

## How to approach the innovative economies at the conjecture of religion, faith, and ethics?

### *Din, inanç ve ahlak bağlamında yenilikçi ekonomilere nasıl yaklaşılr?*

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#### Abstract

The rapidly evolving integration between the research centers, technoparks, and accelerators, which are becoming a focus of technology development for local, regional, national, and global markets, is witnessing global innovation networks. Though each production process becomes dependent on a particular technology and paradigms on energy usage and resource efficiency, there is a growing concern for sustainability and environmental protection through impact of innovative paradigms such as circular economy and industrial symbiosis. The most influential living being, which disrupts the balance and efficiency of ecosystems, is undoubtedly the human being since there is a direct relationship between the pollution and destruction of nature and the alienation of individuals from their natural environment due to continuous innovation and material advancement. The study argues that religion and culture also affect individual decisions and behaviors on the values and goals regarding their attitude towards innovation and related paradigms. One of the solutions is for sustainability to reconcile with and recognize natural creations as Divine arts and meaningful exhibitions and learn to live in harmony and peace with the paradigms of religion, faith, ethics, and culture that affect perceptions and attitudes towards innovative economies.

**Keywords:** Innovation, ethics, sustainability, religion, technology.

#### Özet

Yerel, bölgesel, ulusal ve küresel pazarlar için teknoloji geliştirmenin odak noktası haline gelen araştırma merkezleri, teknoparklar ve hızlandırıcılar arasındaki hızla gelişen entegrasyon, küresel inovasyon ağlarına tanık oluyor. Her üretim süreci belirli bir teknolojiye ve enerji kullanımı ve kaynak verimliliğine ilişkin paradigmalara bağımlı hale gelse de, döngüsel ekonomi ve endüstriyel simbiyoz gibi yenilikçi paradigmların etkisiyle sürdürülebilirlik ve çevrenin korunmasına yönelik artan bir endişe söz konusudur. Ekosistemlerin dengesini ve verimliliğini bozan en etkili canlı kuşkusuz insandır, çünkü doğanın kirlenmesi ve tahribatı ile bireylerin sürekli yenilik ve maddi ilerleme nedeniyle doğal çevrelerine yabancılaşması arasında doğrudan bir ilişki vardır. İş, din ve kültürün, bireylerin yeniliğe ve ilgili paradigmalara karşı tutumlarına ilişkin değerler ve hedefler üzerindeki bireysel karar ve davranışlarını da etkilediğini ileri sürmektedir. Sürdürülebilirlik için önerilen çözümlerden biri, doğal varlıkları ilahi bir sanat ve sergi olarak anlamak, tanımak ve yenilikçi ekonomilere yönelik algıları ve tutumları etkileyen din, inanç, ahlak ve kültür olgularıyla uyum ve barış içinde yaşamayı öğrenmektir.

**Anahtar Kelimeler:** İnovasyon, etik, sürdürülebilirlik, din, teknoloji.

#### 1. Introduction

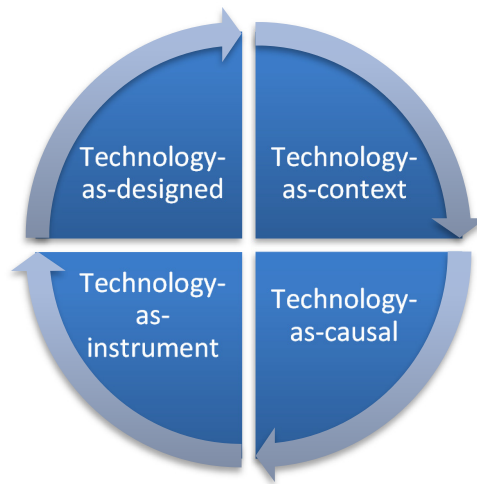
Innovation is defined as follows: "*Innovation is a new or significantly modified product of any good or service or process; a new marketing method; or the application of a new organizational method in business practices, workplace organization or external relations*" (Wikipedia). It is also being described as a way of doing business that satisfies the customer and

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paves the way to pay more and keep being satisfied. So, innovation seems mostly related to the economic field and expresses a new working method and management style. Of course, such a process aims at material progress. Since the world is temporary and not paradise and a resting place, every technological paradigm has birth, growth, maturity, and stagnation phases just like natural beings. Each production process is dependent on a particular technology and paradigms on energy usage. Technological development increased energy needs and resources, and diversification has led to rapid production capacity and living standards throughout human history.

Everything has a connection with the law of diminishing returns to scale, which teaches economy, efficiency, and effectiveness. Therefore, a new technological paradigm means a new production function and the emergence of new production classes. In this respect, technological change increases output and leads to a quantitative and qualitative change in the entire socio-economic and political structure. The primary industries were heavy infrastructure from the 1930s-the 1940s to the 1980s and 2000s. The Fordist production approach included the automotive, aircraft, mass production, line manufacturing, motorized war weapons, and durable consumer goods industries. As was typical in the 20th-century Fordism, mass production on the outskirts of cities is mainly being replaced by an economic model characterized by many networked small and medium-sized production sites and logistics facilities [1]. The existence and utilization of tremendous and inexpensive energy had developed and perfected the continuous production line techniques and the flexibility provided by the automobile and airways. As a result, new industrial areas and more effective forms of urban development have been introduced. This time the underdeveloped world became a significant market for the West, making them more dependent on the products of developed nations. After the 1980s, a definite shift of capital and heavy industries to Asian countries occurred due to low wages and regulative costs. After the 2000s, we see clustering networks and flexible production models rather than economies of scale and mass production in the current capital accumulation period. With the advent of industry 4.0, complete automation infrastructure attracts all industries back to the original Western countries due to replacing robots with human workers.



**Figure 1.** Theoretical approaches to technology

As shown in the Fig. 1, four major paradigmatic approaches in theoretical approaches to technology occur in sequence. Each paradigm describes a typically implicit philosophical orientation toward technology, as demonstrated through theory development and research design choices [2]. New profits through innovation are encouraged by newer, more flexible organizational forms, and technical know-how flows between companies [3]. The techno-economic paradigm, which determines innovation in developed and developing countries, is radically transformed. Due to rapidly changing market conditions, national science-technology policies, and national innovation systems. Some developing countries like Türkiye try to replace their production infrastructure with cutting-edge innovation and whatever has strategic importance in production supremacy with national and local ones due to international trade wars. All government plans, programs, projects, and strategies are designed to mobilize this opportunity for all products and services of national companies. Flexibility, connectivity, and business collaboration are now based on IoT, artificial intelligence, and robotic process automation, facilitating research diversity and interdisciplinary approaches. It has penetrated micro levels and created sectoral synergy by developing firms, clusters, and regions through regional development agencies as in the current situation of Türkiye. Establishing fast, flexible, and easily scalable informal central systems developed at the micro-level with university-business-government cooperation and local dynamics gained priority in all sectors. The development of the relations between innovation and competitiveness within the framework of cluster and management models at the micro-level and the integration into the global network of hubs show that a new systemic mechanism is emerging in innovative production. For example, open innovation structures that integrate the ever-strengthening 'open source' trend to create a sharing economy between developers, in particular, come to the forefront. The sharing of production and

information services between the companies and especially the online communities involving consumers can affect innovation.

In general, the current knowledge of how the modern world system is established and operated by the existing international order is based on two separate realities: those who benefit from this system and the oppressed and tortured under the high cost of this system. Developing countries have a significant relationship between global financial games and capital movements and their exposure to external and internal impacts that some global/regional political-economic actors will resist. Competition among capitalists and international conflicts are endemic to the system. The more enlightened strata of the transnational elite want stronger global state apparatuses to cement the rule of the international capitalist class, bring a measure of regulation and governance, and stabilize the crisis-ridden system [4]. It is not overlooked that sometimes a military coup, sometimes a terrorist event, sometimes a war, occasionally a riot, rarely a projected pandemic like the Coronavirus, and political instability are staged by the hidden hands to put back or neutralize the countries.

The current global order is based on the dollar hegemony that steers and imposes open economic structures. Let us remember that Saddam Hussein's idea of selling Iraqi oil in a currency other than dollars is the USA's invasion of Iraq for the second time. The outbreak of the so-called Arab spring was also another plot. The countries with a closed economy with the preference for blocked systems eventually must open their doors to the worldwide order with their choices and the force of the international actors willingly or unwillingly. In this process, the countries that are open to the worldwide market but whose financial system is resistant are less affected by the speculations of international finance capital and the capital movements based on hit-and-run and proxy wars. In particular, the global powers prefer countries with high added value, high technology, and export-based growth model. These countries can stand high thanks to the high yields of the products they offer to the global market. Countries that can establish a robust production system based on innovation and R&D are more fortunate than developing countries with fragile governments, no matter how much oil they pump.

This study argues that apart from economic and political concerns, religion and culture also affect individual decisions and behaviors on the values and goals regarding their attitude towards innovation and related paradigms. One of the solutions is to reconcile with and recognize natural creations as a Divine art and exhibition and learn to live in harmony and peace with the paradigms of religion, faith, ethics, and culture that affect perceptions and attitudes towards innovative economies. We begin by introducing the research problem with literature knowledge; assessing the development of innovation ecosystems as per natural creation; underlining structural properties and components of a technological ecosystem; and revealing the relationship of innovation with religion, ethics, and culture.

## 2. Research problem and literature

The structure that triggers innovation is not simple but has political, geographical, economic, cultural, and historical determinants. It is so complex that we need some of the pertinent questions to be asked:

- *Which dirty games are played in open economies?*
- *How can emerging countries stand against these fluctuations?*
- *Can innovation change the current global capitalist order?*

Since it is impossible to stay out of the global order and take the necessary measures to eliminate the destructive and adverse effects of globalization and prevent the development of wild capitalism, it is a basic necessity to stay firm for a share-based innovative economy. Still, the most vital point of resistance is production. In chaos and storm where crypto coins are printed, non-counterclaimed assets are bought, and market actors buy expectations and demands. Technological innovation involves several scientific, technical, financial, and commercial activities. These include diversity in task assignments and the organizational relationships between technical and administrative personnel [5].

Today scientific and technologically innovative activity is not seen as an external factor in economic growth. The incentives made by financial institutions are partly effective in creating innovation but also may be distortive in fair competition and liberal economies. Innovation provides a competitive advantage and enhances national and international competition. Thus, it is the driving force behind the scientific and economic policies for economic growth and development. Information societies are considered the most advanced social stage in which land and capital have been replaced by human capital and innovative technological know-how. Therefore, while the quantity of production factors comes into prominence in the economic development of industrial societies, the quality of the production factors in the information societies has strategic importance, which is being greatly affected by innovation capability. As a result, the role of the knowledge economy and the economy of innovation as an essential factor in the economic development of countries is an undeniable fact. The fact that developing countries have begun to step back into the competition necessitates them to implement more active policies in this field.

Charles [6] drew attention to the transition from a heavy industry economy to a new technology-based economy. Shepherd [7] wrote about the New Economy. In a public opinion survey, 57% of the United States of America (USA) consumers stated that the American economy has transitioned to a new economy. However, there are still many differences between

countries with the same income, based on the study of Jalava and Pohjola [8]. They found that, on average, two-thirds of the improvement in labor productivity for the USA is due to ICT, and it is confirmed by [9], while Kallio and Mallat [10] emphasize that ICT expenditures strongly correlate with income level. Terms such as Internet Economics or E-Economy are insufficient to explain the whole transformation process and only describe a part of this economy [11]. Shao and Shu [12] measure growth in productivity using the total factor productivity (TFP) Index and find that each country's ICT industry exhibits a unique behavior. Sánchez *et al.* [13] confirm the impact of ICT on per capita income using data from 102 countries. Daveri and Mascotte [14] provided another study supporting this idea. Thus, the transition to the New Economy originating from the ICT revolution is supported by basic statistics. Within this study's scope, the New Economic can be briefly defined as follows: It is the adaptation of globalization and ICT to the production and trade processes of the old economy. The reason to use this definition is the assumption that productivity, inflation-unemployment dilemma, cyclical fluctuations, and changes in enterprises are the basis for the New Economy. Since it is an ongoing process, its mechanisms are not fully resolved, and its main characteristics are not understood. It is not easy to give the correct definition for the New Economic today [15]. Gokhberg and Kuznetsova [16] focused on discussions of a new post-crisis model of innovation policies in the context of institutional peculiarities of the national innovation system. Hausman and Johnston [17] drew on theoretical literature and contemporary media accounts, building the argument for a significant impact of innovations on the economy and its potential role in pulling the US economy out of the financial crisis. Lee *et al.* [18] identified four different types of open innovation models—crowdsourcing, science-based, and network—and explored the varying conditions of project expertise and complexity under which firms tend to adopt a particular type. Dahlke *et al.* [19] proposed a novel procedure to characterize large-scale innovative activities and employed a theoretical framework for identifying the pressing societal needs amidst crises. Breier *et al.* [20] explored the why and how this successful recovery attempts through BMI by conducting a multiple case study of six hospitality firms. Ardito *et al.* [21] revealed that technological exaptation, primarily if characterized by a longer adaptive distance, is a potential driving force of innovation to cope with COVID-19 in the short-term and other similar issues. Therefore, innovation in an economy directly affects economic competitiveness. Continuous innovation and inventing new products are also identified with capitalist consumption. While constant innovation is necessary, not wasting resources, not buying unnecessary products, and staying on the scale of necessity boundaries are vital for sustainability and religious obligations. Therefore, it is necessary to understand real innovation in the creation and its relationship with faith that affect human behavior and economic decisions. The success of innovation ecosystems is based on their ability to imitate natural innovation within the continuous and unique creation within different layers of wonder and miracles, as shown in Fig. 2.



Figure 2. Natural innovation within the continuous and unique creation

The questions that stir our minds in this multidisciplinary study are:

- *Is there any difference in adapting innovative culture as per religions?*
- *How can we affiliate the innovation in the cosmos with the one in the business culture processes?*

### 3. Development of innovation ecosystems as per natural creation

Like in natural ecosystems, there are separate orders and equilibriums in every environment, such as agricultural, economic, political, sociological, spiritual, technological, etc. Moreover, the idea carries pitfalls, particularly its overemphasis on market forces and its flawed analogy with natural ecosystems [22]. Natural equilibrium in the ecosystem is called "*ecosystem balance*" and when the natural balance deteriorates, the ecosystem balance is also disturbed, and ecological problems arise everywhere. The important thing for a government is not to spoil the systems and try to provide a decent environment and opportunity for each determinant with its required proportion. In the celestial revelations, many verses order, "*do not spoil the order and balance.*" These glittering beauties in natural creations are precise shreds of evidence of God's beautiful names and attributes, such as His omnipotence, omnipresence, omniscience, most merciful, and most compassionate aspects. The scientific discoveries are still not enough to understand the dynamics of perfect balance and miraculous order from atomic, chemical, and biological to the cosmological levels. The human mind still cannot comprehend the elevated universal order and how optimal the designs are reorganized on a continuous and intertwined structure.

The most influential living being, which disrupts the balance of ecosystems, is undoubtedly the human being. As the human population and activities increase, the ecosystem and natural balance deteriorate. The over-proliferation of bird species in the agricultural region adversely affects grain production. Again, the excessive reduction of bird species leads to the growth of harmful insects feeding birds. However, in all these developments, the contribution of human beings is enormous. Starting from the home economy, the wasting, which manifests itself in all areas such as production-consumption, industry, and technology, gives the feeling that humanity competes to consume and destroy resources. With the impositions based on the consumption economy, artificial needs are set, and natural resources are consumed inefficiently. The natural balance is disrupted through excessive waste and rough consumption, and air and water are polluted. Apart from these, the essential product is denying Divine qualities and objections against the celestial orders and the wisdom embedded within the perfect balance. Destruction threatens the future of humanity as a destructive disease in every aspect of ecological, economic, and social life.

In addition, all living things are threatened by polluted wastes generated due to the consumption of energy and other necessities. The source of this distress lies in various wastes. According to some scientists, since the ties between humans and the natural environment have been cut categorically, it can be one of the main reasons for all the crises that happened to humanity as Divine retribution. On the other hand, ecopsychology has emerged as a new branch of science seeking solutions. A discipline that will help us connect with other things created and help us lead to a new reality. This issue needs to be evaluated from a psychological and spiritual perspective. People's destructive consumption activities and environmental habits include reasons beyond ambition. They go shopping to relax, wasting resources. The only solution is to reconcile with nature, re-recognize nature, and learn to live in harmony and peace with it.

In the enthusiasm for scientific and technical power development, modern man has established a production system that pollutes nature and a society that cripples humanitarian values. This is one of the biggest dilemmas in today's world. With the continuous increase in wealth, the illusion that everything can be all right and everything can be overcome with technology has dominated the people of our age. With this error, the development of production and accumulation of wealth has become the supreme goal of the contemporary world. However, humanity should consume in proportion to their needs. Apart from natural ecosystems, there are also digital ecosystems, socio-technical systems inspired by natural ecosystems, self-regulation, scalability, and sustainability. In this part, we have examined the digital ecosystem, digital ecosystem applications, and the keys to a flourishing digital ecosystem. Here are the questions that stir our minds:

- *Is it possible for the technological ecosystem to be wholly separated from nations' social, historical, and environmental infrastructure?*
- *What is the most critical determinant in building a competitive and sustainable ecosystem?*

The technological ecosystem has to have sufficient technical skills to produce high technology end products. It is a dynamic community that responds to human capital requirements. The products and technologies in the technological ecosystem have a hierarchical structure (see Fig. 3). They have assumed different roles due to which innovation in technological development can take place within the system. The impact of external environmental factors is also essential in this development. These factors are mainly caused by social and state-based, economic, and technical aspects.



**Figure 3.** Essential elements of a technological ecosystem

Technologies have three significant roles in an ecosystem: components, products, applications, and support and infrastructure. It is essential to see how these three interrelated components work in harmony, how products and applications emerge in the competitive ecosystem, and how structural properties and infrastructures must be established. The part refers to elements in a more complex top technology. For example, if PCs are leading technology, RAM chips, microprocessors, hard disk drives, etc., used on these PCs can be used.

#### 4. Structural properties and components of a technological ecosystem

There are different emergent and engineered processes to design and manage ecosystem architecture and influence endogenous and exogenous structural properties [23]. The European Commission financed the first wave of research on Digital Business Ecosystems under the European Sixth Framework Program (FP6) and Horizon 2020. All the first wave projects have focused on new models and technologies for developing the Digital Business Ecosystem in Europe. It is based on the knowledge that structural and technological changes are interrelated. It is possible to see that the difference in the product profile and the production base is based on drastic improvements in several generic characters. In practice, the technologies behind the innovations in different product segments or different products are often either directly or indirectly related to these new generic technologies themselves and their derivatives.

Significant data-driven digital ecosystems can bring value to all companies and organizations. Specifically, it is only possible to estimate customer behavior accurately and instantly determine actual needs. Suppose the big data coming from many sources are collected and analyzed according to innovational requirements. In that case, every nation should begin its journey to establish its digital ecosystems and establish data analytics and artificial intelligence platforms, which continue the innovation ecosystem. Otherwise, they have to depend on others not only on the products and services but also on the know-how and technological advancement. Here are the questions that stir our minds:

- *What are the main elements of building blocks of a digital ecosystem?*
- *Can a digital ecosystem provide sustainability without emotional, religious/moral, and cultural elements?*

For technological structure and essential elements of ecosystems (see Fig. 4), we need to consider structural innovation. Structural innovations result from the change in innovation resulting from one component of the existing product or process to all other functions and components. It is possible to realize structural innovation by changing existing systems by affecting different parts. One of the features of structural innovation is that the invention resulting from existing product designs in a new structure needs to be realized well. Therefore, it is essential to strengthening the interaction between the components. So, it can be considered that there is not much difference from incremental innovation. The internal dynamics and structures of technological ecosystems, it is significant for the success of new ecosystems. The essential characteristics of developing countries show that government should support:

- a well-educated young population,
- reinforcement of the entrepreneurial culture and spirit and
- acceleration of the digital infrastructure, including 5G Internet.



**Figure 4.** Basic structural requirements of a technological ecosystem

#### 4.1. National product and automated applications

The power balances are based on production, consumption, and efficiency. The more efficient are the production processes, the more solid the economy's foundation. In that case, the foreign dependency is decreased in agriculture, commerce, industry, and energy, increasing the country's welfare level and thus providing an independent economic status. At the same time, the most crucial share in periods of economic growth is directly related to the increases in total production. This reveals the support provided by the technological production power to the economy [24].

It is essential to coordinate and produce the correct number of technological productions at the right time. This is among the second most significant reasons for automation systems in factories and businesses. At the same time, automation systems in manufacturing make this very easy and cost-effective. At the same time, less workforce and more product equations can be provided by technological automation in the production lines. Working in a fast and coordinated manner with robotic processes enables the production companies to carry out their business worldwide and satisfy the customers' needs or the company in the market area. Automation under Industry 4.0 standards is one of the indispensable requirements, especially in production, in terms of automation systems that can be monitored regularly. The role of automated production defines technologies that use components to fulfill a specific group function or to meet a particular group requirement [25].

#### 4.2. Support and infrastructure role

Infrastructure investment and innovation are critical drivers of economic growth and development. Likewise, the growth of new industries and information and communication technologies is also essential for the maturity of the technological ecosystem. As an economy advances to the global technological frontier and narrows the technological gap, an innovation-based growth strategy that focuses on investments in R&D and technology creation offers the most significant potential for economic growth [26].

Technological progress is the key to finding permanent solutions to problems, such as beating unemployment and improving energy efficiency with sustainability. In addition to providing equal access to data, information, and knowledge, it is critical to address digital inequality/divide in innovation and entrepreneurship development. All three roles are indispensable for technological ecosystems. In a technological ecosystem, technologies can influence systems and structures with the same or other two functions. For example, when a high technology component is developed and a brand-new version is released, it can whip up innovation in products, support, and infrastructure technologies. This effect applies to all three roles. For example, the development of touch screens and high-capacity micro hard disk drives has led to smartphones and tablet PC products. Again, the introduction of digital cameras, a final product, led to the purchase of photo printers. Therefore, while companies in a technological ecosystem make a technological investment, or when attempting to develop products, they have to consider the dynamic internal relationships in the ecosystem. Various ecosystems can intersect, as the same technologies can be found in different ecosystems. These intersections should also be considered in investment decisions.

#### 4.3. Commitment and devotion to entrepreneurship

Expectancy theory and goal-setting theory serve as conceptual frameworks to examine factors associated with nascent entrepreneurs' goal commitment or the extent to which budding entrepreneurs exhibit positive attitudes toward devoting substantial energy to their start-up activities. Nascent entrepreneurs' goal commitment may be influenced by personal and environmental factors that reflect the feasibility and desirability of attaining the goal of establishing a business [27].

A strict hierarchy still manages many large companies. Communication between departments is mostly inefficient, and teams are usually not congruent in collaboration. Increasing bureaucracy slows down the innovation level of organizations. In this way, companies have to make decisions based on the people's interests, such as their culture, religion, faith, and personal motivations, to align personal values with organizational objectives.

Indeed, the most valuable capital owned is talent and leadership capital promoted with teams and groups of the same vision. Many organizations refrain from engaging in entrepreneurial activities of staff and see this as a waste of time and wasting resources. Companies' employees need to understand that they can also contribute and improve by joining them. This ensures internal growth, talent development, competency management, team building, and an integrated culture into the corporate structure.

It is pretty natural to approach it with suspicion when trying something new. Companies can have anxiety about this as well as many other issues. They also take less risk because they have to protect their reputation. However, these difficulties can be overcome with strategic planning and applications based on triggering innovative culture and collaborative behaviors.

The idea of innovation is the cornerstone of corporate entrepreneurship. When it comes to national or local dynamics, the same structure can be applied against global competition and hegemony of the power. It can also mean redefining the business concept, renewing the organization, introducing innovation in new business initiatives, and the range of organizations.

Every person has their dreams, and some attempt to realize them. If the care, effort, sincerity, and determination required for this purpose are shown, success and happiness are achieved. If somebody is in the middle of the road, he is afraid that he will not overcome it and get out of it but will not be successful if he loses his power, motivation, and commitment. Determined people mature through hardships and difficulties, learn lessons from their experiences, and manage to stand upright in all circumstances requiring effort, struggle, determination, and perseverance.

It is a reality that the phenomenon of religion and culture may affect individual behavior due to its impact on the values of individuals. Accordingly, it is reasonable that the phenomenon of religion and culture may influence the entrepreneurial behavior of the individual within the framework of planned behavior theory. Planned behavior theory suggests that the expectations of individuals shape the cognitive process based on their intentions and behaviors. It will shape the intent and behavior of the individual with the motivation of acceptance with the effect of dominant factors that form the perceptions and inclinations of individuals.

Educated, equipped, hardworking people with scientific facts and moral virtues are the insurance of developing and promoting an organization or country. Working the job best is an indicator of a love of growth. The one who loves his organization, homeland, government, and humanity in the broader sense is the one who does his job the most beautifully. Working, producing, draining sweat, as one and together; spending overtime for the development of is a kind of worship according to the sayings of the Prophets. Accordingly, the organizations and leaders should address their environment's predominant culture and faith.

Organizations, governments, and countries can continue their existence with hardworking and competent people. Everyone should learn the subtleties of their work and add positive values, and cement and brick should be indivisible integrity and solidarity. The vision and mission are given in the celestial orders like "*All believers are brothers,*" "*good ones are the ones that provide value to humanity,*" and "*The love of homeland is a part of belief,*" which cling to micro and macro societies together, working for the survival of homeland and the habitat and pointing to the importance of human development with psychological and emotional aspects.

#### **4.4. Relationship of innovation with religion, ethics, and culture**

In the ancient times of humanity, it is impossible to discuss the conflict between religion and science in Indian, Chinese, Egyptian, and Jewish societies. Science and thought were rooted in mythology and religion in the communities. Elements that can be called scientific have not been evaluated separately from religion and mythology. Because at that time, there was no information about the universe at a level to create a paradigm. Critical thinking has not yet been awakened as a natural consequence of this situation [28]. The ancient-Greek era was when nature and phenomena started to be investigated with rational and critical thought. In this period, the idea that there is a particular order, purpose, and wisdom in the universe and efforts to prove the existence of a universal principle or power that regulates this has reached severe dimensions [29]. Even so, at that time, religion was not struggling with science as we understand it today, with all the positive sciences that humanity has acquired. It is known that the most criticized period in terms of the mutual stances and relations of religion and science was the Western Middle Ages. This period, which was limited to approximately fifteen centuries, was very barren in terms of experimental sciences and free-thinking [30]. The cultural structure is closely related to that era's understanding of religion. Medieval culture in the West could not establish a balance between the world and the hereafter (Matta 6/25-31). The Christian authorities wanted to dominate the whole of life.

However, philosophy and intellectual life were allowed to the extent that they supported religious creeds. During the Middle Ages, education was confined to the direct raising of the spiritual progeny of ecclesiastical priests and hermits



attached to the church schools. The method in science was in the form of fruitless comparisons and academic arguments. For this reason, while reading and writing were not given importance, listening and memorization were encouraged [31]. At that time, the sciences related to the world were regarded as equal to idolatry. Many dogmatic beliefs have been established, mainly dogmas such as the original crime, the idea that one will get rid of the actual crime if one identifies with Jesus, and the belief in the trinity. For example, the Church is considered the representative of Jesus. Those who represented the Church by denouncing Jesus as God thought themselves to be faultless representatives of the almighty God on earth. As a result of these developments, it was believed that many of the people representing the Church were saints and could change the laws of nature. Efforts toward experimentation and observation were constantly blocked. It has been argued that every reason can only be learned from the church fathers because of deviating from the true faith. The thought that the human body is the temple of Ruhu'l-Qudus and therefore cannot be dissected has also caused the science of medicine to decline. All these thoughts and beliefs have irresistibly hindered an active view of science, which is not content with just watching nature, and the theory and effort of man to achieve what is not in nature [30].

Like technological developments, developments in religious understanding have also been a part of people's lives. Like many things, religion has become individualized, and per living in the age of wonders, ordinary people have had the opportunity to reach the heights of understanding the truths of religion and faith through careful observation and reasoning in the light of the Risale-i Nur. While it describes the luminous truths of the Qur'an through reasoning and representations, the invisible light behind the visible face of every being and event shows the hand of power, wisdom, and mercy to the mind's eye. It builds strong bridges between the visible and invisible realms and turns the realm of martyrdom into the screens of the realm of the unseen. Science makes a ladder to faith since the signs of Divine unity and perfections are to be discovered by innovative technology day by day serving as a luminous bridge that connects directly to the sun of the Qur'an for the people of our age who have been exposed to the plague of materialism, whose minds and hearts are confused, and whose time is so limited [32].

This change in the philosophy of knowledge quickly led to the discovery of God's laws operating in nature. The discovery of laws operating in nature paved the way for technological inventions and discoveries. Most of the colonized regions are Muslim geographies. To maintain their dominance in the colonial areas for a long time, the Westerners made and implemented various plans to destroy the moral and spiritual values of the Muslims. They were putting international institutions in a position to protect the interests of industrialized, rich countries, resulting in injustice in income distribution. So, the rich add more wealth to their wealth with each passing day, the poor are getting poorer, millions of people are living in horrible conditions in some African and Far Eastern countries, and even some of them are starving. It is impossible to have a science-religion distinction in an intact religion like Islam based on accurate and unchanged revelation. Even if one of these three fields is neglected, it will not be possible to reach the expected result from the sciences. Movements targeting irreligion began in XVII. and XIX. They tried to establish their systems with the data of the positivist sciences in the 19th century. This period is not a period in which scientific laws are discovered but the period in which theories are put forward in every field. Of course, today's scientific data also has shortcomings. This rapid development in sciences will reveal the deficiencies of the data of today's sciences after a while. Nevertheless, it is a fact that rapidly developing sciences support the belief of tawhid [34].

Bigotry is seen as a measure of religiosity in many places. There were even times when ignorance and bigotry were associated with righteousness. However, Islam is not bigotry and is incompatible with ignorance. Likewise, bigotry and prejudice have often been presented under the guise of "science" in positive science. Still, they are—like the prejudice that everything that happens by itself is a scientific reality. Nevertheless, science should not be bigotry or as a toll for justification of subjective reasoning of ostensive scientific arguments. Such errors are noticed and corrected over time based on reason and an inquiring scientific approach donned with wisdom of revelation. Similarly, the way to reveal the essence of religion by purifying it of many bigotries and prejudices that have become a part of it over time, and to reach the high position it deserves in the modern world, is to open the door of questioning to the end, based on reason and evidence. Furthermore, with wrong understanding and immorality, we could not fulfill the right of true Faith and the respect it deserves. After all, he hated us and covered himself with clouds of delusions and dreams. The source of religion is not the only reason. However, a correct faith does not contradict proper reason and sound science. Because the source of all three is one, and there is no contradiction. Therefore, as in science and technology, the door of reasoning and critical point of view should be wide open in religion.

Throughout history, religions have foreseen trade and living as required by their faith, and economic life has been affected accordingly. For example, a business that makes and sells dairy products according to Judaism cannot sell meat products, while according to Hinduism, the sale of beef is strictly prohibited. While in some religions there is no trade on holidays or important days, in Islam, trade can be made even during the pilgrimage period and it is ordered that 2.5% of the wealth of the rich should be shared with the poor in any case. The global financial crises experienced in the last 10 years have directed western countries to Muslim countries rich in Petro-dollars, and many institutions, including the Vatican, are looking for ways out of the financial crisis by examining Islamic Finance and Islamic economy models [37].

## 5. Conclusions

In an era of digital economies, new concepts and trends arise in today's business world faster than before [33]. The globalization process, which started in the 1980s and deepened momentum, became multidimensional over time, caused many problems, and provided meaningful opportunities for countries in terms of growth and development. With globalization, while the competition between countries is increasing, on the other hand, governments are trying to achieve sustainable and sufficient development targets with guidance of international organizations such as UN and World Bank. As a result of the strong growth performance of some developing countries in recent years, many the per capita income has approached the levels of developed countries. A significant part of the developing countries could not show this growth performance. The fact that the annual growth rate does not increase sufficiently in these countries and even declines in some periods is significant. The accessible growth resources of these countries based on the labor and raw material cost advantage lose their "*comparative advantage*" over time [35]. Developed countries generally have a production network that creates high added value with the knowledge-based production process, increasing their export rates and making their growth rates sustainable and sufficient. The importance and value of knowledge are increasing day by day. Innovation and making a difference are becoming one of the most critical competitive elements.

Türkiye is in a new technological transformation stage with a weak national innovation system between solid value chains and financial support. Since the 2000s, R&D activities have come to the front to create awareness about R&D and high-tech innovation fiction in Türkiye. This policy fiction, which aims to increase absolute numbers, can be considered a correct move from the beginning. Such a fiction and technology development policy would produce high value-added products and processes. Türkiye applied science and technology policies based on monetary support to development projects. This process, which started with the establishment of technoparks in the 2000s, continued with Regional Development Agencies in 2006 and Technology Transfer Offices (TTO) after 2011, with accelerators, entrepreneurship centers, and financial support programs speeding the initiatives. As a result, the number of techno-parks, development agencies, TTOs, hatchers, and accelerators and the number of firms and entrepreneurs benefiting from these interfaces increased exponentially. While an environment in which the numbers of projects, patents, and R&D personnel rise rapidly within the framework of policies focused on quantity. This is only the scale, whereas the main problem is how we did with this scale, i.e., the quality and capability of the innovation ecosystem. For the size of the R&D activities in Türkiye, we look at the value that indicates the scale, in other words. Türkiye's total R&D expenditure of around 5 billion euros in 2017, 8 billion euros in 2018, and 10 billion in 2019. In the list of the 2500 companies that make the most R&D investments, there are only 2 Turkish companies in the first 1000; there are only 6 Turkish companies in the list. In the last 15 years, technology development zones, development agencies, technoparks, project bazaars, technology transfer offices (TTO) and accelerators, and start-up firms focused on the intended application of creating interfaces and commercialization components may provide excellent results. Quantitative or qualitative analysis of the impact of policies implemented in Türkiye is minimal. However, the only way to know if policy tools increase their R&D and innovation activities and expenditures is to conduct an impact analysis of the programs and projects. As a result, an economic structure has emerged in which fixed capital investments in the construction sector are three times more than fixed capital investments. Technology policy is shifting to a mission-oriented approach, where the effectiveness of the state is increasing, more than a regulatory role for the state. Government-backed organizations such as Havelsan, Aselsan, Roketsan, TUBITAK, and TAI are institutions and agencies forcing and pulling the industries to produce national and local innovative products. In addition, science, technology, industry, and innovation policy are experiencing a cycle in every technological paradigm. Türkiye is currently designing innovation policies that apply microprocessor technology to virtually any field. However, the competitiveness and quality are still far behind the developing markets. We will see the increasing importance of science and industrial policies at the new technological paradigm threshold [36].

On the other hand, developing countries mainly produced low-value-added products and could not change their production structures. This situation has caused the growth rates of developing countries to be unstable and insufficient. Investments in innovation systems are an approach that has come to the fore as a current and effective tool in pursuing the economic welfare of various spatial units such as countries and regions in today's information and technology age. In line with such a requirement, it is essential to accurately monitor and measure many economic, human, spiritual, and structural factors operating in the system and their interactions.

The necessity of the two days being unequal and the constant variation of prayer times and holidays show that innovation is a necessity in life. If there is no innovation in life, that is, if we do not take innovative breakthroughs, life becomes dull, undeveloped repetitions become boring, people gradually lose their excitement and eventually become lazy. Therefore, since he will be captive to the status quo and the comfort zone, the days following each other will be equal, and the next days that should have been advanced will even fall behind the previous days. Let's listen to our Prophet Mohammed's Hadiths right here: "*He who has two days equal has been deceived.*" [38] he ordered. In the light of the explanations, isn't our Prophet directing us to innovation with these hadiths? Innovation is one way of being the strength and facilitator we are committed to. We humans were created to worship our Lord by obeying His commands and prohibitions, and we are commanded to worship until death comes. Since the orders of our Lord surround our whole lives, we have to be strong to do our duty of worship properly and to be able to provide real benefit to other humans, societies and all creatures if

possible. Trying to be stronger in order to serve more in accordance with the natural laws created by Allah is to gain the love of our Lord. Our Prophet again says: "A believer who is strong by clinging to causes is better and more beloved in the sight of Allah than a believer who becomes weak because he does not cling to causes." [39]. Being strong and stronger physically, scientifically, financially and aesthetically requires turning to the beneficial as our Prophet said. Facilitation, which attracts God's help, also necessitates strength. The main thing in Islam is that people are self-sufficient and not be in debt unnecessarily. Our Prophet forbade "being a burden to people" just like following selfish desires, and declared "Whoever relieves a Muslim of a burden from the burdens of the world, Allah will relieve him of a burden from the burdens on the Day of Judgement. And whoever helps ease a difficulty in the world, Allah will grant him ease from a difficulty in the world and in the Hereafter" [40]. Since societies consist of individuals, societies must also be self-sufficient, and Muslims in particular, on the other hand, have to stand out by providing more benefits to people and nature. For this, innovative breakthroughs are needed, and innovation is now a vital requirement for helping poor, disabled and disadvantaged ones.

The innovation culture should be adorned with the consciousness of not only scientific but also harmony with the existing order in the universe, the opportunity to recognize God's attributes, the ability to develop and obtain useful inventions for humanity continuously, and the awareness of providing added value not only to itself but to the whole society from these processes. In this context, it can be said that with good true faith, more sustainable economic added values can be obtained by avoiding wasteful and harmful practices and projects. Faith sees this world and its inhabitants are all creature of God and their rights should be respected by the delegates that is the humans not wasting and abusing resources but sticking the wisdom given by revelation in terms of proper usage and utilisation. Therefore, the material and spiritual dimensions should be considered in the programs and projects implemented for innovation. Otherwise, in a world in which approximately 160.000 people are passing away in each day, materialism will continue to capture people's souls and devoid them of real happiness in this world and hereafter. It can be said that an approach that balances the material and moral elements has been getting stronger in recent years in Türkiye.

#### 6. Author contribution statement

The scope, content arrangement and editing parts of the article were done by Ahmet Efe.

#### 7. Ethics committee approval and conflict of interest statement

This study does not need ethics committee approval and author declared that this article has no conflict of interest.

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