ESJ Social Sciences

On Relations between Creativity, Innovation, and Quality Management Culture in Europe as a Responce to Crisis and Post-crisis Period

Dr. Enriko Ceko
Canadian Institute of Technology, Tirana, Albania

Doi:10.19044/esj.2023.v19n1p50

Submitted: 14 September 2022
Accepted: 10 January 2023
Published: 31 January 2023

Cite As:
Ceko E. (2023). *On Relations between Creativity, Innovation, and Quality Management Culture in Europe as a Responce to Crisis and Post-crisis Period.* European Scientific Journal, ESJ, 19 (1), 50. https://doi.org/10.19044/esj.2023.v19n1p50

Abstract

Purpose: Using regression analysis, the paper aims to clarify the relationship between innovation and creativity, innovation and quality management, and creativity and quality management. **Design/methodology/approach** – The paper opted for an exploratory study using regression analysis to find relations between innovation and creativity, innovation and quality management, and creativity and quality management, using data complemented Global Innovation Index and Creativity index and ISO 9001 standards certificate issued in European countries. **Findings** – The paper provides statistical insights about the relations between innovation and creativity, innovation and quality management, and creativity and quality management. It suggests that successful business organizations should invest in innovation, creativity, and quality management to achieve competitive advantage. **Research limitations/implications** – Because of the chosen research approach, the research results may need extended periods of investigation, therefore, researchers are encouraged to test the proposed propositions further. **Practical implications** – The paper includes implications for the development of a powerful tool combining innovation, creativity, and quality management, achieving a competitive advantage. **Originality/value** – This paper fulfills for the first time under a regression analysis an identified need to study how innovation, creativity, and quality management are related strongly between them. **Practical / Industrial value:**

 ISSN: 1857-7881 (Print) e - ISSN 1857-7431

The outcome of the research stresses the value of investing in innovation, creativity, and quality management to achieve a competitive advantage, considering the importance of soft factors of production (entrepreneurship and innovation) as much important as hard factors of production (labor, land, and capital) too.

Keywords: Innovation, creativity, quality management, quality culture, factors of production

Introduction

In economic sciences, factors of production are considered (1) in classical theory (Adam Smith, etc.) land, labor, and capital, (2) in Marxist theory (Karl Marx, Frederik Engels, etc.), factors of production are considered labor, labor subjects, and labor tools, (3) in the neoclassical theory, land, labor, and capital are considered factors of production, but capital is divided into fixed capital, labor capital, and financial capital, (4) in environmental economics theories, factors of production, matter, energy, and design intelligence have been considered, and starting from the end of the middle of the 20th century, it started to be talked about another factor of production, which is the entrepreneurial ability (entrepreneurship). Within entrepreneurship, many researchers have also seen innovation as an element of this production factor.

However, innovation is not only an attribute of entrepreneurs. Innovation is also an attribute of employees, so, for innovation to appear, subjects/organizations must create the conditions for employees for making it happen.

But the attribute of innovation cannot exist without creativity, which is a prerequisite for innovation to occur. It is the creative abilities that distinguish the individual, who, if he has sufficient and necessary conditions, passes from creativity to innovation. If the innovation is valid, then the economic advantage (comparative and competitive) appears in the market, also helped by the continuous improvement of quality and the respect and application of quality management systems and standards.

The combination of early factors of production (land, labor, and capital) with modern factors of production (entrepreneurship and technological innovation) made possible the success of numerous entities operating in different sectors of the world economy during the pandemic period, when the traditional view of factors of production where labor, land, and capital have been treated as the most important factors almost was over, as well as discusses only entrepreneurship, as the fourth factor of production was not a fashion anymore, without considering creativity, innovation, quality

 ISSN: 1857-7881 (Print) e - ISSN 1857-7431

management, and standards, and especially, when humans are left unchecked (Malthus, 1798).

That's why recently, factors of production have been considered labor, land, capital, entrepreneurship, and innovation, as they are considered in this paper too.

The economic crisis of 2008 – 2012. Natural disasters and pandemic situations, especially the last one, caused by COVID – 19 have shown day by day the importance of creativity, innovation, and quality management culture as a combination that can bring competitive advantage in a shaking world.

When we discuss creativity, we take into consideration something fresh, and helpful thoughts, works of art, invention, etc. There is an impressive interest in creativity in several disciplines, mostly linked with human/social sciences, economic/business studies, education, tech/engineering, theory/philosophy, etc., as individual or group activity-based ideas (Ceko, 2021).

Discussing innovation, we directly think about new combinations that result in improved and/or new products and services, new methods of processing, manufacturing, assembling, entering new market areas, offering a new way of resource usage, and new or improved business models, etc., like this. Usually, this is related to improvement, extension, and newness connected/related to improved effectiveness and efficiency of processes, procedures, rules, orders, products, services, methodologies, methods, tools, technologies, etc., like this, that people involved in the process of innovation, creativity and quality management (Lin, Chen, Liu, Li, 2022) brings to the market, offering them for economic agents, individuals, families, businesses, and governments. Innovative pure products, pure services, products connected with products, and services connected with products, are something original, more affordable, with higher quality, lower prices, etc characteristics this which make them enter easily into the market and in our life. As we consider today, innovation doesn't always require inventions, but at the end of the process, results in a higher impact on our daily life, with an approach of easy implementation in practice in a marketplace, where problem-solving related to these improved or new products and services has been required. Finally, novel/new ideas affect our economic, social, cultural, creative, sportive, etc., life, aiming to fulfill consumer requirements. Shortly, innovation is the application of activity-based things resulting from the individual, and/or group activities' creativity.

Having creativity and innovation in place, a quality culture is needed.

As a group of values, quality's culture serves as a line on how to improve daily based activities and results, products, and/or services connected to them, continuously. Quality culture attributes to all members of the organization(s) and not only to quality controllers (Ceko, 2021). The current

 ISSN: 1857-7881 (Print) e - ISSN 1857-7431

working culture of public and private entities all around the world nowadays has been focused on quality of work, "doing right the first time", through quality management, corrective and preventive actions, and being clear, about the same or similar problematic issues don't show up often and/or again, which can be experienced and expressed through (1) individuals development, (2) active respect, and tolerance, (3) responsibility, and (4) entrepreneurship, as main values, bringing finally competitive advantage(s) (Ceko, 2021).

The core value of quality culture is embodied in ISO standards. Generally, for these international quality management standards, and specifically for some of them, there is an increasing interest and demand nowadays by the public and private sectors around the world, aiming to achieve a competitive advantage globally. The ISO standards are related mainly to management and quality of processes, rather than the quality of products, and services, which refers to the idea that how and why products/services achieve customer expectations (Ceko, 2021).

In daily work, organizations implement managerial functions, define quality policy, strategic/operational objectives, and responsibilities, and apply them through planning, budgeting, leading, motivating, and controlling, for improving the quality of products and services on daily bases (Ceko, 2021).

For this, a quality management system serves, which is embodied in ISO standards.

1. Literature review

Nowadays, literature on creativity, innovation, quality management, etc., has been meliorated everywhere, because these concepts help all types of organizations to become more and more competitive in a vibrant market, where demand is much lower than the offer, one of the main characteristics of the last century worldwide (Ceko, 2021).

1.1 Megatrends of 2020 – 2030 and the European response to crisis and post-crisis period

The main megatrends for the next 10 years shall be:

- At the heart of the shift in economic power shall be population growth.
- Huge changes for business, society, and the way we invest shall be influenced by emerging and developing economies.
- The impact of global warming is all around us. Rising temperatures could eventually have a significant impact on crop yields, causing food prices to surge, which in turn could impact poorer communities.
- Being in the midst of a fourth industrial revolution (known as the digital revolution), at the center of all megatrends shall be the rapid advancement of technology, especially that of artificial intelligence and machine learning.

 ISSN: 1857-7881 (Print) e - ISSN 1857-7431

- Already more over-65s in Asia than people in the United States.
- By 2042 there will be more over-65s in Asia than the populations of the Eurozone and North America combined.
- Significant social change, and therefore challenges and opportunities, for both government and business, shall be caused by changes in global demographics.
- This megatrend brings structural shifts, technological development, and shifting economic power, varying by region, causing a profound effect on local and global markets and societies.
- More than half of the world's population now lives in towns and cities, and by 2030 this number will swell to about 5 billion.
- Much of this urbanization will unfold in Africa and Asia, bringing huge social, economic, and environmental transformations (Fisk, 2019).

It is clear that as a response to these big changes/megatrends and as a response to the crisis and post-crisis period Europe is going towards:

- Information revolution
- Flexible & Learning organizations and innovation systems
- Explosion of knowledge, skills, and learning and competing with them
- Growing innovation and knowledge networks
- Increase in global competition and production
- Employment from business entities of several strategies and locations
- Clustering in the Knowledge-Economy (Robinson, 1953)
- Improving systems of creation, production, and distribution (Robinson, 1953)
- Increasing needs for policy integration
- Increase in global investments and production (Robinson, 1953)
- Shifting the composition of the economy (Robinson, 1953)
- Improving knowledge, education, and skills (Robinson, 1953)
- Usage and expansion of innovation systems, creativity, and quality management culture

1.2 Factors of production

Factors of production involve/describes inputs used in the production process for an economic benefit. The factors of production in this paper (as mentioned above) have been considered (1) land, (2) labor, (3) capital, (4) innovation, and (5) entrepreneurship (Besides some authors involve innovation at entrepreneurship, while innovation is not an attribute of only entrepreneurs but employees and other individuals which are not involved in business activities, too).

 ISSN: 1857-7881 (Print) e - ISSN 1857-7431

Personally, I think, the whole world history regarding the factors of production is related to the cycles of exploitation of these factors. One cycle is the exploitation of land, labor, and capital (Fernando, 2021) (fixed factors of production) and another cycle is the exploitation of innovation and entrepreneurial skills (nonfixed factors of production). In certain periods of economic development, predominates the cycle of fixed production factors (Capital, Land, and Labor) (Fernando, 2021), and, in certain moments of development, predominates the cycle of nonfixed factors of production (innovation and entrepreneurial skills). The stages through which the cycles of factors of production utilization are stages of entry, maturity increase, and decline.

Currently, in the globe, there is a lot of not used land, and labor, the unemployment rate is high, and there is money in the banks in the form of savings, that is not used for investments. It is clear that currently the cycle of land, labor, and capital's (Fernando. 2021) exploitation as important factors of production (Fernando, 2021) is coming to an end and it is so logical and clear that the cycle of innovation entrepreneurship is in the growth phase. How long this cycle will last is difficult to predict, but when this cycle shall be in the decline phase, the entry phase of the land, labor, and capital cycle, and further the growth phase of this cycle shall continue. And so on.

It is evident that in our daily productivity and growth are increasingly determined by the rate of technical progress and the accumulation of knowledge. Of key importance are networks or systems which can efficiently distribute knowledge and information. Policies relating to science and technology, industry, and education will need a new emphasis on the role and importance of innovation systems, the requirement for infrastructures, and incentives that encourage investments in research and training to support those systems (Houghton & Shehan, 2000, OECD, 1996).

1.3 Creativity

Over the years of quality management experience, (Mumford, 2003), (Sternberg, J.; Sternberg, K.; Mio, 2012), (Meusburger, Funke & Wunder, 2006) seems we have achieved a united issue that processes, procedures, products, services, etc., which are innovative, are part of creativity, or involve it (Ceko, 2021).

This, shortly, means that creativity which starts first, creates conditions for innovation, because it serves as a thinking process on how to become aware of problems, identify them, finding solutions, as an ongoing process (Torrance, 2008, Ceko, 2021).

 ISSN: 1857-7881 (Print) e - ISSN 1857-7431

Problem definition, gathering data, figures, and information, selecting a solution between several of them, and from this stage creating a new or improved product is called the creative process, which consists of some stages characterized by a thinking process that includes fluency, flexibility, originality, and elaboration (Ceko, 2021).

In fact, for an organization, to achieve and maintain creativity, managerial practices, motivation, and components are needed.

Components are:

- Knowledge (mental – intellect, technicalities, procedures;
- People with flexibility and imagination to approach issues;
- Intrinsic appeal.

Two types of appeal:

- Extrinsic appeal – external elements, for example, threats of being kicked – off or incomes matters;
- Intrinsic appeal – internal elements like work enjoyment, etc.

Practices to encourage appeal:

- Approaching individuals with the right challenge;
- Autonomy for people to choose tools to achieve objectives;
- People, finances, time, etc, as resources, kept in balance
- Supportive working groups with a desire to help and support each other;
- Monitoring support – evaluation, mercy, etc;
- Organization support, cooperation, and sharing of info (Amabile et Al, 1996, 1998, 2016, Ceko, 2021).

Studying entrepreneurship should consider the socio-psychological abilities of entrepreneurs and environmental, and social impact which could be manifested in the ability of business people to create improved and/or new products and/or services (Herrera-Usagre, 2019). This is through a process (Herrera-Usagre, 2019) involving ongoings, brainstorming, conceptions, reliance, and confidence to conceive a new group of processes and procedures or a new version of mixing previous processes and procedures, creating knowledge, based on the process of creativity (Ceko, 2021).

Several authors have stressed the importance of creativity and knowledge creation for successful organizations (Siltala, 2010, Sinha, 2009, Leal & Urrea, 2013, Ceko, 2021, Woodman, Sawyer, Griffin, 1993), stressing that communication, infrastructure, technology, and training helps on the process positively.

In parallel, the concept of "the creative class, an important driver of economies of the modern age", combined with "3T regions (**T**echnology development, **T**alent empowerment, and **T**olerance on differences), causes highly creativity professionals' concentration (Ceko, 2021), which try on

 ISSN: 1857-7881 (Print) e - ISSN 1857-7431

having a higher position of development of the economy" (Runco & Rubenson, 1992, Florida, 2002).

1.4 Innovation

According to an OECD report (Ahmad & Seymour, 2006), business was defined as an innovation process, including resources and production capacities (Drucker, 1985, Wróbel, Cash, Lomberg, 2020), which have the formation and use of entrepreneurial skills (Shane, 2003, Wróbel, Cash, Lomberg, 2020), which as a creative process takes place even though in the beginning the purpose can not be known, which can be defined even during this processes (Sarasvathy, 2001, Wróbel, Cash, Lomberg, 2020).

Innovation seems to be the practical application of ideas that come from the market when entities introduce new products and services to the market and when efforts are made to improve them (Schumpeter, 1993). According to the ISO 56000: 2020 standard, "innovation is something improved or new that brings and rediscovers value".

The common elements of all the authors who have examined this field are (1) innovation, (2) improvement, and (3) distribution (Cruz-Cunha, Miranda, Gonçalves, 2013). Innovation is not just an invention (Bhasin, Kim, 2012), not all innovations are inventions (Morgan, 2015), and not all innovations require inventions (Schumpeter, 1939).

Each country has its innovation system which includes laws, public administration, procedures, etc., which have a very large impact on how the system absorbs, shapes disseminate, and uses knowledge (Hendarman, Tjakraatmadja, 2012). Innovation requires a conducive environment (Hendarman, Tjakraatmadja, 2012) for business and entrepreneurship, including the elimination of bureaucracy and excessive rules, and other barriers (WB Institute, 2005).

The process of innovation can be described in three basic phases: (1) idea generation, (2) problem solving, and (3) implementation (James, 1971).

Innovation may occur as a result of a focused effort by a range of different agents, by chance, or as a result of a major system failure. According to Peter F. Drucker, the general sources of innovations are different changes in industry structure, market structure, local and global demographics, human perception, mood and meaning, the amount of already available scientific knowledge, etc., (Drucker, 2002).

About the current state of doing business and competition between business models and finding and applying new tools, techniques and equipment, it is understandable that success depends on the efficiency and effectiveness of innovation and innovative processes, as a priority for competitive advantage and comparative in business (Valenta, 2001), a process

 ISSN: 1857-7881 (Print) e - ISSN 1857-7431

where multiple and different actors intertwine (Dolourex, 2004), this is a very important issue regarding the success of individual organizations.

Stakeholders in this process interact including marketing processes (advertising, publicity, public relations, promotion), among which are ideas and thoughts for improved, innovative, and new products and services, which attract the attention of stakeholders, but the foundation is communication as a process, which includes individual mental activity, group work, ideas generated, which have more advantages than physical activity and/or capital. This means that its production and growth are no longer achieved through land, labor, and capital, but mainly through innovation and technological change (Christina E. Shalley, Michael A. Hit, and Jing Zhou, 2015).

At this point, it is also worth noting the work of many authors who emphasize the close connection between mission innovation, integration, entrepreneurship, leadership, motivation, and management in general (Shung Jae Shin, Xiaomeng Zhang, and Kathryn M. Bartol, 2015, Kris Byron and Shalini Khazanchi, 2015, Lucy L. Gilson, Hyoun Sook Lim, Robert C. Litchfield, and Paul W. Gilson, 2015, Jill Perry-Smith and Pier Vittorio Mannucci, 2015).

Some authors elaborate on the Triple Helix model about responsibility for innovation (Leydesdorff & Loet, 2012), which treats it as) Academics and Government creating the Knowledge Infrastructure, Government and Business creating Political Economy, and Academics and Business creating Innovation and this three-dimensional space of interaction, Triple Helix creates the Economy of Knowledge (Tjakraatmadja et. Al. 2011, 2012). Academics provide knowledge. Knowledge is used by businesses and the government (Leydesdorff & Loet, 2012), Government provides incentives in support of innovation businesses provide funding and facilities for the development of skills, knowledge, and competencies to support innovation (Hendarman, Tjakraatmadja, 2012).

Every natural disaster and every pandemic bring opportunities and space for creativity, innovation, and standards. In the current Covid-19 pandemic, there was a growing interest in innovative solutions in the field of health, accompanied by a great deal of attention in areas such as (1) distance work, (2) distance education, (3) e-commerce, and (4) mobility solutions, with a view to a sustainable and inclusive future and the reduction of climate change. (GII, 2020).

1.5 Quality and culture of quality

Quality has to do with several values that affect how continuous improvement can be achieved in practice. This has to do with some aspects that are taken for granted to create the philosophy of the subject, the working group, the people who deal with the project, etc. (Ceko, 2021). Many authors

 ISSN: 1857-7881 (Print) e - ISSN 1857-7431

have defined this as a social battle by which people stand together in an organization (Robbins, 1999). This constitutes what is called subject culture, relating to individuals in the organization, the values they hold, the way these members use mechanisms and structures, control, etc. (Schein, 2013, 2020). It is this culture that pushes you towards quality, which makes everyone in the organization interested in quality improvement, making every employee see themselves in a subject both as a customer and as a supplier, this is a way very good to do everything as well as possible, since the first time (Ceko, 2021).

In this regard, it should be borne in mind that people in the organization should not think that since there are opportunities for improvement, it is not a problem that things are not done well the first time, as this mentality constitutes a very large cost to the organization. This requires that in these organizations where quality culture predominates, products and services be evaluated in all steps of their implementation, so as not to shift responsibility along with procedures and procedures, at each stage of product/service realization (Harvey & Green, 1993, Ceko, 2021).

The above relates to (1) the individual who improves with the organization, (2) respect and tolerance among individuals in the organization, (3) entrepreneurial skills (4) having evidence of capacity (Ceko, 2021).

Common approaches that are respected and formed integrally and that are identified in organizations and their culture, and also in quality management systems, constitute the quality culture, which is expressed in the quality of products and services (Vlãsceanu, Grünberg & Pârlea, 2007).

Europe is known for its approach to a quality culture and this is taught in universities across it and applied in these universities, where the main is the principle of "training to achieve the goal" and "creating value, to create opportunities bringing benefits" (EUA, 2002 - 2006), with the aim of excellence, the realization of best practices and experiences to reach the standards. It is the managerial approach that defines the goals and objectives, the responsible persons and their responsibilities, and the procedures and processes that are followed to achieve quality, and thus constitute the values, beliefs, and expectations in the organization, which ultimately form its culture (Ceko, 2021, Kleijnen, Dolmans, Muijtjens, Willem, Van Hout, & J. Williams, 2007).

Numerous studies and papers have been conducted recently on quality, quality culture, its relevance and relevance to competitive advantage, corporate social responsibility, business sustainability, business ethics, etc. (Gordon and Owen, 2008, Harvey and Stensaker, 2008, Ceko, 2021, Schein, 2013, 2020), also has many studies and publications regarding quality, its management, total quality management, etc. (Ceko, 2013, Ceko, 2017, Ceko, 2021), which show the links between quality, quality culture, ISO standards,

 ISSN: 1857-7881 (Print) e - ISSN 1857-7431

doing business and improving quality of life (Karan, 2016, Ceko, 2016, 2011, Ceko, 2021).

1.6 Concept of quality

Quality in terms of products and services has to do with what customers expect. This shows that quality is about attributes, it is related to perception, it is very subjective and it is conditional. In ISO standards and specifically in ISO 9001, it is defined as meeting customer requirements to a certain degree and this means that customers see quality as what they expect from the product/service. Quality poses a need for customers (Ceko, 2021).

Defining quality as a set of product/service features capable of meeting customer needs goes well with the contribution of Edward Deming on this issue, who wrote that costs should be reduced, increasing productivity, this leads to quality improvement through management, design, testing and processes that are constantly improving ", and with the contribution of Peter Drucker, who said that quality is what customers get from the product and service, for which they are willing and willing to pay and not what manufacturers want to decide on the products and services they deliver (Ceko, 2017).

It seems that the essence of quality is to achieve the satisfaction of the wishes and needs and expectations of customers (Ceko, 2017, Ceko, 2021).

Quality management and its system are related to the management of the organization, having a strategy, having the customer in focus, achieving what the customer needs, having qualified as a long-term commitment, doing teamwork, improving continuously, creating opportunities for staff training and education and allowing freedom through control and empowering and involving employees (Ceko, 2017, Ceko, 2021).

"Quality management system includes personnel system, safety at work, environment, human safety, production, finance, information, development, procurement, etc. (Ceko, 2021, Harrington & Mathers, 1997)

The following diagram shows the relationship between ISO 9001 and management principles (Ceko, 2021):

 ISSN: 1857-7881 (Print) e - ISSN 1857-7431

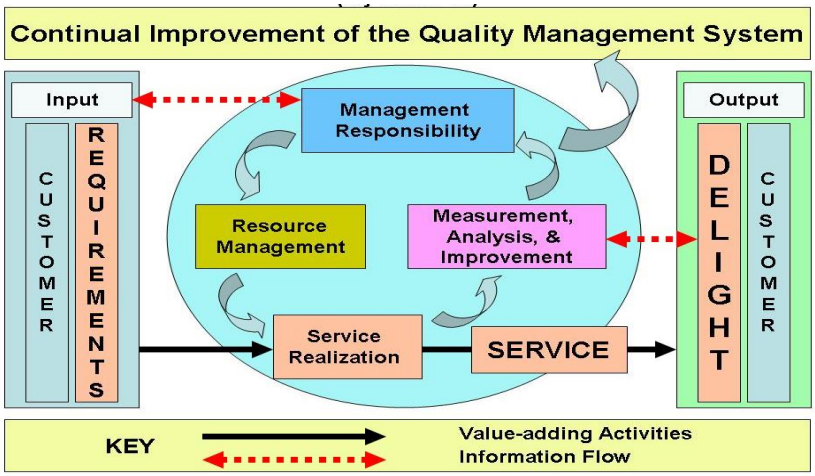


Figure 1. The scheme of relations between management principles and ISO 9000 focus. (Ceko, 2017).

The table below shows the characteristics of innovation, creativity, and quality management and the relations between them.

Creativity, innovation, and quality management					
Techniques of creativity		Innovation		Quality management	
1	Finding and respecting aim & approach;	**1**	Radical innovation: "establishes a new dominant design and, hence, a new set of core design concepts embodied in components that are linked together in a new architecture."	**1**	Characteristics of total product/service features;
2	Forming abilities;			**2**	Management of quality;
3	Supporting getting of new specific knowledge;			**3**	System of managing quality;
4	Promoting & motivating experimentation;	**2**	Incremental innovation: "refines and extends an established design. Improvement occurs in individual components, but the underlying core design concepts, and the links between them, remain the same."	**4**	The firm's management", and "characteristics of total features of products and services are: • Strategy-based – total quality is part of the vision, mission, and objectives; • Focus on the client – client in the light; • Strong link to product or service features – which customer requires; • Scientific problem-solving framework – problem-solving tools and techniques; • Long-term commitment – quality is a journey, not a destination; • Teamwork – setting quality improvement objectives, and processes;
5	Constructing promotes the environment, specific promotion inside organizations;				
6	Promoting risk-taking initiatives;				
7	Mastering auto-competition;	**3**	Architectural innovation: "innovation that changes only the relationships between them [the core design concepts]"		
8	Promoting supportive values and ideas on creative ideas;				
9	Offering chances to choose and explore;				

 ISSN: 1857-7881 (Print) e - ISSN 1857-7431

10	Offering conditions for the development of auto-management;	**4**	Modular Innovation: "innovation that changes only the core design concepts of a technology" (Henderson & Clark. 1990).		• Continuous improvement process – a quality achievement never ends; • Education and training – of employees to achieve total quality; • Freedom through control – to express views, perform quality improvement actions; • Unity of purpose – based on the objectives of the organization; • Employee involvement and empowerment – through competencies, quality management" (Ceko, 2017.
11	Learning approaches, helping the performance of creativity;				
12	Supporting and establishing a balanced environment" (Nickerson, 2011).				

Table 1. Relations between Innovation, Creativity, and Quality management (Ceko, 2022)

2. Research framework, the purpose of the case study (Wróbel, 2019)

The framework of the research has been the level of creativity, innovation, and ISO 9001: 2015 standard certificates issued in the European entrepreneurship ecosystem.

Given the lack of numerical, statistical, and algebraic arguments on relations between innovation and creativity and lack of theory and numerical, statistical, and algebraic arguments on relations between quality management and creativity (Ceko, 2021) and lack of theory and numerical, statistical and algebraic arguments on relations between innovation and quality management too, this study has been intended to adopt a theory-building mode, aiming to clarify research questions as below (Wróbel, 2019):

RQ1: There is any relation between creativity and innovation?
RQ2: There is any relation between innovation and quality management?
RQ3: There is any relation between creativity and quality management?

…

considering that there is plenty of research on relations between innovation and creativity, covered by several well-known authors, listed in the literature review of this paper research, and considering that theoretical approaches on relations between creativity, and innovation exist, but numerical, statistical, and algebraic arguments on relations between innovation and creativity don't, and considering that theoretical and numerical, statistical and algebraic arguments on connections between quality management culture and innovation, don't exist (Lin, Chen, Liu, Li, 2022), and theoretical and numerical, statistical and algebraic arguments on relations between quality management culture and creativity (Ceko, 2021) don't exist too.

 ISSN: 1857-7881 (Print) e - ISSN 1857-7431

3. Methodology

Specifically, while acknowledging the importance of innovation, creativity, and quality management in entrepreneurship ecosystems and doing business, prior empirical research does not explain how innovation (Ceko, 2021), and creativity influence and connect to quality management, even though several serious theoretical studies are showing a strong connection between innovation and creativity, but not numerical, statistical and algebraic studies. Thus, theory-building is required, followed by analysis, evidence, and facts. To better explore the phenomenon requires a case study approach, which allows investigation based on theory and statistical conclusions (Ceko, 2021).

Besides that, differently with the traditional model of assuming about economics, in this research, (1) labor has been considered as it is in reality, not homogeneous, (2) land has been considered as it is in reality, not homogeneous (there are particular kinds of soil or mineral deposits (Robinson, 1953) which influences on production and flow of capital and human resources), (3) it is considered as naturally, all households don't consume goods and services in the same proportions (Robinson, 1953), (4) is taken as normal, and regardless of whether their relative prices change, changes in average incomes and how they are distributed have a major effect because it affects supply and demand for end products (Robinson, 1953), (5) is taken as such because an experienced entrepreneur has an advantage over a young person (Robinson, 1953), (6) is understandable as skills, knowledge and competencies are not evenly distributed and at this point managerial skills are very important and (7) it is understandable that having sufficient capital is not the only employment opportunity (Robinson, 1953). These are the characteristics that bring this search very close to reality.

3.1 Selection of case

Three main criteria have been taken into the consideration in this research: (1) a theoretical approach, (2) suitability of relations, (3) practical positive impacts on relations between creativity and innovation, between quality management and innovation, and between quality management and creativity (Ceko, 2021).

Based on this, research questions were built. The research questions are:

- RQ1: There is any relation between innovation and creativity?
- RQ2: There is any relation between innovation and quality management?
- RQ3: There is any relation between creativity and quality management?

Based on these research questions three couples of the hypothesis were built:

 ISSN: 1857-7881 (Print) e - ISSN 1857-7431

Relations between innovation and creativity (RQ1).

H01 – There is no relationship between innovation and creativity.

H11 – There is a strong relation between innovation and creativity.

Relations between innovation and quality management (RQ2).

H02 – There is no relationship between innovation and quality management.

H12 – There is a strong relation between innovation and quality management.

Relations between creativity and quality management (RQ3).

H03 – There is no relationship between creativity and quality management.

H13 – There is a strong relation between creativity and quality management.

3.2 Collection of data

- Data for creativity - Creativity Index Report 2020 (Marten Prosperity Institute, University of Toronto, 2020), a four-dimensional ranking of countries, combines individually-ranked countries based on creativity, technology, talent, and tolerance into an overall score.
- Data for innovation - Global Innovation Index Report 2020 (World Intellectual Property Organization, 13th Edition), an annual ranking of countries by their capacity for, and success in, innovation.
- Data for ISO 9001 standard application - ISO report 2015 – 2020
- ISO 9001 Index per country drawn by the author of this paper by dividing the number of ISO 9001 certificated issues per country by the total number of business entities of the country, listed in a table (Ceko. 2021, 2022).

In preparing this research, only two following types of data have been used: (1) from international indexes and websites and (2) data processed by the author on ISO 9001 Index calculated per country (Ceko, 2022).

3.3 Analysis of data

1. By ISO website was drown the number of each European country's firm certified with ISO 9001 standards.
2. From different web pages and other printed materials like chambers of commerce, houses of companies, country annual reports, institutes of statistics, etc., the total number of business entities was taken.
3. ISO 9001 index was formed by dividing the number of firms certified with ISO standards by the total number of business entities per country (Ceko, 2022).

 ISSN: 1857-7881 (Print) e - ISSN 1857-7431

4. Data from European countries' creativity ranking was taken from the Creativity Index (Marten Prosperity Institute, University of Toronto, 2020).
5. Data on European countries' innovation ranking was taken from the Global Innovation Index (World Intellectual Property Organization, 13th Edition).
6. A regressive analysis between the Innovation index and Creativity Indexes for 45 European countries was performed.
7. A regression analysis between the Creativity index and ISO 9001 certification ranking data for 34 European countries was performed (Ceko, 2021).
8. A regression analysis between the Innovation index and ISO 9001 certification ranking data for European countries was performed (Ceko, 2021).

Relations between innovation and creativity
(45 European countries)

No	Country	Innovation INDEX (x)	Creativity INDEX (y)
1	Switzerland	66.08	0.822
2	Sweden	62.47	0.915
3	United Kingdom	59.78	0.881
4	Netherlands	58.76	0.889
5	Denmark	57.53	0.917
6	Finland	57.02	0.917
7	Germany	56.55	0.837
8	France	53.66	0.822
9	Ireland	53.05	0.845
10	Luxembourg	50.84	0.696
11	Austria	50.13	0.788
12	Norway	49.29	0.883
13	Iceland	49.23	0.913
14	Belgium	49.13	0.817
15	Czech Republic	48.34	0.609
16	Estonia	48.28	0.625
17	Italy	45.74	0.715
18	Cyprus	45.67	0.446
19	Spain	45.60	0.811
20	Portugal	43.51	0.71
21	Slovenia	42.91	0.822
22	Hungary	41.53	0.673
23	Latvia	41.11	0.563
24	Bulgaria	39.98	0.505
25	Poland	39.95	0.516
26	Slovakia	39.70	0.484
27	Lithuania	39.18	0.49

 ISSN: 1857-7881 (Print) e - ISSN 1857-7431

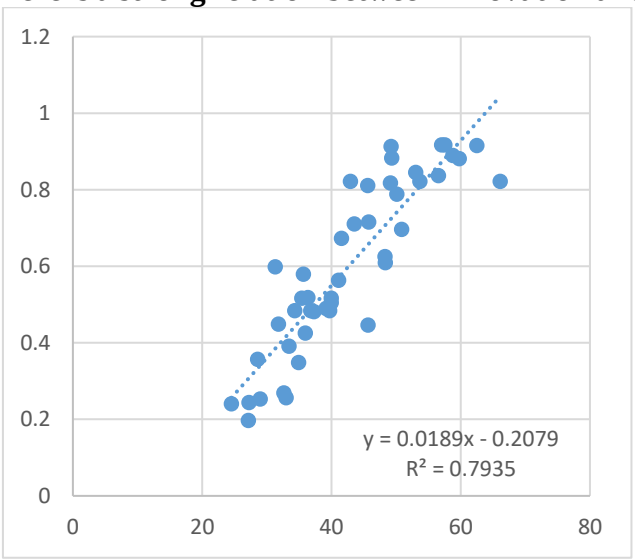
28	Croatia	37.27	0.481
29	Greece	36.79	0.484
30	Ukraine	36.32	0.518
31	Romania	35.95	0.425
32	Russian Federation	35.63	0.579
33	Montenegro	35.39	0.516
34	Turkey	34.90	0.348
35	Serbia	34.33	0.484
36	North Macedonia	33.43	0.391
37	Republic of Moldova	32.98	0.256
38	Armenia	32.64	0.269
39	Georgia	31.78	0.449
40	Belarus	31.27	0.598
41	Bosnia and Herzegovina	28.99	0.253
42	Kazakhstan	28.56	0.357
43	Azerbaijan	27.23	0.244
44	Albania	27.12	0.197
45	Kyrgyzstan	24.51	0.24

Table 2. Innovation index and Creativity Index in European countries (GIIR, 2020)

Relations between innovation and creativity (RQ1).

H01 – There is no relationship between innovation and creativity.

H11 – There is a strong relation between innovation and creativity.



Graphic 1. Regression line innovation & creativity

 ISSN: 1857-7881 (Print) e - ISSN 1857-7431

Regression Statistics	
Multiple R	0.890789
R Square	0.793505
Adjusted R Square	0.788703
Standard Error	0.102342
Observations	45

ANOVA					
	df	***SS***	***MS***	***F***	***Significance F***
Regression	1	1.730675	1.730675	165.2378	2.52E-16
Residual	43	0.450375	0.010474		
Total	44	2.18105			

	Coefficients	**Standard Error**	**t Stat**	**P-value**	**Lower 95%**	**Upper 95%**	**Lower 95.0%**	**Upper 95.0%**
Intercept (b)	-0.20789	0.064674	-3.21438	0.002481	-0.33831	-0.07746	-0.33831	-0.07746
Innv. INDEX (a)	0.018934	0.001473	12.85449	2.52E-16	0.015963	0.021904	0.015963	0.021904

	y= ax+b	
Model	Y = 0.018934x – 0.20789	**y = 0.0189 (Innovation Index)x – 0.20789 (intercept)**
	R^2 = 0.7965	

The results show that Innovation at a level of 79.65% has the explanation of indication of the Creativity factor (Ceko, 2021).
Relations between the Innovation index and the Creativity index are strong (r = 0.890789).

Regression equation y = 0.018934x – 0.20789

R^2 coefficient = 0.7965

Correlation coefficient "r" = 0.890789.

Hypothesis:

H01 – There is no relationship between innovation and creativity. – the model is not good, with the security level α=0.05.

H11 – There is a strong relation between innovation and creativity. – the model is good.

By ANOVA $F_{llog} > F_{crit,}$ F Significance F (probability getting these results) < α= 0,05.

 ISSN: 1857-7881 (Print) e - ISSN 1857-7431

H0 is not valuable, H1 has been verified (Ceko, 2021), with a significance level of 0.05 or a level of reliability = 95 %.

Coefficients are the values of the correlation coefficient.

Relations between innovation and ISO 9001:2015 (34 European counties)

No	Country	Innovation INDEX (x)	ISO 9001 Certificates % of Total No Businesses (y) (Ceko, 2022)
1	United Kingdom	59.78	0.019
2	Netherlands	58.76	0.0155
3	Finland	57.02	0.009
4	Germany	56.55	0.019
5	France	53.66	0.015
6	Ireland	53.05	0.016
7	Austria	50.13	0.0146
8	Norway	49.29	0.0066
9	Czech Republic	48.34	0.016
10	Estonia	48.28	0.0123
11	Italy	45.74	0.002
12	Cyprus	45.67	0.004
13	Spain	45.6	0.009
14	Portugal	43.51	0.0139
15	Slovenia	42.91	0.012
16	Hungary	41.53	0.0055
17	Latvia	41.11	0.013
18	Poland	39.95	0.0066
19	Slovakia	39.7	0.0084
20	Lithuania	39.18	0.0061
21	Croatia	37.27	0.013
22	Greece	36.79	0.008
23	Ukraine	36.32	0.001
24	Montenegro	35.39	0.007
25	Turkey	34.9	0.006
26	Serbia	34.33	0.005
27	North Macedonia	33.43	0.0069
28	Republic of Moldova	32.98	0.002
29	Armenia	32.64	0.0005
30	Georgia	31.78	0.00025
31	Belarus	31.27	0.0007
32	Kazakhstan	28.56	0.008
33	Albania	27.12	0.0008
34	Kyrgyzstan	24.51	0.00001

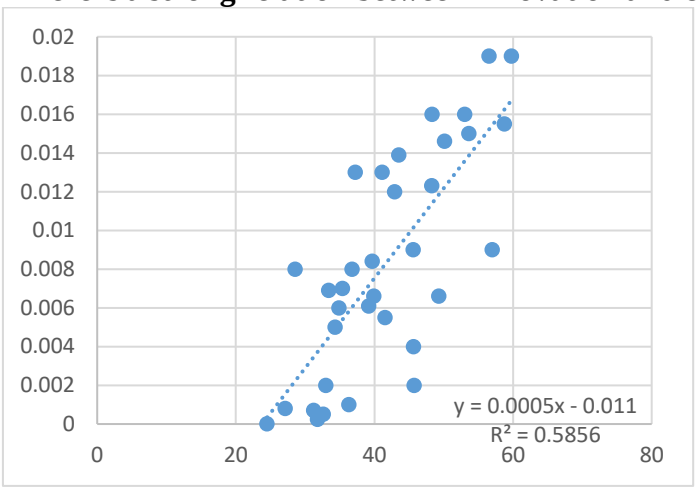
Table 3. Innovation index (GIIR. 2020) and ISO 9001: 2015 index in European countries

 ISSN: 1857-7881 (Print) e - ISSN 1857-7431

Relations between innovation and quality management (RQ2).

H02 – There is no relationship between innovation and creativity.

H12 – There is a strong relation between innovation and creativity.



Graphic 2. Regression line Innovation & ISO 9001 : 2015

Regression Statistics	
Multiple R	0.76526
R Square	0.585623
Adjusted R Square	0.572674
Standard Error	0.003754
Observations	34

ANOVA					
	Df	***SS***	***MS***	***F***	***Significance F***
Regression	1	0.000637	0.000637	45.22444	1.35E-07
Residual	32	0.000451	1.41E-05		
Total	33	0.001088			

	Coefficients	***Standard Error***	***t Stat***	***P-value***	***Lower 95%***	***Upper 95%***	***Lower 95.0%***	***Upper 95.0%***
Intercept (b)	-0.01104	0.00295	-3.74416	0.000714	-0.01705	-0.00504	-0.01705	-0.00504
Innov INDEX (a)	0.000464	6.91E-05	6.724912	1.35E-07	0.000324	0.000605	0.000324	0.000605

	y= ax+b	
Model	Y = 0.000464x – 0.01104	**y = 0.000464 (Innovation Index)x – 0.01104 (intercept)**
	R^2 = 0.585623	

 ISSN: 1857-7881 (Print) e - ISSN 1857-7431

At ISO 58.0% can be explained under the indication of the Innovation factor
The relation (Connection) between them is strong (r = 0.76526).
Regression equation y = 0.000464x – 0.01104
R^2 coefficient = 0.585623
Correlation coefficient "r" = 0.76526.
Hypothesis:

H02 – There is no relationship between innovation and quality management.
– the model is not good, with the security level α=0.05.

H12 – There is a strong relation between innovation and quality management.
– the model is good.

By ANOVA $F_{llog} > F_{crit}$ F Significance F (probability getting these results) < α= 0,05

H0 is not valuable and H1 has been verified (Ceko, 2021), with a significance level of 0.05 or a level of reliability = 95 %.

Coefficients are the values of the correlation coefficient.

Relations between creativity and ISO 9001:2015
(32 European countries)

No	Country	Creativity INDEX (x)	ISO 9001 Certificates % of Total No Businesses (y) (Ceko, 2022)
1	United Kingdom	0.881	0.019
2	Netherlands	0.889	0.0155
3	Germany	0.837	0.019
4	France	0.822	0.015
5	Ireland	0.845	0.016
6	Luxembourg	0.696	0.0045
7	Austria	0.788	0.0146
8	Czech Republic	0.609	0.016
9	Estonia	0.625	0.0123
10	Cyprus	0.446	0.004
11	Spain	0.811	0.009
12	Portugal	0.71	0.0139
13	Slovenia	0.822	0.012
14	Hungary	0.673	0.0055
15	Latvia	0.563	0.013
16	Poland	0.516	0.0066
17	Slovakia	0.484	0.0084
18	Lithuania	0.49	0.0061
19	Croatia	0.481	0.013
20	Greece	0.484	0.008
21	Ukraine	0.518	0.001
22	Russian Federation	0.579	0.00066
23	Montenegro	0.516	0.007
24	Turkey	0.348	0.006

 ISSN: 1857-7881 (Print) e - ISSN 1857-7431

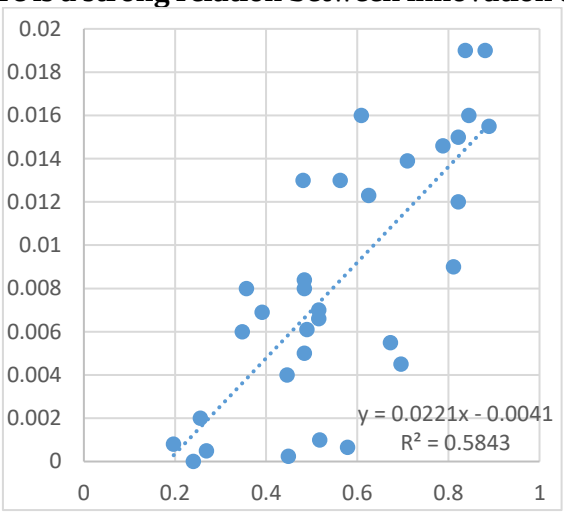
25	Serbia	0.484	0.005
26	Rep. North Macedonia	0.391	0.0069
27	Moldova	0.256	0.002
28	Armenia	0.269	0.0005
29	Georgia	0.449	0.00025
30	Kazakhstan	0.357	0.008
31	Albania	0.197	0.0008
32	Kyrgyzstan	0.24	0.00001

Table 4. Creativity index (GIIR. 2020) and ISO 9001: 2015 index in European countries

Relations between creativity and quality management (RQ3).

H03 – There is no relationship between innovation and creativity.

H13 – There is a strong relation between innovation and creativity.



Graphic 3. Regression line Creativity & ISO 9001: 2015

Regression Statistics	
Multiple R	0.764424
R Square	0.584345
Adjusted R Square	0.57049
Standard Error	0.003832
Observations	32

ANOVA					
	df	***SS***	***MS***	***F***	***Significance F***
Regression	1	0.000619	0.000619	42.17519	3.53E-07
Residual	30	0.00044	1.47E-05		
Total	31	0.00106			

 ISSN: 1857-7881 (Print) e - ISSN 1857-7431

	Coefficients	*Standard Error*	*t Stat*	*P-value*	*Lower 95%*	*Upper 95%*	*Lower 95.0%*	*Upper 95.0%*
Intercept (b)	-0.00407	0.002039	-1.99425	0.055282	-0.00823	9.79E-05	-0.00823	9.79E-05
Creativity INDEX (a)	0.022108	0.003404	6.494243	3.53E-07	0.015156	0.029061	0.015156	0.029061

	y= ax+b	
Model	Y = 0.022108x – 0.00407	**y = 0.022108 (Creativity Index)x – 0.00407 (intercept)**
	R^2 = 0.5843	

ISO 58.0% under Creativity factor indication

The relation is strong (r = 0.764424).

Hypothesis:

H03 – There is no relationship between creativity and quality management.

– the model is not good, with the security level α=0.05.

H13 – There is a strong relation between creativity and quality management.

– the model is good.

By ANOVA $F_{llog} > F_{crit}$ F Significance F (probability getting these results) < α= 0,05

H0 is not valuable and H1 has been verified (Ceko, 2021), with a significance level of 0.05 or a level of reliability = 95 %.

Coefficients are the values of the correlation coefficient.

3.4 Summary output

This research produced three main results and provided insight into the strong connection between creativity and innovation, and vice versa (Ceko, 2021), quality management and creativity, and vice versa, and between quality management and innovation, and vice averse, not only in theoretical aspects but what is more important this research produced for the very first time the statistical results through regression analysis for connections which exist between innovation and creativity, innovation and quality management and between creativity and quality management.

This research uses an ISO 9001 index, which lists countries based on the index derived by dividing the number of ISO 9001 certificate issues in a country by the number of existing business entities in this country in the same period (Ceko, 2022).

 ISSN: 1857-7881 (Print) e - ISSN 1857-7431

3.5 Research's context

The traditional view of factors of production where labor, land, and capital have been treated as the most important factors almost is over. As well as discusses only entrepreneurship, as the fourth factor of production is not fashion anymore. Economic crises, natural disasters, and pandemic situations, especially the last one, caused by COVID – 19 have shown day by day the importance of creativity, innovation, and quality management culture as a combination that can bring competitive advantage in a shaking world. The fact that countries where innovation, creativity, and quality management principles are part of daily activities of public and private entities, are more competitive than others doesn't need any comment and/or interpretation.

Specifically, while acknowledging the importance of innovation, creativity, and quality management in doing business (Ceko, 2021) and the ecosystem of entrepreneurship, prior research, which mainly has been empirical, does not explain how creativity and innovation influence and connect to quality management.

Besides, several serious theoretical studies showing the strong connection between innovation and creativity, prior empirical studies have shown a lack of numerical, statistical, and algebraic studies on the topic and a missing of studies on connections between quality management and innovation (and vice versa), and connections between quality management and creativity (and vice a versa) (Ceko, 2021) in terms of theoretical approach and terms of numerical, statistical and algebraic studies.

3.6 Discussion

The framework of the research has been the level of creativity, innovation, and ISO 9001: 2015 standard certificates issued in the European entrepreneurship ecosystem.

Based on a regressive analysis of relations between innovation and creativity, innovation and ISO 9001 standards, and between creativity and ISO 9001 standards (Ceko, 2021), the main results are that there is a strong connection between innovation and creativity, between innovation and ISO 9001 standards, and between creativity and ISO 9001 standards too.

Considerations for practice and theory

About the theory, as per the final results regarding this research, a new window has been opened for further research in the field of relations between economic indicators, indexes, subjects, and quality management issues like ISO standards, etc., which is still an unknown area.

In terms of practice, the research shows the importance of considering innovation, creativity, and quality management as a triangle that leads to a

 ISSN: 1857-7881 (Print) e - ISSN 1857-7431

stronger competitive advantage approach for individual businesses and a country's economy too.

3.7 Limitations and avenues for further research

This paper attempts to highlight ongoing concerns in understanding the relations between creativity, innovation, and quality management, and the availability to address such concerns. At the present time, there is sufficient information available to provide some definitive answers to questions of these relations, while questions of processes that facilitate these relations are the subject of further investigation, which is a window this paper's research opens for other academics and practitioners of these fields since now we are much closer to being able to design studies that will provide better answers to such questions.

This research, as the very first of this type for relations between creativity, innovation and quality management, has been undertaken using plenty of data about innovation and creativity for 2020, as well as plenty of data for ISO 9001 certificates issued per country while lacking data reliable on several registered business entities in European countries, which doesn't permit performing regression analysis for all European countries for relations between innovation and ISO 9001 standard and between creativity and ISO standard too, for some time and not just for one year.

Further studies are required to examine whether these links persist (Conn, Szilagyi, Alpert-Gillis, Webster-Stratton, Manly, Goldstein, 2018) for other non-European countries/regions for the same period (2020).

Further studies are required to examine whether these links persist (Conn, Szilagyi, Alpert-Gillis, Webster-Stratton, Manly, Goldstein, Jee, 2018) for some time probably every five years based on index publications as well as further research is needed to clarify relations between innovation, creativity, and quality management with other economic indicators and other subjects too.

From the creativity perspective, combined studies involving psychological approaches can be initiated.

From the innovation perspective, combined studies with the quality and quantity of investments can be initiated.

From the quality management perspective, combined studies for sectors affected more from relations between creativity, innovation and quality management can be initiated.

I can argue that future research should:

1. Imbed within the design appropriate questions of processes and collect data that would illustrate links between creativity, innovation and quality management worldwide.

 ISSN: 1857-7881 (Print) e - ISSN 1857-7431

2. Data from correlational studies should be specific enough to provide clues to actual organizational aspects of business, human resources, strategic management, organizational behavior, supply chain management, marketing strategies, digital economy, etc., areas, that are clearly requiring a total eclipse of needed changes.
3. Conceptualize potential interactions among variables that may be particularly relevant to the issues under study, keeping in mind, researchers need not consider every possible interaction but rather target data collection efforts to test explicitly defined interactions (AIN, 1995).

Conclusion and recommendation

1. This research produced three main results and provided an overview of the strong link between innovation and creativity, between creativity and quality management, and between innovation and quality management, not only in theoretical terms, but what is most important that this research produced for the first time the time of statistical results through a regression analysis of the links that exist between innovation and creativity, innovation and quality management, and between creativity and quality management.
2. Based on regression analysis on the relationship between innovation and creativity, innovation and the ISO 9001 standard, and between creativity and the ISO 9001 standard, the main results are that there is a strong link between innovation and creativity, between innovation and the ISO 9001 standard, and between the creativity. and ISO 9001 standards as well.
3. This research uses an ISO 9001 index, which ranks countries based on the index derived by dividing the number of ISO 9001 certification issues in a country by the number of existing business entities in that country in the same period (Ceko. 2022).
4. The strong links between innovation and creativity, statistically proven, between creativity and certification with ISO 9001, statistically proven, and between innovation and certification with ISO 9001, statistically proven, shows that to achieve competitive and comparative advantage, promoting and investing in creativity, innovation, and quality management, as a nonfixed factor, is required, in parallel with the effective and efficient use of other factors of production (labor, land, and capital) which are limited and fixed.
5. In Europe the link between innovation, creativity, and quality management culture is strong and this refers mostly to the culture of entrepreneurship and doing business as a response to the crisis and the post-crisis period.

 ISSN: 1857-7881 (Print) e - ISSN 1857-7431

6. Although some researchers think that the world is heading towards poverty because natural resources are immutable (fixed), this research argues that natural resources do not pose any constraints regarding economic growth.
7. There are two ways to alleviate resource constraints to increase productivity: first by increasing productivity to help overcome the constraints of fixed factors of production, for example by steadily increasing revenue, and second, by using innovation to overcome the issue of limited resources.
8. There is a tendency to innovate to save on fixed and limited resources. It follows that if we make technological advancements to save fixed and limited factors of production, then, these factors may not constitute an obstacle to growth and development. So, the same argument and logic can be applied to creativity and quality management, as both are not fixed resources and are strongly related to innovation.
9. The whole world history related to the factors of production is related to the cycles of the utilization of these factors. One cycle is the use of land, labor, and capital (fixed factors of production) and another cycle is the exploitation of innovation and entrepreneurial skills (non-fixed factors of production). In certain periods of economic development, the cycle of factors of production that are fixed and/or limited (capital, labor, and land) prevails, and in certain moments of development, the cycle of non-fixed factors of production (innovation and entrepreneurial skills) prevails).

Gratitude and thanksgiving

Along the way, for the realization of this paper research, part of my post-doctoral studies, I have had the full and unconditional support of Prof. Assoc. Dr. Almudena Guarnido Rueda (Almeria University, Ph.D. Brian W. Sloboda (University of Maryland) and Prof. Assoc. Dr. Ignacio Amate Fortes (Almeria University), who with dedication and professionalism have helped me to realize a very special study, for which I thank them a lot.

Along the way of the realization of this paper's research, part of post-doctoral studies, and completing post-doctoral studies, I have had the full and unconditional support of the European Scientific Institute and La Laguna University, San Cristobal, Tenerife. Spain.

References:

1. A World Bank Group Flagship Report. 2016. Doing Business 2016: Measuring Regulatory Quality and Efficiency. Washington, DC: International Bank for Reconstruction and Development/ World Bank.

 ISSN: 1857-7881 (Print) e - ISSN 1857-7431

2. A World Bank Group Flagship Report. 2017. Doing Business 2017: Equal Opportunity for All. Washington, DC: International Bank for Reconstruction and Development/ World Bank.
3. A World Bank Group Flagship Report. 2018. Doing Business 2018: Reforming to Create Jobs. Washington, DC: International Bank for Reconstruction and Development/ World Bank.
4. A World Bank Group Flagship Report. 2019. Doing Business 2019: Training for Reform. Washington, DC: International Bank for Reconstruction and Development/ World Bank.
5. Agata Ewa Wróbel, Philip Cash, Carina Lomberg. 2020. Pro-active neutrality: The key to understanding creative facilitation. Creativity and Innovation Management. Volume29, Issue3. September 2020. Pages 424-437. https://doi.org/10.1111/caim.12372. https://onlinelibrary.wiley.com/doi/10.1111/caim.12372
6. Bhasin, Kim. 2 April 2012. "This Is The Difference Between 'Invention' And 'Innovation'". Business Insider.
7. Ceko, E. 2016. On Relationship Between Quality Management and Life Quality, European Journal of Economics and Management Sciences, Nr 2, 2016
8. Ceko, E. 2013. Quality Management Tools. Planetary University Press. 2014
9. Ceko, E. 2011. Total Quality Management and Competitive Advantage of Albanian Firms, Journal of Institute Alb-Shkenca 4(3): 423–429.
10. Ceko, E. 2017. Total Quality Management. Wisdom University Press. 2017.
11. Ceko, E. 2021. On relations between creativity and quality management culture. Creativity Studies, 14(1), 251-270. https://doi.org/10.3846/cs.2021.12154. https://journals.vilniustech.lt/index.php/CS/article/view/12154. file:///C:/Users/Admin/Downloads/12154-Article%20Text-53104-7-10-20210617%20(2).pdf.
12. Ceko. E. 2022. On Relations between Innovation, Creativity and Quality Management. 10th Mediterranean International Conference. University San Cristobal de La Laguna. Tenerife. Spain. 10th May 2022.
13. Ceko, E. (2022). A new approach to evaluate the index of ISO 9001. *SocioEconomic Challenges*, *6*(3), 5-22. https://doi.org/10.21272/sec.6(3).5-22.2022
14. Creativity Index. 2020. Marten Prosperity Institute, University of Toronto.

 ISSN: 1857-7881 (Print) e - ISSN 1857-7431

15. Edgar H. Schein. 2013, 2020 Organizational Culture and Leadership. San Francisco: Jossey-Bass Publishers.
16. EUA - European University Association. 2002 – 2006. Quality Culture in European Universities: A Bottom-Up Approach. Report on the Three Rounds of the Quality Culture Project. ISBN: 9-0810-6983-7
17. Florida, R. 2002. Rise of Creative Class. New York: Basic Books.
18. Global Innovation Report. 2020. Preface vii. World Intellectual Property Organization, 13th Edition. https://www.wipo.int/edocs/pubdocs/en/wipo_pub_gii_2020.pdf.
19. Gordon, G.; Owen, C. 2008. SHEEC on Management of Quality: Cultures of Enhancement and Quality Management Systems and Structures [online], [cited 31 January 2020]. Available from the Internet: http://www.enhancement music.UK/docs/report/ - management-of-quality-cultures-of-quality-enhancement. pdf?sfvrsn=12
20. Harrington, H. J.; Mathers, D. D. 1997. ISO 9000 and Beyond: From Compliance to Performance Improvement. New York: McGraw-Hill.
21. Harvey, L.; Green, D. 1993. Defining Quality, Assessment and Evaluation in Higher Education 18(1): 9–34.
22. Harvey, L.; Stensaker, B. 2008. Quality Culture: Understandings, Boundaries, and Linkages, European Journal of Education: Research, Development, and Policy 43(4): 427–442.
23. Henderson, Rebecca M.; Clark, Kim B. March 1990. "Architectural Innovation: The Reconfiguration of Existing Product Technologies and the Failure of Established Firms". Administrative Science Quarterly. 35 (1): 9. doi:10.2307/2393549. ISSN 0001-8392. JSTOR 2393549.
24. Herrera-Usagre, M. 2019. Cultural Practice, Creativity, and Innovation. In: Bericat, E., Jiménez-Rodrigo, M. (eds) The Quality of European Societies . Social Indicators Research Series, vol 75. Springer, Cham. https://doi.org/10.1007/978-3-030-05023-8_6
25. ISO. 2019. ISO [online], [cited 31 January, (2020)]. Available from the Internet: https://www.iso.org/home.html
26. "ISO 56000:2020 (en). 2020. Innovation management — Fundamentals and vocabulary". International Organization of Standards.
27. Jacob Morgan. 10th September 2015. "What's the Difference Between Invention and Innovation?", Forbes
28. Jason Fernando, Janet Berry-Johnson. Factors Of Production. Feb 18, 2021, & JASON FERNANDO. November 05, 2021. Factors of production. The evolution of accounting and accounting terminology. https://www.investopedia.com/terms/f/factors-production.asp

 ISSN: 1857-7881 (Print) e - ISSN 1857-7431

29. Jill Perry-Smith and Pier Vittorio Mannucci. 2015. Social Networks, Creativity, and Entrepreneurship(2015) The Oxford Handbook of Creativity, Innovation, and Entrepreneurship, Oxford University Press, ISBN 978–0–19–992767–8
30. Joan Robinson. 1953. The Production Function and the Theory of Capital. The Review of Economic Studies, Volume 21, Issue 2, 1953, Pages 81–106, https://doi.org/10.2307/2296002. https://academic.oup.com/restud/article-abstract/21/2/81/1555416?redirectedFrom=fulltext. https://www.scribd.com/document/87188046/Joan-Robinson-the-Production-Function-and-the-Theory-of-Capital
31. John Houghton, Peter Shehan. 2000. A primer on the knowledge economy, Centre for Strategic Economic Studies, Victoria University. http://docplayer.net/50330830-A-primer-on-the-knowledge-economy.html
32. Kris Byron and Shalini Khazanchi. 2015 Rewards' Relationship to Creativity, Innovation, and Entrepreneurship at The Oxford Handbook of Creativity, Innovation, and Entrepreneurship. 2015. The Oxford Handbook of Creativity, Innovation, and Entrepreneurship, Oxford University Press, ISBN 978–0–19–992767–8
33. Leal, S.; Urrea, J. 2013. Ingenio y Pasión. Barcelona: Lid Publishers, Inc.
34. Lucy L. Gilson, Hyoun Sook Lim, Robert C. Litchfield, and Paul W. Gilson. 2015. Entrepreneurial Creativity: The Role of Learning Creativity in Teams: A Key Building Block for Innovation and Entrepreneurship. 2015. The Oxford Handbook of Creativity, Innovation, and Entrepreneurship, Oxford University Press, ISBN 978–0–19–992767–8
35. Leydesdorff, Loet. 2012. The Triple Helix of University-Industry-Government Relations. The University of Amsterdam. The Netherlands. http://www.leydesdorff.net/th12/th12.pdf
36. Malthus, Thomas. 1798. Essay on the Principle of Population. Oxford: Oxford University Press (1993 printing).
37. Maria Manuela Cruz-Cunha, Isabel Maria Miranda, Patricia Gonçalves. April 2013. Handbook of Research on ICTs for Human-Centered Healthcare and Social Care Services (2 Volumes). Pages: 978. DOI: 10.4018/978-1-4666-3986-7. ISBN13: 9781466639867|ISBN10: 1466639865|EISBN13: 9781466639874. https://www.igi-global.com/book/handbook-research-icts-human-centered/72373#table-of-contents
38. Meusburger, P.; Funke, J.; Wunder, E. 2006. Milieus of Creativity: An Interdisciplinary Approach to Spatiality of Creativity. Series:

 ISSN: 1857-7881 (Print) e - ISSN 1857-7431

Knowledge and Space. Meusburger, P. (Series Ed.). Vol. 2. Berlin: Springer Science + Business Media B. V., 97–154.
39. Mumford, M. D. 2003. Where Have We Been, Where Are We Going? Taking Stock in Creativity Research, Creativity Research Journal 15(2–3): 107–120.
40. Nadim Ahmad and Richard G. Seymour. 2006. Defining entrepreneurial activity, OECD Report
41. Neena Sinha. 2009. "Unleash the power of creativity and innovation", International Journal of Sustainable Strategic Management.
42. Nickerson, R. S. Developing intelligence through instruction.
43. OECD. 1996. The Knowledge-Based Economy, OECD Paris. https://www.oecd.org/officialdocuments/publicdisplaydocumentpdf/?cote=OCDE/GD%2896%29102&docLanguage=En
44. OECD. 2005. Oslo Manual: Guidelines for Collecting and Interpreting Innovation Data, OECD Publishing, ISBN 92-64-01308-3, Paris, France
45. Peter Fisk. 2019. https://www.peterfisk.com/2019/12/mega-trends-with-mega-impacts-embracing-the-forces-of-change-to-seize-the-best-future-opportunities/. https://thegeniusworks.com/2019/12/mega-trends-with-mega-impacts-embracing-the-forces-of-change-to-seize-the-best-future-opportunities/.
46. Peter Drucker. 1985. Innovation and Entrepreneurship: Practice and Principles. New York, USA: Harper Business.
47. Peter Drucker. August 2002. "The Discipline of Innovation". Harvard Business Review. https://en.wikipedia.org/wiki/Innovation#cite_note-1
48. Pink, D. H. 2006. A Whole New Mind: Why Right-Brainers Will Rule Future. New York: Riverhead Books.
49. Robbins, Stephen P. 1999. Organizational Behavior 12th. New York: Prentice Hall.
50. Siltala, R. 2010. Innovatiivisuus ja yhteistoiminnallinen oppiminen liike-elämässä ja opetuksessa. Turku: Turun Yliopisto.
51. Sarasvathy, S., N. Dew, S. R. Velamuri and S. Venkataraman. 2003. Three views of entrepreneurial opportunity. In Handbook of entrepreneurship research: an interdisciplinary survey and introduction, ed. Z. Acs and D. Audretsch, 141–160. New York: Springer.
52. Shane, S. 2003. A General Theory of Entrepreneurship. The Individual–Opportunity Nexus. Cheltenham, UK: Edward Elgar.
53. Schumpeter, Joseph A. 1939. Business Cycles. 1. p. 84. Innovation is possible without anything we should identify as an invention, and the

 ISSN: 1857-7881 (Print) e - ISSN 1857-7431

invention does not necessarily induce innovation. https://en.wikipedia.org/wiki/Innovation

54. Schumpeter, Joseph A. 1983. The theory of economic development: an inquiry into profits, capital, credit, interest, and the business cycle. Opie, Redvers, Elliott, John E. New Brunswick, New Jersey. ISBN 0-87855-698-2. OCLC 8493721. https://en.wikipedia.org/wiki/Innovation#cite_note-1
55. Shung Jae Shin. 2015. Leadership and Creativity: The Mechanism Perspective. (2015) The Oxford Handbook of Creativity, Innovation, and Entrepreneurship, Oxford University Press, ISBN 978–0–19–992767–8
56. Christina Ellen Shalley, Michael A. Hitt, Jing Zhou · 2015. The Oxford Handbook of Creativity, Innovation, and Entrepreneurship, Oxford University Press, ISBN 978–0–19–992767–8
57. Sternberg, R. J.; Sternberg, K.; Mio, J. 2012. Cognitive Psychology. Wadsworth: Cengage Learning.
58. Teresa M. Amabile, Conti, R., Coon, H., Lazenby, J., & Herron, M. 1996. Assessing the work environment for creativity. Academy of Management Journal, 39, 1154– 1184. https://doi.org/10.5465/256995
59. Teresa M. Amabile. 1998. "How to kill creativity". Harvard Business Review
60. Teresa M. Amabile, Pratt, M. G. 2016. Dynamic Componential Model of Creativity and Innovation in Organizations: Making Progress, Making Meaning, Research in Organizational Behavior 36: 157–183.
61. Tjakraatmadja, Jann Hidajat; Wicaksono, Agung; and Martini, Lenny. 2011. Institut Teknologi Bandung (ITB) is a Potential Knowledge Hub to Create Value from Academia, Business, and Government Linkages. Beyond The Knowledge Trap. World Scientific Publishing.
62. Tjakraatmadja, Jann Hidajat, Achmad Fajar Hendarman. 2012. Relationship among Soft Skills, Hard Skills, and Innovativeness of Knowledge Workers in the Knowledge Economy Era. 10th Triple Helix Conference 2012. Procedia - Social and Behavioral Sciences 52 (2012) 35 – 44. 1877-0428.https://moam.info/relationship-among-soft-skills-hard-skills-and-59cecf501723dd7cffa40067.html
63. Torrance, Paul. 2008. "Verbal Tests. Forms A and B-Figural Tests, Forms A and B.". The Torrance Tests of Creative Thinking-Norms-Technical Manual Research Edition. Princeton, New Jersey: Personnel Press. p. 6.
64. Utterback, James. 1971. "The Process of Technological Innovation Within the Firm". Academy of Management Journal. 14(1): 78 – via Jstor. https://en.wikipedia.org/wiki/Innovation#cite_note-1

 ISSN: 1857-7881 (Print) e - ISSN 1857-7431

65. Vlãsceanu, L.; Grünberg, L.; Pârlea, D. 2007. Quality Assurance and Accreditation: A Glossary of Basic Terms and Definitions. Seto, M.; Wells, P. J. (Eds.). Bucharest: UNESCO-CEPES.
66. Wróbel, A. E. 2019. Creative Facilitation in Innovation Management: Facilitator's Role in Shaping Team Processes. The Technical University of Denmark.
67. Xiaomeng Zhang and Kathryn M. Bartol. 2015. Empowerment and Employee Creativity: A Cross-Level Integrative Model, The Oxford Handbook of Creativity, Innovation, and Entrepreneurship, Oxford University Press, ISBN 978–0–19–992767–8
68. The Relationship Between Undernutrition and Behavioral Development in Children. 1995. J. Nutr. 125: 2211S-2284S, 1995. Copyright (c) 1995 by the American Institute of Nutrition.
69. Agius, C., & Devine, K. 2011. "Neutrality: A dead concept?" A reprise. Cooperation and Conflict, 46, 265– 284. https://doi.org/10.1177/0010836711416955
70. Ahmed Mohammed, Norfarah Nordin. 2020. A Theoretical Evidence: The Mediating Role Of Creativity On The Relationship Between Knowledge Management And Entrepreneurial Orientation Toward Innovation Performance In The Jordanian SMEs. International Journal of Scientific & Technology Research. ISSN 2277-8616. Volume 9 - Issue 3, March 2020 Edition. https://ijstr.org/paper-references.php?ref=IJSTR-0320-31580
71. Anne-Marie Conn, Moira A. Szilagyi, Linda Alpert-Gillis, Carolyn Webster-Stratton, Jody Todd Manly, Nicolas Goldstein, Sandra H. Jee. 2018. Pilot randomized controlled trial of foster parent training: A mixed-methods evaluation of parent and child outcomes. Children and Youth Services Review. Volume 89, June 2018, Pages 188-197. https://doi.org/10.1016/j.childyouth.2018.04.035. https://www.sciencedirect.com/science/article/abs/pii/S0190740917307429?via%3Dihub
72. Annika Martens, Annette Kleinfeld. 2020. "Chapter 69-1 Bribery", Springer Science and Business Media LLC, 2020.
73. Appelbaum, S. H., & Steed, A. J. 2005. The critical success factors in the client-consulting relationship. Journal of Management Development, 24, 68– 93. https://doi.org/10.1108/02621710510572362
74. Astor, H. (2007). Mediator neutrality: Making sense of theory and practice. Social & Legal Studies, 16, 221– 239. https://doi.org/10.1177/0964663907076531
75. Averill, J. R. 1999. Individual Differences in Emotional Creativity: Structure and Correlates, Journal of Personality 67(2): 331–371.

 ISSN: 1857-7881 (Print) e - ISSN 1857-7431

76. Azadegan, A., & Kolfschoten, G. 2014. An assessment framework for practicing facilitators. Group Decision and Negotiation, 23, 1013– 1045. https://doi.org/10.1007/s10726-012-9332-4
77. Barczak, G., Lassk, F., & Mulki, J. 2010. Antecedents of team creativity: An examination of team emotional intelligence, team trust, and collaborative culture. Creativity and Innovation Management, 19, 332– 345. https://doi.org/10.1111/j.1467-8691.2010.00574.x
78. Bens, I. 2012. Facilitating with ease! Core skills for facilitators, team leaders, members, managers, consultants, and trainers. New York: John Wiley & Sons.
79. Berman, E. M., & Kim, C.-G. 2010. Creativity management in public organizations. Public Performance & Management Review, 33, 619– 652. https://doi.org/10.2753/pmr1530-9576330405
80. Bernard, S. E., Folger, J. P., Weingarten, H. R., & Zumeta, Z. R. 1984. The neutral mediator: Value dilemmas in divorce mediation. Conflict Resolution Quarterly, 1984(4), 61– 74. https://doi.org/10.1002/crq.39019840406
81. Berry, M. 1993. Changing perspectives on facilitation skills development. Journal of European Industrial Training, 17(3), 23. https://doi.org/10.1108/03090599310026355
82. Braun, V., & Clarke, V. 2006. Using thematic analysis in psychology. Qualitative Research in Psychology, 3(2), 77– 101. https://doi.org/10.1191/1478088706qp063oa
83. Christine Greenhalgh and Mark Rogers. 2010. Innovation, Intellectual Property, and Economic Growth. Published by Princeton University Press. 41 William Street, Princeton, New Jersey 08540ISBN 978-0-691-13798-8. https://doi.org/10.1515/9781400832231. https://www.jstor.org/stable/j.ctt1zgwjjb. https://www.degruyter.com/document/doi/10.1515/9781400832231/html
84. Cydney Spohn. 2008. Teacher Perspectives on No Child Left Behind and Arts Education: A Case Study. Arts Education Policy Review Volume 109, 2008 - Issue 4. Pages 3-12 | Published online: 07 Aug 2010. https://doi.org/10.3200/AEPR.109.4.3-12. https://www.tandfonline.com/doi/abs/10.3200/AEPR.109.4.3-12
85. Doloreux, D. 2004. Regional Networks of Small and Medium Sized Enterprises: Evidence from the Metropolitan Area of Ottawa in Canada. European Planning Studies, Vol. 12, No. 2, 173-189, ISSN 0965-4313

 ISSN: 1857-7881 (Print) e - ISSN 1857-7431

86. Engelberger, J. F. 1982. "Robotics in practice: Future capabilities". Electronic Servicing & Technology magazine.
87. Ernst, H. 2001. Patent applications and subsequent changes of performance: evidence from time-series cross-section analyses on the firm level. Research Policy, Vol 30, No. 1, 143-157, ISSN 0048-7333
88. Gerard O'Regan. 2002. "A Practical Approach to Software Quality", Springer Science and Business Media LLC.
89. Hicks, John R. 1932. The Theory of Wages. London: Macmillan.
90. Himanshu Gupta, Mukesh Kumar Barua. 2018. Modeling cause and effect relationship among enablers of innovation in SMEs. Benchmarking: An International Journal. ISSN: 1463-5771. https://www.emerald.com/insight/content/doi/10.1108/BIJ-03-2017-0050/full/html
91. Hjorth, D. 2004. Creating Space for Play/Invention – Concepts of Space and Organizational Entrepreneurship. Entrepreneurship and Regional Development, 16(5), 413–432.
92. Hoegl, M.; Gibbert, M.; Mazursky, D. 2008. Financial Constraints in Innovation Projects: When Is Less More?, Research Policy 37(8): 1382–139.
93. James Williams. 2009. "Editorial", Quality in Higher Education.
94. Jinwoo Kim Jooeun Lee Dongseong Choi. 2003. Designing emotionally evocative homepages: an empirical study of the quantitative relations between design factors and emotional dimensions. International Journal of Human-Computer Studies. Volume 59, Issue 6, December 2003, Pages 899-940. https://doi.org/10.1016/j.ijhcs.2003.06.002. https://www.sciencedirect.com/science/article/abs/pii/S1071581903001320?via%3Dihub
95. Jong, J. P. J. 2007. Individual innovation: the connection between leadership and employees' innovative work behavior. I'M. The University of Amsterdam. UvA-DARE (Digital Academic Repository). ISBN 978-90-371-0725-8 https://pure.uva.nl/ws/files/4343764/52860_Jong_jeroen_de_Ind_innovation_JJO_cropped.pdf
96. Joshua Wilde. How Substitutable are Fixed Factors in Production? Evidence from Pre-Industrial England. MPRA Paper from University Library of Munich, Germany Ludwigstraße 33, D-80539 Munich, Germany. May 21, 2017
97. Kiran, D. R. 2017. Total Quality Management: Key Concepts and Case Studies. Amsterdam: Elsevier Inc.

 ISSN: 1857-7881 (Print) e - ISSN 1857-7431

98. Julie A. Caswell, Mary E. Bredahl, Neal H. Hooker. (1998) "How Quality Management Metasystems Are Affecting the Food Industry", Applied Economic Perspectives and Policy.
99. Lijster, Thijs, ed. 2018. The Future of the New: Artistic Innovation in Times of Social Acceleration. Arts in society. Valiz. ISBN 9789492095589. Retrieved 10 September 2020.
100. Loo, S. 2017. Creative Working in Knowledge Economy. Series: Routledge Advances in Organizational Learning and Knowledge Management. New York: Routledge.
101. Malinić Dejan, Milićević Vlade, Glišić Milan. 2015. Da li najbolja preduzeća u Srbiji kreiraju vrednost?Ekonomika preduzeća. 2015, vol. 63, br. 7-8, str. 337-353. ISSN: 0353-443X, e- ISSN: 2406-1239. http://scindeks.ceon.rs/Article.aspx?artid=0353-443X1508337M
102. Massimiliano Agovino, Fabio Corbisiero, 2020.Diversity Management Policies for the Inclusion of LGBT People into the Labour Market: The Case of Naples. Papers in Applied Geography. Volume 7, 2021 - Issue 1. Pages 50-66 | Published online: 01 Sep 2020. https://doi.org/10.1080/23754931.2020.1815236. https://www.tandfonline.com/doi/full/10.1080/23754931.2020.1815236
103. Michael Gibbert & Philip Scranton. 2009. Constraints as sources of radical innovation? Insights from jet propulsion development management 4(4):385-399 DOI: 10.1177/1744935909341781.
104. Michael Lewis, James Moultrie. 2005. The Organizational Innovation Laboratory. https://doi.org/10.1111/j.1467-8691.2005.00327.x
105. Neil Robert Anderson, Kristina Potočnik, Jing Zhou, 2014. Innovation and Creativity in Organizations: A State-of-the-Science Review, Prospective Commentary, and Guiding Framework. Journal of Management 40(5), DOI: 10.1177/0149206314527128
106. Paul Paulus. 2012. Collaborative Creativity—Group Creativity and Team Innovation DOI: 10.1016/B978-0-12-374714-3.00014-8 In book: Handbook of Organizational Creativity (pp.327-357)
107. Paul Romer. 2012. Economics.
108. Peri, C.; Lavelli, V.; Marjani, A. 2004. Qualità nelle aziende e nelle filiere agroalimentari: gestione e certificazione dei sistemi per la qualità, per la rintracciabilità e per l'igiene. Milano: Ulrico Hoepli Editore S.p.A.
109. Rina Rifqie Mariana, Laili Hidayati, Soenar Soekopitojo. 2018. Implementing the HACCP system to the production of Bakso Malang-

 ISSN: 1857-7881 (Print) e - ISSN 1857-7431

Indonesia. Volume 17, 2019 - Issue 4. Pages 291-312 | Received 11 Oct 2017, Accepted 30 Jan 2018, Published online: 22 Mar 2018. https://doi.org/10.1080/15428052.2018.1442760. https://www.tandfonline.com/doi/full/10.1080/15428052.2018.1442760

110. *Simonton, D. K. 1997.* Creative Productivity: A Predictive and Explanatory Model of Career Trajectories and Landmarks, *Psychological Review 104(1): 66–89.*
111. Stuart, T. 2000. Interorganizational alliances and the performance of firms: a study of growth and innovation rates in a high-technology industry. Strategic Management Journal, Vol. 21, No. 8, 791-811, ISSN 1097-0266
112. Sunil Sharma. 2018. Total Quality Management: Concepts, Strategy, and Implementation for Operational Excellence First Edition. ISBN-13: 978-9352805129. ISBN-10: 9352805127
113. T.R. Gopalakrishnan Nair, V. Suma, 2010. A paradigm for metric-based inspection process for enhancing defect management, ACM SIGSOFT Software Engineering Notes, Volume 35, Issue 3, May 2010. https://doi.org/10.1145/1764810.1764827 https://dl.acm.org/doi/10.1145/1764810.1764827
114. Thierry Burger-Helmchen. 2012. Entrepreneurship – Creativity and Innovative Business Models. InTech, Janeza Trdine 9, 51000 Rijeka, Croatia. ISBN 978-953-51-0069-0. https://www.scribd.com/document/179525591/ENTREPRENEURSHIP-CREATIVITY-AND-INNOVATIVE-BUSINESS-MODELS.
115. The World Bank Institute, 2005
116. Xiang-Qian Lin, You-Cheng Chen, Chih-Hsing Liu, Yong-Quan Li. 2022. Measuring creativity: role of service quality management, knowledge sharing, and social interaction. Total Quality Management & Business Excellence https://doi.org/10.1080/14783363.2021.2021800. https://www.tandfonline.com/doi/full/10.1080/14783363.2021.2021800