). When the value of Cronbach's Alpha above .70, the scale has reliability. In addition, if the scale has few items, this limit can be accepted as above 0.60. (Bayram, 2014; Seçer, 2015; Durmuş, Yurtkoru & Çinko, 2016).

Table 9.

Results of Reliability Analysis

	Components	Cronbach's Alpha	Number of items
Workers	Volatility	0.744	4
	Complexity	0.729	4
	Uncertainty	0.734	3
Managers	Volatility	0.849	4
	Complexity	0.805	4
	Uncertainty	0.658	3

2.4. Research Model

In this quantitative study, the VUCA factors perceptions of furniture manufacturer workers were examined and the relationship between demographic characteristics and VUCA factors were investigated.

Fig. 12

Research Model


```
┌─────────────────────┐                    ┌─────────────────────┐
│    DEMOGRAPHIC      │                    │        VUCA         │
│   CHARACTERISTICS   │                    │                     │
└─────────────────────┘                    └─────────────────────┘
          ⇕                                          ⇕

┌─────────────────────┐                    ┌─────────────────────┐
│       GENDER        │                    │                     │
└─────────────────────┘                    │     VOLATILITY      │
┌─────────────────────┐                    │                     │
│   MARITAL STATUS    │                    └─────────────────────┘
└─────────────────────┘
┌─────────────────────┐                    ┌─────────────────────┐
│  BIRTH YEAR RANGE   │                    │                     │
└─────────────────────┘                    │    UNCERTAINTY      │
┌─────────────────────┐                    │                     │
│  WORKPLACE STATUS   │                    └─────────────────────┘
└─────────────────────┘
┌─────────────────────┐                    ┌─────────────────────┐
│   EDUCATION LEVEL   │                    │                     │
└─────────────────────┘                    │     COMPLEXITY      │
┌─────────────────────┐                    │                     │
│   WORK SENIORITY    │                    └─────────────────────┘
└─────────────────────┘
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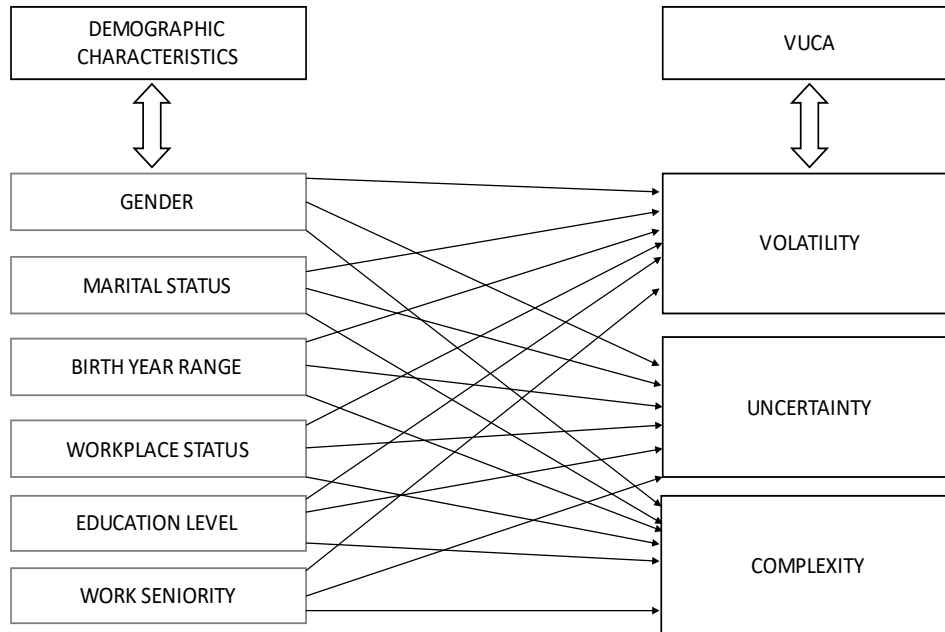
2.5. Data Analysis

Data were analysed with SPSS 21.0. Normal distribution was determined by kurtosis and skewness values. It was observed kurtosis and skewness values between ±3. So, parametric tests were used in the analysis (Shao, 2002). For testing hypothesis, independent samples t test and one-way Anova were used.

3. RESULTS

For workers averages of volatility score 4.23, complexity score 3.39, uncertainty score 3,47. For managers averages of volatility score 4.26, complexity score 3.36, uncertainty score 3,39. Volatility average scores were found to be higher both workers and managers.

Table 10.

Mean Scores for VUCA Components

Sample		Min.	Max.	*M*.	SD.
Workers (n:99)	Volatility	1.00	5.00	4.23	0.69
	Complexity	1.00	5.00	3.39	0.82
	Uncertainty	1.00	5.00	3.47	1.04
Managers (n:56)	Volatility	1.00	5.00	4.26	0.79
	Complexity	1.00	5.00	3.36	1.01
	Uncertainty	1.00	5.00	3.39	1.02

T test results in Table 11 showed that there was a statistically significant difference among male and female workers' scores of the volatility, complexity, and uncertainty ($p<.05$), whereas there was no statistically significant difference among male and female managers' scores of the volatility, complexity, and uncertainty ($p>.05$).

Table 11.

T Test Results by Gender

	Components	Group	n	M.	SD.	t	p
Workers	Volatility	Female	21	3.97	0.64	-1,990*	0.049
		Male	78	4.31	0.69		
	Complexity	Female	21	3.03	0.90	-2.260*	0.026
		Male	78	3.48	0.78		
	Uncertainty	Female	21	2.96	1.06	-2.545*	0.012
		Male	78	3.60	1.00		
Managers	Volatility	Female	14	4.16	0.81	-0.579	0.565
		Male	42	4.30	0.79		
	Complexity	Female	14	3.48	0.98	0.489	0.627
		Male	42	3.32	1.03		
	Uncertainty	Female	14	3.35	0.76	-0.208	0.836
		Male	42	3.41	1.10		

*$p< .05$, **$p< .01$, ***$p<.001$

T test results in Table 12 showed that there was no statistically significant difference among

married with single workers' and managers' scores of the volatility, complexity, and uncertainty (p>.05).

Table 12

T Test Results by Marital Status

	Components	Group	n	M.	SD.	t	p
Workers	Volatility	Married	71	4.32	0.55	1.634	0.111
		Single	28	4.01	0.94		
	Complexity	Married	71	3.42	0.78	0.727	0.469
		Single	28	3.29	0.94		
	Uncertainty	Married	71	3.49	1.06	0.395	0.694
		Single	28	3.40	1.01		
Managers	Volatility	Married	38	4.24	0.89	-0.332	0.741
		Single	18	4.31	0.55		
	Complexity	Married	38	3.36	1.03	0.025	0.980
		Single	18	3.36	1.00		
	Uncertainty	Married	38	3.42	1.05	0.327	0.745
		Single	18	3.33	0.98		

*p< .05, **p< .01, ***p<.001

Anova results in Table 13 showed that there was a statistically significant difference among complexity and uncertainty scores of workers born between 1965-1979 and 1980-1999 (p<.05), whereas there were no statistically significant difference managers' scores of the volatility, complexity, and uncertainty according to birth year (p>.05).

Table 13.

Anova Results by Year of Birth

	Components	Group	n	M.	SD.	F	p
Workers	Volatility	1946-1964	2	4.25	0.70	0.888	0.450
		1965-1979	22	4.43	0.65		
		1980-1999	63	4.15	0.70		
		2000+	12	4.31	0.71		
	Complexity	1946-1964	2	3.12	0.17	2.616*	0.056
		1965-1979[a]	22	3.70	0.39		
		1980-1999	63	3.23	0.94		
		2000+	12	3.70	0.59		
	Uncertainty	1946-1964	2	3.83	0.70	3.885*	0.011
		1965-1979[a]	22	4.01	0.80		
		1980-1999	63	3.21	1.11		
		2000+	12	3.75	0.65		
Managers	Volatility	1946-1964	2	4.50	0.01	0.326	0.723
		1965-1979	11	4.40	0.71		
		1980-1999	43	4.22	0.83		
	Complexity	1946-1964	2	3.87	0.17	2.115	0.131
		1965-1979	11	3.86	0.78		

		1980-1999	43	3.21	1.05	
	Uncertainty	1946-1964	2	4.33	0.47	1.949	0.153
		1965-1979	11	3.75	0.77	
		1980-1999	43	3.26	1.06	

*p< .05, **p< .01, ***p<.001; [a]Show the difference with 1980-1999

Anova results in Table 14 showed that there was a statistically significant difference among uncertainty scores of workers as a craft supervisor and product manager with chief and product manager, complexity scores of workers as a craft supervisor and product manager (p<.05), whereas there were no statistically significant difference managers' scores of the volatility, complexity, and uncertainty according to status (p>.05).

Table 14.

Anova Results by Work Status

	Components	Group	n	M.	SD.	F	p
Workers	Volatility	Employee	53	4.22	0.77	1.232	0.303
		Craft supervisor	14	4.55	0.38		
		Chief	19	4.14	0.70		
		Product manager	13	4.11	0.55		
	Complexity	Employee	53	3.44	0.88	3.495*	0.019
		Craft supervisor[b]	14	3.75	0.48		
		Chief	19	3.38	0.67		
		Product manager	13	2.78	0.84		
	Uncertainty	Employee	53	3.57	1.01	4.748*	0.004
		Craft supervisor[b]	14	4.02	0.73		
		Chief[b]	19	3.35	0.96		
		Product manager	13	2.64	1.15		
Managers	Volatility	Department head	31	4.35	0.65	1.241	0.304
		Director	11	4.18	0.92		
		Member of board	7	3.78	1.31		
		CEO	7	4.50	0.32		
	Complexity	Department head	31	3.36	1.03	1.632	0.193
		Director	11	3.31	1.18		
		Member of board	7	2.82	0.85		
		CEO	7	4.00	0.55		
	Uncertainty	Department head	31	3.34	0.89	2.574	0.064
		Director	11	3.39	1.09		
		Member of board	7	2.80	1.38		
		CEO	7	4.23	0.68		

*p< .05, **p< .01, ***p<.001; [b]Show the difference with Product manager

Anova results in Table 15 showed that there was a statistically significant difference among volatility, complexity, and uncertainty scores of workers as a primary grad with associate

degree grad. In addition, complexity and uncertainty scores of workers as primary grad with bachelor grad and uncertainty scores of workers as primary grad with graduate degree grad were statistically significantly (p<.05), whereas there were no statistically significant difference managers' scores of the volatility, complexity, and uncertainty according to education level (p>.05).

Table 15.

Anova Results by Educational Level

	Components	Group	n	M.	SD.	F	p
Workers	Volatility	Primary school	42	4.47	0.48	4.131*	0.004
		High school	29	4.19	0.69		
		Associate degree[c]	3	3.16	1.89		
		Bachelor degree	18	4.01	0.69		
		Graduate degree	7	4.03	0.56		
	Complexity	Primary school	42	3.72	0.48	5.010*	0.001
		High school	29	3.31	0.91		
		Associate degree[c]	3	2.25	1.39		
		Bachelor degree[c]	18	2.97	0.97		
		Graduate degree	7	3.28	0.68		
	Uncertainty	Primary school	42	3.97	0.69	7.631***	<.001
		High school	29	3.39	1.05		
		Associate degree[c]	3	2.11	1.38		
		Bachelor degree[c]	18	3.01	1.03		
		Graduate degree[c]	7	2.52	1.16		
Managers	Volatility	Primary school	4	4.50	0.40	0.371	0.828
		High school	10	4.12	1.17		
		Associate degree	2	4.62	0.53		
		Bachelor degree	32	4.21	0.75		
		Graduate degree	8	4.43	0.66		
	Complexity	Primary school	4	4.25	0.28	2.135	0.090
		High school	10	3.82	0.89		
		Associate degree	2	2.75	0.70		
		Bachelor degree	32	3.27	1.02		
		Graduate degree	8	2.87	1.09		
	Uncertainty	Primary school	4	4.00	0.76	1.872	0.130
		High school	10	4.03	1.14		
		Associate degree	2	3.33	0.47		
		Bachelor degree	32	3.16	0.98		
		Graduate degree	8	3.25	0.97		

*p< .05, **p< .01, ***p<.001; [c]Show the difference with Primary school

Anova results in Table 16 showed that there was a statistically significant difference among senior workers between 6-10 year with above 20-year workers' volatility, and uncertainty scores. In addition, senior workers between 16-20 year with 6–10-year workers' volatility scores and senior workers between 11-15 year with 6-10 year workers' uncertainty scores

were statistically significantly (p<.05), whereas there was no statistically significant difference managers' scores of the volatility, complexity and uncertainty according to seniority (p>.05).

Table 16.

Anova Results by Work Seniority

	Components	Group	n	M.	SD.	F	p
Workers	Volatility	Below 1 years	5	4.15	0.48	3,170*	0.011
		1-5 years	18	4.12	0.72		
		6-10 years	17	3.75	1.05		
		11-15 years	29	4.32	0.49		
		16-20 years[d]	16	4.51	0.37		
		Above 20 years[d]	14	4.52	0.54		
	Complexity	Below 1 years	5	3.25	0.93	1.152	0.339
		1-5 years	18	3.37	0.76		
		6-10 years	17	3.08	0.98		
		11-15 years	29	3.32	0.99		
		16-20 years	16	3.64	0.49		
		Above 20 years	14	2.78	0.48		
	Uncertainty	Below 1 years	5	3.73	0.64	3.984*	0.003
		1-5 years	18	3.37	0.92		
		6-10 years	17	2.64	1.21		
		11-15 years[d]	29	3.56	1.02		
		16-20 years	16	3.62	1.08		
		Above 20 years[d]	14	4.14	0.42		
Managers	Volatility	Below 1 years	2	4.37	0.88	1.431	0.229
		1-5 years	9	3.86	0.70		
		6-10 years	12	4.22	0.80		
		11-15 years	15	4.28	0.68		
		16-20 years	10	4.77	0.27		
		Above 20 years	8	4.09	1.27		
	Complexity	Below 1 years	2	3.12	1.23	0.415	0.836
		1-5 years	9	2.97	0.81		
		6-10 years	12	3.45	1.22		
		11-15 years	15	3.33	1.08		
		16-20 years	10	3.55	0.87		
		Above 20 years	8	3.56	1.08		
	Uncertainty	Below 1 years	2	2.83	0.23	0.812	0.547
		1-5 years	9	2.88	0.72		
		6-10 years	12	3.33	1.23		
		11-15 years	15	3.60	1.00		
		16-20 years	10	3.56	0.84		
		Above 20 years	8	3.62	1.29		

*p< .05, **p< .01, ***p<.001; [d]Show the difference with 6-10 years

4. DISCUSSION & CONCLUSION

As the world becomes increasingly connected through technology-rich environments and rapidly iterating contexts, leadership is becoming progressively more complex. This new volatile, uncertain, complex, and ambiguous environment challenges historical leadership contexts (Brodie, 2019). Döner (2020), studied the effects of VUCA factor on Turkish bus and coach industry. As the result of study, Döner found out each factor of VUCA has a relationship with the product innovation performance. The bus industry focused on innovation, competitive structure and technologic development to survive in a VUCA environment. Due to Rimita (2019), who researches leader readiness in a VUCA environment in Nigeria; agility, strategic planning, shared leadership and value-based leadership are indispensable factors to succeed in actual business environment. The study was conducted as phenomenological research on VUCA with semi structured interviews. Another phenomenological study conducted by Brodie (2019) on social entrepreneur leaders, found out that leading with a powerful vision, utilize technologic advancements, adopting a learning mentality are the key elements of success in a VUCA environment.

The main purpose of this study is defining the VUCA perception in furniture manufacturer businesses. Due to the Table 10, perception of volatility is higher amongst in workers and managers compared to the other VUCA components. The instable supply-demand trend, changes in the prices creates volatility sensitivity in the participants. In the research, it is understood that gender is a factor that effects the perception of VUCA components in workers due to Table 11. Hypotheses $H1_a$, $H1_b$ and $H1_c$ are accepted due to table 11. In every component of VUCA, male workers have a higher VUCA perception. The furniture industry is a man-dominant sector in Adana and unfortunately female workers have the least qualified jobs. This effects their VUCA perception. Hypotheses $H2_a$, $H2_b$ and $H2_c$ are rejected due to table 12. Marital status of employees or managers do not make a significant difference in the perception of volatility, uncertainty and complexity. Table 13 confirms that generation is another factor which effects complexity and uncertainty perception in workers. Hypotheses $H3_b$ and $H3_c$ are accepted due to these results but hypothesis $H3_a$ is rejected because there is not a significant difference in the perception of volatility due to the year of birth. The X generation members, who is born between 1960-1979, have a higher VUCA perception than workers born between 1980-1999, y generation. Y generation adapts easily to change and

very eager to show themselves. (Güneş & Göksel, 2017) X generation members feel that they cannot keep with the changes and innovations emerge every day. (Güneş & Göksel, 2017) The efforts to keep up with the zeitgeist creates a higher complexity and uncertainty perception in X generation.

There is a similar result due to the Table 14. Hypotheses H4$_b$ and H4$_c$ are accepted because the complexity and uncertainty perceptions are higher in craft supervisors and chiefs than the product managers. Product managers are better educated and have abilities to adapt new conditions and challenges than the craft supervisors and chiefs. Hypothesis H4a is rejected as there is no a significant difference in perception of volatility due to the workplace status. The interpretation of Table 15 is, workers graduated from primary school has a higher volatility, complexity and uncertainty perception than the workers who graduated from high school or university. Hypotheses H5$_a$, H5$_b$ and H5$_c$ are accepted due to the findings of table 15.

Hypotheses H6$_a$ and H6$_b$ are accepted but H6$_c$ is rejected due to the findings of Table 16. Work seniority creates significant difference in the perception of volatility and uncertainty but not in the perception of complexity. The workers who is working for 16 – 20 years and more than twenty years have higher volatility and uncertainty perceptions than the workers who have 6-10 years seniority.

Recommendations

The perception of VUCA components of furniture industry employees were investigated in this study. Each VUCA factors, volatilitility, uncertainty, complexity and ambiguity emerge in actual business environment separately or combined with other factors. In this study, the results show that more educated and younger employees cope better with the VUCA conditions. (Güneş & Göksel, 2017) The businesses should train their workers, managers to understand the new environment better and to increase their resilience. So the employees can adopt the circumstances and use the resources more effectively.

Another recommendation for furniture manufacturing businesses is switching their pyramide shaped, family-business organization which has a vertical hierarchy to a more flexible, agile business model which has a horizontal hierarchy. Agile organization is a

network of teams within a people-centered culture that operates in rapid learning and fast decision cycles which are enabled by technology. An agile organization adds velocity, and adaptability to stability, creating a critical source of competitive advantage in VUCA conditions. (Ahina et. al., 2017)

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Appendix A. Ethics Committee Request and Approval Form

T.C	
ÇAĞ ÜNİVERSİTESİ	
SOSYAL BİLİMLER ENSTİTÜSÜ	
TEZ / ARAŞTIRMA / ANKET / ÇALIŞMA İZNİ / ETİK KURULU İZNİ TALEP FORMU VE ONAY TUTANAK FORMU	
ÖĞRENCİ BİLGİLERİ	
T.C. NOSU	
ADI VE SOYADI	BAYRAM ÖCAL
ÖĞRENCİ NO	20191022
TEL. NO.	
E - MAİL ADRESLERİ	
ANA BİLİM DALI	İŞLETME YÖNETİMİ YÜKSEK LİSANS
HANGİ AŞAMADA OLDUĞU (DERS / TEZ)	TEZ
İSTEKDE BULUNDUĞU DÖNEME AİT DÖNEMLİK KAYDININ YAPILIP-YAPILMADIĞI	2021 / 2022 - GÜZ DÖNEMİ KAYDINI YENİLEMEDİM
ARAŞTIRMA/ANKET/ÇALIŞMA TALEBİ İLE İLGİLİ BİLGİLER	
TEZİN KONUSU	VUCA ALGISININ MOBİLYA SEKTÖRÜNDE İNCELENMESİ ÜZERİNE BİR ARAŞTIRMA
TEZİN AMACI	Adana ilinde mobilya sektöründe faaliyet gösteren işletmelerde çalışanların veyöneticilerin VUCA algısının tespit edilmesi amaçlanmıştır.
TEZİN TÜRKÇE ÖZETİ	İş dünyası teknolojik ve bilimsel gelişmelerin sonucunda hiç olmadığı kadar dünya çapında entegre ve dış unsurlardan etkilenmeye açık hale gelmiştir. Dünyanın herhangi bir yerinde ortaya çıkan bir faktör, her ülkeyi her iş dünyası unsurunu etkileyebilmektedir. 1989 yılında kullanılmaya başlanan VUCA kavramı günümüz iş dünyasını en iyi tanımlayan kavramlardan birisi haline gelmiştir. Bu çalışmanın amacı, Türkiye'de Adana ili özelindeki mobilya sektöründe faaliyet gösteren işletmelerde çalışanların ve yöneticilerin VUCA algısının belirlenmesidir.
ARAŞTIRMA YAPILACAK OLAN SEKTÖRLER/ KURUMLARIN ADLARI	Mobilya sektöründe faaliyet gösteren işletmeler.
İZİN ALINACAK OLAN KURUMA AİT BİLGİLER (KURUMUN ADI- ŞUBESİ/ MÜDÜRLÜĞÜ - İLİ - İLÇESİ)	Adana ilinde mobilya sektöründe faaliyet gösteren işletmeler.
YAPILMAK İSTENEN ÇALIŞMANIN İZİN ALINMAK İSTENEN KURUMUN HANGİ İLÇELERİNE/ HANGİ KURUMUNA/ HANGİ BÖLÜMÜNDE/ HANGİ ALANINA/ HANGİ KONULARDA/ HANGİ GRUBA/ KİMLERE/ NE UYGULANACAĞI GİBİ AYRINTILI BİLGİLER	Adana ilinde mobilya sektöründe faaliyet gösteren işletmelerde görev alan çalışanlar ve yöneticiler
UYGULANACAK OLAN ÇALIŞMAYA AİT ANKETLERİN/ ÖLÇEKLERİN BAŞLIKLARI/ HANGİ ANKETLERİN - ÖLÇELERİN UYGULANACAĞI	VUCA algısının belirlenmesi için Yurdasever (2019) tarafından geliştirilen KOMB(VUCA) ölçeği uygulanacak olup, tanımlayıcı bilgilerin elde edilmesinde araştırmacı tarafından hazırlanan Demografik Soru Formu kullanılacaktır.
EKLER (ANKETLER, ÖLÇEKLER, FORMLAR, ... V.B. GİBİ EVRAKLARIN İSİMLERİYLE BİRLİKTE KAÇ ADET/SAYFA OLDUKLARINA AİT BİLGİLER İLE AYRINTILI YAZILACAKTIR)	1) (1) Sayfa KOMB (VUCA) Ölçeği. 2) (1) Sayfa Demografik Soru Formu.
ÖĞRENCİNİN ADI - SOYADI: BAYRAM ÖCAL	**ÖĞRENCİNİN İMZASI: Enstitü müdürlüğünde evrak aslı imzalıdır.** **TARİH: 03 / 12/ 2021**

TEZ/ ARAŞTIRMA/ANKET/ÇALIŞMA TALEBİ İLE İLGİLİ DEĞERLENDİRME SONUCU

1. Seçilen konu Bilim ve İş Dünyasına katkı sağlayabilecektir.

2. Anılan konu .... faaliyet alanı içerisine girmektedir.

1.TEZ DANIŞMANININ ONAYI	2.TEZ DANIŞMANININ ONAYI (VARSA)	ANA BİLİM DALI BAŞKANININ ONAYI	SOSYAL BİLİMLER ENSTİTÜSÜ MÜDÜRÜNÜN ONAYI
Adı - Soyadı: Murat KOÇ	Adı - Soyadı: ………………...….	Adı - Soyadı: Ünal AY	Adı - Soyadı: Murat KOÇ
Unvanı: Doç. Dr.	Unvanı: ……………	Unvanı: Prof. Dr.	Unvanı: Doç. Dr.
İmzası: Evrak onayı e-posta ile alınmıştır	İmzası: ……………..…	İmzası: Evrak onayı e-posta ile alınmıştır	İmzası: Enstitü müdürlüğünde evrak aslı imzalıdır.
… / ….. / 20....	…. / .... / 20....	.... / .... / 20......	…. / .... / 20...

ETİK KURULU ASIL ÜYELERİNE AİT BİLGİLER						
Adı - Soyadı: **Şehnaz ŞAHİNKARAKAŞ**	Adı - Soyadı: **Yücel ERTEKİN**	Adı - Soyadı: **Deniz Aynur GÜLER**	Adı - Soyadı: **Mustafa BAŞARAN**	Adı - Soyadı: **Mustafa Tevfik ODMAN**	Adı - Soyadı: **Hüseyin Mahir FİSUNOĞLU**	Adı - Soyadı: **Jülide İNÖZÜ**
Unvanı : Prof. Dr.	Unvanı : Prof. Dr.	Unvanı: Prof. Dr.	Unvanı : Prof. Dr.	Unvanı: Prof. Dr.	Unvanı : Prof. Dr.	Unvanı : Prof. Dr.
İmzası : Enstitü müdürlüğünde evrak aslı imzalıdır.	İmzası : Enstitü müdürlüğünde evrak aslı imzalıdır.	İmzası : Enstitü müdürlüğünde evrak aslı imzalıdır.	İmzası : Enstitü müdürlüğünde evrak aslı imzalıdır.	İmzası : Enstitü müdürlüğünde evrak aslı imzalıdır.	İmzası : Enstitü müdürlüğünde evrak aslı imzalıdır.	İmzası : Enstitü müdürlüğünde evrak aslı imzalıdır.
…… / ….. / 20.....	…… / ….. / 20.....	… / ….. / 20.....	…. / ….. / 20.....	… / ….. / 20.....	…… / ….. / 20.....	…… / ….. / 20.....
Etik Kurulu Jüri Başkanı - Asıl Üye	Etik Kurulu Jüri Asıl Üyesi	Etik Kurulu Jüri Asıl Üyesi	Etik Kurulu Jüri Asıl Üyesi	Etik Kurulu Jüri Asıl Üyesi	Etik Kurulu Jüri Asıl Üyesi	Etik Kurulu Jüri Asıl Üyesi

OY BİRLİĞİ İLE	**X**	Çalışma yapılacak olan tez için uygulayacak olduğu Anketleri/Formları/Ölçekleri Çağ Üniversitesi Etik Kurulu Asıl Jüri Üyelerince İncelenmiş olup, …… / …… / 20…… - …….. / .... / 20...... tarihleri arasında uygulanmak üzere gerekli iznin verilmesi taraflarımızca uygundur.
OY ÇOKLUĞU İLE	◯	

AÇIKLAMA: BU FORM ÖĞRENCİLER TARAFINDAN HAZIRLANDIKTAN SONRA ENSTİTÜ MÜDÜRLÜĞÜ SEKRETERLİĞİNE ONAYLAR ALINMAK ÜZERE TESLİM EDİLECEKTİR. AYRICA FORMDAKİ YAZI ON İKİ PUNTO OLACAK ŞEKİLDE YAZILACAKTIR.

Appendix B. Informed Consent Form

ÇAĞ ÜNİVERSİTESİ
SOSYAL BİLİMLER ENSTİTÜSÜ
ETİK KURULU

BİLGİLENDİRİLMİŞ ONAM FORMU

Bu formun amacı araştırma ile ilgili olarak sizi bilgilendirmek ve katılmanız ile ilgili izin almaktır.

Bu kapsamda "VUCA ALGISININ MOBİLYA SEKTÖRÜNDE İNCELENMESİ ÜZERİNE BİR ARAŞTIRMA." başlıklı araştırma "Bayram ÖCAL" tarafından **gönüllü katılımcılarla** yürütülmektedir. Araştırma sırasında sizden alınacak bilgiler gizli tutulacak ve sadece araştırma amaçlı kullanılacaktır. Araştırma sürecinde konu ile ilgili her türlü soru ve görüşleriniz için aşağıda iletişim bilgisi bulunan araştırmacıyla görüşebilirsiniz. Bu araştırmaya **katılmama** hakkınız bulunmaktadır. Aynı zamanda çalışmaya katıldıktan sonra çalışmadan **çıkabilirsiniz.** Bu formu onaylamanız**, araştırmaya katılım için onam verdiğiniz** anlamına gelecektir.

Araştırmayla İlgili Bilgiler:

Araştırmanın Amacı: Mobilya üretici işletmelerde çalışanların ve yöneticilerin VUCA algısının belirlenmesi

Araştırmanın Nedeni: İş dünyası teknolojik ve bilimsel gelişmelerin sonucunda hiç olmadığı kadar dünya genelinde entegre ve dış unsurlardan etkilenmeye açık hale gelmiştir. Dünyanın herhangi bir yerinde ortaya çıkan bir faktör, her ülkeyi ve her iş dünyası paydaşını etkileyebilmektedir. 1989 yılında kullanılmaya başlanan VUCA kavramı, günümüz iş dünyasını en iyi tanımlayan kavramlardan birisi haline gelmiştir. Üreticilerin VUCA algılarının belirlenmesi işletmelerin sağlıklı yönetilmesi açısından önemlidir.

Araştırmanın Yürütüleceği Yer: Mobilya üreticisi firmalar.

Çalışmaya Katılım Onayı:

Araştırmanın amacını, nedenini, yürütüleceği yer ile ilgili bilgileri okudum ve gönüllü olarak üzerime düşen sorumlulukları anladım. Araştırma ile ilgili ayrıntılı açıklamalar yazılı ve sözlü olarak tarafıma sunuldu. Bu araştırma ile ilgili faydalar ve riskler ile ilgili bilgilendirildim.

Bu araştırmaya kendi isteğimle, hiçbir baskı ve zorlama olmaksızın katılmayı kabul ediyorum.

Katılımcının (Islak imzası ile[***])

Adı-Soyadı:
İmzası[***]:

Araştırmacının

Adı-Soyadı: Bayram ÖCAL
e-posta:

İmzası: Enstitü müdürlüğünde evrak aslı imzalıdır.

Appendix C. Survey Form – Production Staff

1. Your Gender ( ) Female ( ) Male	

1. Your Gender   ( ) Female   ( ) Male

2. Marital Status   ( ) Single   ( ) Married

3. Year of Birth   ( ) 1946 – 1964   ( ) 1965 – 1979   ( ) 1980 – 1999   ( ) 2000 and later

4. Education   ( ) Primary/Elementary ( ) High School ( ) Associate Degree

                        ( ) Bachelor Degree   ( ) Masters Degree

5. Workplace Status (Employees) ( ) Employee ( ) Craft Supervisor ( ) Chief

                         ( ) Product Manager

6. Workplace Status (Managers) ( ) Department Head ( ) Director ( ) Board Member ( ) CEO

7. Workplace Seniority ( ) Below 1 year ( ) 1-5 years ( ) 6-10 years ( ) 11 -15 years

                   ( ) 16-20 years ( ) 20 years or more

	For each statement below, mark your level of participation by considering your perception of your business environment.	I Strongly Agree	I Agree	Unde cided	Not Satisfied	I am not satisfied at all
1	There are multi-faceted, reciprocal relations on the issues that I need to decide.	5	4	3	2	1
2	The pace of change in my environment is extremely fast.	5	4	3	2	1
3	The number of changes around me is huge.	5	4	3	2	1
4	I think the change will increase even more in the future.	5	4	3	2	1
5	In the business environment, I am likely to encounter an unexpected situation.	5	4	3	2	1
6	There is no definite relationship between the causes and consequences of events around me.	5	4	3	2	1
7	Due to the complexity around me, there is a state of turmoil and chaos that dominates my business life.	5	4	3	2	1

8	Change in my environment is extremely unstable.	5	4	3	2	1
9	Change in my environment is an unpredictable change.	5	4	3	2	1
10	I can't figure out which factors are more important for business success.	5	4	3	2	1
11	Having a large number of data causes confusion when using them.	5	4	3	2	1
12	Even though I have sufficient knowledge on a subject, I have a hard time predicting what I will encounter.	5	4	3	2	1
13	In the business environment, I more often experience situations where I don't have enough information about a situation.	5	4	3	2	1
14	I think my past experiences will not always work in the future.	5	4	3	2	1
15	In the environment I am in, I cannot foresee the consequences of the steps I take.	5	4	3	2	1
16	When I take a decision on an issue, it is not clear what I will face in the next step.	5	4	3	2	1

Appendix D. Survey Form – Management Staff

1. Your Gender	( ) Female ( ) Male

1. Your Gender   ( ) Female   ( ) Male

2. Marital Status   ( ) Single   ( ) Married

3. Year of Birth   ( ) 1946 – 1964 ( ) 1965 – 1979 ( ) 1980 – 1999 ( ) 2000 and later

4. Education   ( ) Primary/Elementary ( ) High School ( ) Associate Degree

                      ( ) Bachelor Degree ( ) Masters Degree   ( ) Phd. Graduate

5. Workplace Status (Employees) ( ) Department Head   ( ) Director

                              ( ) Board Member   ( ) Product Manager

6. Workplace Status (Managers) ( ) Department Head ( ) Director ( ) Board Member ( ) CEO

7. Workplace Seniority ( ) Below 1 year ( ) 1-5 years ( ) 6-10 years ( ) 11 -15 years

                    ( ) 16-20 years ( ) 20 years or more

	For each statement below, mark your level of participation by considering your perception of your business environment.	I Strongly Agree	I Agree	Unde cided	Not Satisfied	I am not satisfied at all
1	There are multi-faceted, reciprocal relations on the issues that I need to decide.	5	4	3	2	1
2	The pace of change in my environment is extremely fast.	5	4	3	2	1
3	The number of changes around me is huge.	5	4	3	2	1
4	I think the change will increase even more in the future.	5	4	3	2	1
5	In the business environment, I am likely to encounter an unexpected situation.	5	4	3	2	1
6	There is no definite relationship between the causes and consequences of events around me.	5	4	3	2	1
7	Due to the complexity around me, there is a state of turmoil and chaos that dominates my business life.	5	4	3	2	1
8	Change in my environment is extremely unstable.	5	4	3	2	1

9	Change in my environment is an unpredictable change.	5	4	3	2	1
10	I can't figure out which factors are more important for business success.	5	4	3	2	1
11	Having a large number of data causes confusion when using them.	5	4	3	2	1
12	Even though I have sufficient knowledge on a subject, I have a hard time predicting what I will encounter.	5	4	3	2	1
13	In the business environment, I more often experience situations where I don't have enough information about a situation.	5	4	3	2	1
14	I think my past experiences will not always work in the future.	5	4	3	2	1
15	In the environment I am in, I cannot foresee the consequences of the steps I take.	5	4	3	2	1
16	When I take a decision on an issue, it is not clear what I will face in the next step.	5	4	3	2	1

Appendix E. Ethics Committee Application

T.C.
ÇAĞ ÜNİVERSİTESİ
Sosyal Bilimler Enstitüsü

Sayı : E-23867972-050.01.04-2100010036   07.12.2021
Konu : Bilimsel Araştırma ve Yayın Etiği
        Kurulu Kararı Alınması Hk.

REKTÖRLÜK MAKAMINA

İlgi: 09.03.2021 tarih ve E-81570533-050.01.01-2100001828 sayılı Bilimsel Araştırma ve Yayın Etiği Kurulu konulu yazınız.

İlgi tarihli yazınız kapsamında Üniversitemiz Sosyal Bilimler Enstitüsü bünyesindeki Lisansüstü Programlarda halen tez aşamasında kayıtlı olan **Bayram Öcal, Mehtap Dursun** isimli öğrencilerimize ait tez evraklarının "Üniversitemiz Bilimsel Araştırma ve Yayın Etiği Kurulu Onayları" alınmak üzere Ek'te sunulmuş olduğunu arz ederim.

Doç. Dr. Murat KOÇ
Sosyal Bilimler Enstitüsü Müdürü

Ek : 2 Adet öğrenciye ait tez evrakları listesi.

Appendix F. Ethics Committee Approval

T.C.
ÇAĞ ÜNİVERSİTESİ
Rektörlük

Sayı : E-81570533-044-2100010238   15.12.2021
Konu : Bilimsel Araştırma ve Yayın Etiği
        Kurul İzni Hk.

SOSYAL BİLİMLER ENSTİTÜSÜ MÜDÜRLÜĞÜNE

İlgi : a) 07.12.2021 tarih ve E-23867972- 050.01.04-2100010060 sayılı yazınız.
        b) 08.12.2021 tarih ve E-23867972- 050.01.04-2100010069 sayılı yazınız.
        c) 07.12.2021 tarih ve E-23867972- 050.01.04-2100010036 sayılı yazınız.
        ç) 08.12.2021 tarih ve E-23867972- 050.01.04-2100010099 sayılı yazınız.
        d) 08.12.2021 tarih ve E-23867972- 050.01.04-2100010093 sayılı yazınız.

İlgi yazılarda söz konusu edilen Pınar Yüzer, Bekir Serter Gözen, Deniz Gizer, Erdem
Terzi, Nurbanu Ebru Kuzgun, Bayram Öcal ve Mehtap Dursun isimli öğrencilerimizin tez
evrakları Bilimsel Araştırma ve Yayın Etiği Kurulunda incelenerek uygun görülmüştür.

Bilgilerinizi ve gereğini rica ederim.

Prof. Dr. Ünal AY
Rektör

Appendix G. Thesis Survey Permission Letters

17.12.2021

Sn. Bayram ÖCAL,

Öğrencisi olduğunuz T. C. Çağ Üniversitesi bünyesindeki "İşletme Yönetimi Tezli Yüksek Lisans Programı" kapsamında, tez çalışmanızı şirketimizin çalışanlarına yönelik olarak yürütmeyi talep etmektesiniz.

Konuya ilişkin değerlendirmemize istinaden "Mobilya Endüstrisindeki VUCA Algısının İncelenmesi Üzerine Bir Araştırma" konulu tez kapsamında şirketimizin çalışanlarına yönelik hazırladığınız anketi uygulamanız uygun bulunmuştur.

İlgili izin işbu yazı tarihinden itibaren bir (1) yıl süreyle sınırlıdır.

Bilgilerinizi rica ederiz.

Vahit Alanoğlu
Genel Müdür

17.12.2021

Sn. Bayram ÖCAL,

Öğrencisi olduğunuz T. C. Çağ Üniversitesi bünyesindeki "İşletme Yönetimi Tezli Yüksek Lisans Programı" kapsamında, tez çalışmanızı şirketimizin çalışanlarına yönelik olarak yürütmeyi talep etmektesiniz.

Konuya ilişkin değerlendirmemize istinaden "Mobilya Endüstrisindeki VUCA Algısının İncelenmesi Üzerine Bir Araştırma" konulu tez kapsamında şirketimizin çalışanlarına yönelik hazırladığınız anketi uygulamanız uygun bulunmuştur.

İlgili izin işbu yazı tarihinden itibaren bir (1) yıl süreyle sınırlıdır.

Bilgilerinizi rica ederiz.

Halil İbrahim AKYILDIZ
Genel Müdür

17.12.2021

Sn. Bayram ÖCAL,

Öğrencisi olduğunuz T. C. Çağ Üniversitesi bünyesindeki "İşletme Yönetimi Tezli Yüksek Lisans Programı" kapsamında, tez çalışmanızı şirketimizin çalışanlarına yönelik olarak yürütmeyi talep etmektesiniz.

Konuya ilişkin değerlendirmemize istinaden "Mobilya Endüstrisindeki VUCA Algısının İncelenmesi Üzerine Bir Araştırma" konulu tez kapsamında şirketimizin çalışanlarına yönelik hazırladığınız anketi uygulamanız uygun bulunmuştur.

İlgili izin işbu yazı tarihinden itibaren bir (1) yıl süreyle sınırlıdır.

Bilgilerinizi rica ederiz.