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Typology of Enterprises in the Creative Industries Sector Using Information and Communication Technologies

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Abstract:

Purpose: *The purpose of the analysis presented in the paper is to assess the level of use of information and communication technologies ICT (including AI) in SMEs in the creative sector, and more precisely to create an author's matrix that takes into account two variables: the level of creative solutions and creative attitude of the owners of the surveyed enterprises, and the level of use of ICT.*

Methodology: *The qualitative research described in the paper, was preceded by quantitative research (They are not the subject of this article) and was conducted in two stages. The first took place in 2019/2020 the second in 2023/2024. A total of 160 enterprises took part in the study – 120 in Poland, 40 in the UK. In addition, to deepen the analysis of the characteristics, skills of the owners of the surveyed enterprises, the Gallup Talent Test was also used. Despite the limitations inherent in the use of qualitative research, the results obtained made it possible to discover patterns and relationships between variables and provide a foundation for further research considerations.*

Findings: *The research described in the article made it possible to analysis was to assess the impact of the dimension of business activity based on innovative solutions and creative attitudes of the owners of the surveyed enterprises on the use of information and communication technologies. As a result, an original four-field matrix was created (see Figure 1). Type 1 'highly creative and highly technologically savvy', Type 2 'highly creative and moderately technologically savvy', Type 3 'efficient ICT implementer' and Type 4'moderate in the ICT and creativity dimension'. The typology presented in the paper allows a closer look at the relationship between the level of creative solutions and creative attitude of the owners of the surveyed enterprises and the level of use of ICT technologies.*

Future Research Directions: *The typology elucidated in the study highlights several areas ripe for further research. One critical avenue is the in-depth analysis of ICT impacts on the creative industries, requiring the development of methodologies that accurately measure both tangible and intangible effects across economic, cultural, and societal dimensions. Additionally, the user experience and human-computer interaction within creative processes warrant exploration to optimize interactions between individuals and ICT tools, focusing on usability, accessibility, and efficacy. The integration of emergent technologies such as artificial intelligence, virtual reality, and augmented reality into creative processes also presents a significant area for study. These technologies' effects on creativity, innovation,*

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and the production pipeline within the creative industries merit thorough investigation, particularly how they can foster cross-disciplinary collaborations and novel forms of creative expression.
Implications for Practitioners: *For practitioners within the creative industries, the strategic integration of ICT is essential for enhancing efficiency, fostering innovation, and expanding global market reach. Companies that effectively leverage ICT not only maintain a competitive edge but can also differentiate themselves in a volatile market. However, the choice to eschew ICT to preserve traditional manufacturing processes is also a strategic decision, underscoring the need to balance technological innovation with the preservation of traditional craftsmanship. Practically, companies must remain adaptable to technological shifts, consumer trends, and market dynamics. Implementing AI could transform operational efficiencies, enhance creativity, and better meet client needs, suggesting a strategic pivot towards adopting such advanced technologies. These insights should guide business strategy development and encourage continuous adaptation to thrive in the dynamic landscape of the creative industries.*

Keywords: *ICT, SMEs, small businesses, creative sector, architecture and design, fashion and industrial design, programming and computer games, advertising and related activities*.

JEL Classification: *L25, L26.*

Paper type: *Research article.*

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1. Introduction

It is hard not to notice that new technologies – especially innovations in information and communication technologies (ICT) – have had a huge impact and contributed to the rapid development of multimedia software and services. Their influence and importance can be observed on many coats: (i) Efficiency and Productivity – one of the primary virtues of incorporating ICT in business lies in its ability to streamline operations and optimize processes.

Through the implementation of advanced software solutions and automated systems, businesses can achieve heightened levels of efficiency and productivity. ICT facilitates real-time data access, reducing response times and enabling quick

decision-making, thereby enhancing overall organizational performance; (ii) Communication and Collaboration – ICT serves as the linchpin for fostering seamless communication and collaboration within and beyond organizational boundaries.

The advent of email, instant messaging, video conferencing, and collaborative platforms has transformed the way business stakeholders interact. Effective communication enhances coordination among team members, facilitates knowledge sharing, and accelerates the pace of innovation, ultimately contributing to enhanced business outcomes; (iii) Data Management and Analytics – in the contemporary business landscape, data is an invaluable asset.

ICT enables businesses to collect, store, process, and analyze vast amounts of data, providing actionable insights that inform strategic decision-making. Advanced analytics tools empower organizations to discern patterns, identify trends, and gain a competitive edge by making informed choices based on data-driven evidence; (iv) Market Reach and Globalization – the digital era has facilitated unprecedented connectivity, enabling businesses to extend their reach across global markets.

E-commerce platforms, online marketing strategies, and digital communication channels have revolutionized the way companies engage with customers and conduct transactions. ICT facilitates market expansion, fostering globalization and opening new avenues for growth; (v) Innovation and Adaptability – ICT serves as a catalyst for innovation, empowering businesses to adapt to evolving market dynamics and technological landscapes.

Cloud computing, artificial intelligence, and the Internet of Things (IoT) are examples of transformative technologies that enable businesses to innovate their products, services, and business models, thereby ensuring long-term sustainability; (vi) Security and Risk Management – as businesses increasingly rely on digital platforms for critical operations, the importance of ICT in ensuring cybersecurity and risk management cannot be overstated. ICT frameworks, such as encryption, firewalls, and secure authentication systems, safeguard sensitive information, protecting businesses from cyber threats and data breaches.

ICT issues could not bypass industries from the Creative Sector, which plays an important role in the economy and society, contributing to economic growth and cultural development. One of the key features of the creative sector is its ability to generate innovation and creativity, which are essential for driving economic growth and competitiveness. The creative sector plays an important role in the economy and society, contributing to economic growth, and cultural development.

One of the key features of the creative sector is its ability to generate innovation and creativity, which are essential for driving economic growth and competitiveness. The creative sector is also a major source of employment, particularly for young

people and those with creative skills and talents.

The purpose of the analysis presented in the paper is to assess the level of use of information and communication technologies (ICT) in SMEs in the creative sector, and more precisely to create an author's matrix that takes into account two variables: the level of creative solutions and creative attitude of the owners of the surveyed enterprises and the level of use of ICT. The article reviews the literature and presents the results of the qualitative research, which was preceded by quantitative research and conducted in two stages (2019/2020 and 2023/2024) Finally, the challenges and future potential of ICT related to creative industries are discussed.

2. Creative Industry

As maintained by UNCTAD Creative industries encompass activities 'at the intersection of art, business and technology,' producing 'symbolic products that depend heavily on intellectual property' (UNCTAD, 2004, p. 4). The term creative industries was first introduced by the UK Department for Culture, Media and Sport (DCMS) in 1998 to describe the '[…] Those industries which have their origin in individual creativity, skill and talent and which have a potential for wealth and job creation through the generation and exploitation of intellectual property' (DCMS, 1998, p. 3).

An important moment for the formation of the economic space for the creative sector turned out to be the 1990s, when one of the most widely used interpretations of the creative sector in the UK was created, which is still used today. This definition was described in a document produced by the Creative Industries Team, it refers to the activities which stem from individual creativity and talent and which also have the potential to create wealth and employment through the production and exploitation of intellectual property rights.

A list of creative industries was identified, which included advertising, film and video, architecture, music, the art, and antiques market, performing arts, computer and video games, the publishing market, crafts, software, design, radio and television, and fashion design (Törnqvist, 1983).

These industries represent two branches of the creative economy – the traditional cultural industries and the new knowledge-based sectors. In this view, the industries are defined as activities: (1) derived from an individual's own creativity, talent, and skills; (2) having the potential for wealth and wealth creation and job creation through generations, which translates into a constant desire to search, in order to discover new information or resources.

By a pan-European definition, created by Kern European Affairs (a Brussels-based European organization for the development of arts, culture, and sports) and published in the report The Economy of Culture in Europe, the creative sector can be

divided into two types of activities: cultural industries and creative industries. Cultural industries include film and video, television and radio, video games, music, books, and press, while creative industries include design, advertising, and architecture.

Cultural industries are types of cultural activities whose outcome involves a purely artistic dimension, as well as traditional art fields. Creative industries, on the other hand, use culture as an added value to produce non-cultural products (Kern European Affairs, 2006).

According to the definition of the United Nations Conference on Trade and Development (UNCTAD), creative sectors/industries are defined as cycles of creation and production, distribution of goods and services using creativity and intellectual capital as the main elements of this process (UNCTAD, 2008).

In addition to the definition of a creative sector/industry, this UN subsidiary body also created the term creative product. According to UNCTAD, it is the result of the work of a creative individual (creator) and can be both a tangible and intangible product. The features of a creative product that clearly distinguish it from other consumer products available on the market are originality, uniqueness, and artistry (UNCTAD, 2010)

From the point of view of Eurostat (the statistical office of the European Union), which was published definition in the methodological report ESSNet-Culture Final Report (2012), creative industries are defined as first, cultural industry enterprises that create and distribute goods and services that, at the time of their development, are perceived as having individual, unitary attributes, use or purpose, and those that include or carry artistic and cultural expression, regardless of their commercial value.

Secondly, creative and cultural enterprises that are engaged in creating and providing market products and services that result from cultural and creative, artistic contributions that determine their value; this area includes the following cultural spheres: national heritage, libraries, archives, books and press, visual arts, performing arts, multimedia and audiovisual arts, architecture, advertising, handicrafts.

As stated by Caves (2000), the creative sector is a collection of fields that are based on creative intellectual work and produce products or services that have aesthetic, symbolic or cultural value. Landry (2000) defines the creative sector as a sector of activities leading to the production of a product whose added value is a genuine, original idea, related to the form and/or function of the product or the manufacturing technology and/or materials used.

The added value makes the product competitive with other creations (due to its

unique, inimitable character, functionality, aesthetics or price) (Landry, 2000, p. 11).

The creative sector is therefore seen as an activity based on individual skills and talent, which enable both the creation of an unprecedented product as well as jobs. The specificity of this activity is created by individual creators demonstrating extensive knowledge, used to produce goods and services that have added value (in the form of high quality and unique form), who derive benefits mainly from intellectual property rights.

The analysis of the entrepreneur operating in the creative industries focuses on the person and the potential for generating value from creativity. Talent, passion and Internal motivation are key drivers of artistic creativity which often starts with the way these individuals spend their free time or with their hobbies and ends in a nascent entrepreneurial activity. Many analyses concerning artists and creative people, as well as their personalities and aspirations, show the 'tension' between artistic ambitions and economic imperatives (Swedberg, 2006; Win, 2014).

This dissonance results from the fact that creative people often start entrepreneurial activity as a hobby driven by passion, internal motivation, or their need for individual expression and satisfaction of personal desires (Beltrán and Miguel, 2014). Oliveira and Melo (2015) note strong emotional ties and a huge involvement of creative personalities in their businesses. Poettschacher (2005) sees creative freedom and relationships based on friendship as basic values and main motivators for establishing an economic venture.

People in creative start-ups build their own specific identities in contrast to traditional enterprises associated with business-orientation and a lack of authenticity or a sense of aesthetics. Swedberg (2006) also distinguishes entrepreneurs-artists who reject, contemplate or focus on economic realities, while Neugovsen (2010) distinguishes between entrepreneurs with high and low commercial visions.

3. The Relationship between Technology and the Creative Sector

Technological changes in digital media and information and communication technologies (ICT) are crucial to the economic and cultural dynamics of the creative industries. These technologies are changing both the conditions for the production of the sector's goods and its consumption. Leadbeater and Oakley (1999) noted that the new economy is driven by globalization and information technology.

Florida (2002, 2008) argues that the 3Ts - technology, talent and tolerance - characterize creative and innovative places: technology, talent and tolerance. Hartley's definition of the creative sector emphasizes the importance of "new information and communication technologies (ICT) within the new knowledge economy, for use by newly interactive citizen-consumers" (Hartley, 2005, p. 5).

The creative sector industries are the ones that are most likely to use new and innovative technologies and tools to make progress in their projects to pursue business opportunities. If there is anything that distinguishes creative industries from other industries, it is their entrepreneurial potential and greater use of innovative tools. It can be said that creative industries are a link between technological resources and the cultural fabric of society.

They have the ability to generate creative discourses that reach wide swaths of society and echo through social networks. These industries are generating interest by using these channels because of their potential to create thought-provoking innovations. As a result, technology and innovation and creative industries can enjoy simultaneous public attention.

Since they have joined forces in recent years, they have succeeded in changing the context and content they represent, making them more entertaining and attractive, so that they reach an increasing proportion of the public, motivating and arousing expectations for the creation of innovations, due to the speed at which progress is being made in them.

According to the European Economic and Social Committee, creative industries must have a technological component, as well as added value that protects intellectual property rights in the internal market. In addition, creative industries must support the search for new technologies and innovative applications of products and processes internationally. These processes must comply with European quality regulations, and thus guarantee the development of value chains through networks and joint distribution systems (Pezzini and Konstantinou, 2013).

It should also be noted that some of the typical challenges associated with creative industries are related to the increasing impact on production and distribution processes of digital conversion and the spread of new technologies and the demand for greater synergy between the creative world and cultural and technological innovation (Pezzini and Konstantinou, 2013).

According to Wang, the creative industry is a growing industry formed on the basis of the integration and use of information technology and relevant business models found in the literature, combined with an analysis of research on various factors affecting the sector (Carabal-Montagud *et al.*, 2019, p. 71). Industries that rely on talent, skills and creativity are now being enhanced by technology. Book production, distribution and sales, architectural design, advertising and filmmaking are just examples that suggest a synergistic combination of talent, skills, creativity and technological advances (Peris-Ortiz, Cabrera-Flores, and Serrano-Santoyo, 2019).

There is no doubt that technology and creativity appear to be the two fundamental constructs that have dominated recent debates about understanding the driving forces in 21st century economies, particularly capitalist economies, discussed in terms such

as the experience economy (Pine and Gilmore, 1999) or the name economy (Moeran, 2003) or more generally as the new economy, to name just a few of the terms coined.

Lampel, Shamsie and Lant (2006) present their view of the role of technology in the evolution of cultural industries as follows: [...] the cultural and creative industries owe their existence to a series of technological innovations, such as electric sound recording, film photography, television programs and the Internet. These technologies have opened new frontiers that have grown into major industries. The expansion phase, however, was initiated not by those with technical knowledge, but by creative and business talents (Lampel, Shamsie, and Lant, 2006, p. 12).

Thus emphasizing the importance of technology as a driving force, but not as an end in itself, Lampel, Shamsie and Lant (2006) also stress the importance of content and that technology is in the minds and hands of creative individuals and business organizations. The authors sympathize with the view that it is important to understand the implications and impact on the creative and cultural industries of technological advances, especially the latest digital technologies, which have had a far-reaching impact on its emergence and development.

Solutions to the use of new technologies in the creative sector were also taken up by Li (2020) showing how digital technologies facilitate innovation in business models in companies operating in the creative industries.

Bull (2022), meanwhile, looked at the opportunities presented by the use of AI in the creative sector industries. He assumed that in the near future, artificial intelligence based on machine learning will find widespread use as a tool or collaborative assistant in creative endeavors. He concluded that in the field of creative industries, the optimal benefits of artificial intelligence will be achieved when its focus is human-centered and designed to enhance rather than replace human creativity.

4. Research Methodology

The study described in the paper focuses on micro, small and medium-sized enterprises from the creative industries sector. In Poland, this sector is divided into twelve industries including 48 Polish Classification of Activity codes. After analysing the percentage share of individual industries in building the state of the creative sector in Poland and taking into account the fact that the activity constituting the essence of the products/services of creative industries has a different content of the technical component, enterprises from four industries were selected for the analysis: architecture and interior design, fashion and industrial design, programming and computer games, advertising and related activities.

By selecting technologically diverse industries, we sought to preserve the internal diversity of the creative sector allowing for the possibility of internal comparisons.

This approach was adopted in studies carried out in Poland and the United Kingdom. The survey was conducted in two stages in 2019/2020 (Ratalewska, 2020) and 2023/2024. As a result, 160 companies participated in the survey, 80 in each stage of the research.

In Poland, 120 enterprises were included in the study. The distribution was even – 30 enterprises for each sector analysed (architecture and interior design, fashion and industrial design, programming and computer games, advertising and related activities), ten enterprises in each group divided according to the number of employees (micro, small, and medium-sized).

The interviews were conducted with business support institutions in Poland and among companies located in the most creative cities in our country – Wroclaw, Lodz, Poznan, Warsaw, Tri-City (Gdansk, Gdynia and Sopot), Cracow, and Szczecin. The main objective of this stage of the study was an in-depth identification of ICT solutions used by micro, small and medium-sized entities from the creative industries sector and an in-depth analysis of the dependencies of their occurrence.

In the UK, which is the cradle of the creative sector, 40 companies were surveyed – ten for each sector studied. The research was carried out at Nottingham Trend University (Nottingham Business School), and companies were selected from the NTU Entrepreneurship Centre's creative enterprise database – the HIVE.

Some of the companies came from London and were affiliated with Art Incubators there. The aim of this part of the study was to capture the international context and to identify solutions used by the best companies from the creative industries sector which may constitute a kind of benchmark for research results in Poland.

In the presented study, qualitative measurement was used carried out by means of the technique of individual in-depth interviewing, (Oppenheim, 2004). The questions in the questionnaire referred to the following areas: (1) characteristics of attitudes, personal traits and skills of the owner of the enterprise, (2) the profile of the enterprise, its characteristics and specificity of the industry, (3) human and financial resources, (4) the use of ICTs in individual areas of business operations, (5) business advice and financial support in the ICT implementation, (6) the impact of the technologies used on competitiveness, (7) the impact of the tools used on business development, (8) and recommendations for the future.

In the course of the qualitative study, the form of a narrative interview was adopted. To this end, communication techniques were used that would allow the conversations to be focused on the areas related to the subject of research and at the same time would provide the opportunity for free speech. The creation of natural and repeatable conditions for conducting interviews, which was important from the point of view of the accuracy and reliability of the measurement, was also assumed.

In-depth interviews were conducted with the business owners. The contents of individual interviews were (with the knowledge and consent of interlocutors) recorded on digital media, which enabled their repeated reproduction at the data analysis stage. On the basis of the information obtained, a case study protocol was prepared. The collected empirical material was subjected to theoretical and factual coding in order to be able to saturate the theoretical categories and establish cause-and-effect relationships.

A purposeful selection was used in selecting respondents. This kind of selection allows us to choose a case due to a given feature or process which are of interest to the researcher (Silverman, 2021). Thus, the examined cases may be selected due to their similarity and the possible effect of obtaining repetitive results or due to opposing features (in the case of analysis of contrasting phenomena).

The indicated approach was used in this study, therefore, for the purposes of qualitative analysis, the selection of the sample was theoretical (see Yin, 2009) and was consistent with the methodology of a multiple case study. It is important to emphasise the fact that the purpose of this type of sample selection is a thorough understanding of the analysed cases, which allows us to create an analytical framework and concepts used in the study. In practice, this means the selection and analysis of subsequent cases, until the saturation of theoretical categories, but without binding initial assumptions that relate to their number.

As part of the sample selection process, a standard deviation-based selection of cases was applied (Silverman, 2021). Thus, the cases to be analysed were selected while maintaining diversity in terms of: (i) individual attitudes, personal traits and skills of the entrepreneur; (ii) characteristics of the enterprise and the type of creative industry; (iii) the environment in which the enterprise operates.

In addition, in order to deepen the analysis of the personal traits and skills of the owners of the surveyed enterprises, the Gallup Talent Assessment Test[2] was completed by the respondents in order to determine their leading talent.

[2]*Over almost thirty years, the Gallup Institute (which has been conducting public opinion surveys worldwide since the mid-1930s) has conducted millions of interviews to find answers to the question of what talents are needed to achieve excellence in various professional roles. The materials gathered at the institute allowed for in-depth analyses and selection of talents in over 150 different professions, including characteristics of outstanding managers and employees. This test, known as Clifton Strengths (formerly known as Clifton Strengths Finder), measures the presence of 34 traits called themes. According to Gallup, this talent is a naturally recurring pattern of thinking, feeling and reacting that can be used productively (see Gallup, 2022.). Talents naturally predispose individuals to a specific perception and processing of reality, and thus to achieving success in specific areas. The strongest, most dominant talents of a person are characterised by the greatest dynamics, providing the opportunity to learn the fastest and have a significant impact on the behaviour and achievements of this person.*

5. Results and Discussion

The aim of the analysis was to assess the impact of the dimension of business activity based on innovative solutions and creative attitudes of the owners of the surveyed enterprises on the use of information and communication technologies. As a result, an original four-field matrix was created (Figure 1).

Figure 1. *The four-field matrix of dependencies between the dimension of activity based on the innovative solutions and creative attitude of the owner and the ICT usage.*

		ICT usage	
		High usage intensity	**Low/moderate usage intensity**
Creativity dimension	**High level**	Type 1 'highly creative and highly technologically savvy'	Type 2 'highly creative and moderately technologically savvy'
	Low/Moderate level	Type 3 'efficient ICT implementer'	Type 4 'moderate in the ICT and creativity dimension'

Source: *Own elaboration.*

Type 1 – 'highly creative and highly technologically savvy'

Type 1 – 'highly creative and highly technologically savvy' – encompasses enterprises relying on a high level of innovative solutions and the creative attitude of the owner, with a high level of intensity of ICT usage.

This category mainly includes companies of a relatively small size and in their first years of operation. The skills and talents of their founders-owners, which allow them to offer options on the market tailored to the specific situation of their potential customers and based on ICT solutions, form the basis for the functioning of such entities. Very often, these are enterprises operating at the intersection between business and culture, using the potential of the place where they were established.

The key human resources of this group of enterprises are their founders (owners). Their knowledge as well as professional and personal contacts constitute the basic component of the analysed enterprises. Their age varies between 25 and 35 years old. We will find men mainly in the software and computer games industry, while women in this group are owners of companies from the advertising and related activities industry as well as fashion and industrial design.

Irrespective of gender, these people see themselves as creative and open to new technologies. They also have entrepreneurial characteristics, such as searching for

market opportunities (and developing a market offer) and implementing innovations (designing and implementing novelties).

According to the Gallup Talent Assessment Test, the business owners of Type 1 – 'highly creative and highly technologically savvy' – are mostly people with a talent for strategic thinking[3] (Rath and Conchie, 2008; Rath, 2017). Among the analysed cases, representatives of futuristic, ideation, analytical and strategic talents were most often found. Their talents were responsible for creativity and the collection, processing and evaluation of information necessary for decision-making. People richly endowed with these talents are called *beautiful minds*, as the world they create in their own minds is just as rich and colourful as the real one, and sometimes even more so. They are creators, artists, designers, thinkers, as well as strategists and entrepreneurial leaders.

These are enterprises that usually raise funds for their activities from external sources, such as EU subsidies, business angels, or capital venture, as their ideas are so innovative and follow the current trends that they are positively verified. The respondents praised their external sources of financing very often as a basis for their existence or further development. However, the analysed cases also include opinions that raising capital venture in Poland does not always work as it should.

The respondents also emphasise the importance of places where they operate: 'Lodz creates,' 'Wroclaw – my creative city,' etc. In their opinion, the attractiveness of the city lies in its power to attract creative people. They recognise that developing the right creative environment is the basis for the city's success, and thus for their own success.

This type includes enterprises for which new technologies are the basis of their business model. Those are also companies operating remotely, offering their products and services partly or fully online, using new technologies in every area of their activity.

Such enterprises usually do not benefit from advice directly related to the domain of their activities, as they have unique, specialised knowledge and skills in the area in which they operate and are often providers of advice in this field themselves.

However, they are very keen to use advice on 'how to sell what we have created.' This may be due to the young age and not too much business experience of their owners. These enterprises are already profitable or promising companies, with great prospects for the future.

[3]*The group of strategic thinking talents includes: strategic, learner, futuristic, ideation, analytical, intellection, context, and input. The terminology used in the paper follows the Gallup Institute's nomenclature for each talent.*

Among the analysed cases, start-ups from the programming and computer games industry constituted the largest percentage of companies, and they can be divided into four groups: (i) those that create a new value hitherto absent from the market; (ii) those that were set up, among others, to create a bridge between the SME market and large corporations (they create applications and platforms facilitating this process); (iii) those that use the customer's creativity (thanks to specially designed applications, the customer can participate in the process of creating and designing a personalised product/service); (iv) those that facilitate the customer's daily functioning (here we find start-ups offering applications relating to everyday life and personal development).

In the second stage of the survey (period 2023-2024), respondents belonging to type 1 ʻhighly creative and highly technologically savvy' indicated an increase in the level of use of AI in their business. The level of use according to the industry analyzed looked like programming and computer games, advertising and related activities, architecture and interior design, fashion and industrial design, respectively. Considering the size of the analyzed company, no major differences were noted. The level of usage increased with the financial capabilities of the analyzed companies.

Here are some of the areas in which artificial intelligence is used by the surveyed respondents:

(i) Content Creation and Generation: AI powered tools are used in content creation, including writing articles, generating social media posts, or even creating design elements;
(ii) Graphic Design and Visual Content: AI driven graphic design tools are used to logos, social media graphics, and other visual elements based on user preferences and design principles;
(iii) Market Research and Audience Insights: AI analytics tools are used analyze market trends, customer behavior, and social media interactions to provide valuable insights for strategic decision-making. Sentiment analysis are used to help businesses understand how their products or content are being received by the audience;
(iv) Chatbots and Customer Service: Small businesses are used AI powered chatbots to handle routine customer inquiries, provide information, and improve overall customer service;
(v) Personalization: AI algorithms are used to analyze customer preferences and behavior to provide personalized recommendations, improving user experience and increasing sales. E-commerce platforms can utilize recommendation engines to suggest relevant products or content based on user interactions;
(vi) Data Analysis and Decision Support: AI tools can process large datasets to identify patterns, trends, and correlations, aiding in data-driven decision-making. Predictive analytics to help small businesses anticipate market changes, enabling them to adapt their strategies proactively;

(vii) Copyright Protection: AI tools used in the analyzed companies of the creative sector are used to protect their intellectual property by identifying potential copyright infringements and monitoring unauthorized use of content.

The surveyed entrepreneurs of Type 1 emphasised that they faced many barriers in Poland: legal, human resources-related and bureaucratic. At the same time, they appreciated the rank and importance of all kinds of business incubators and creativity accelerators to which they had access.

Among the analysed companies in the United Kingdom, the largest number belonged to the type of 'highly creative and highly technologically savvy.' The information obtained during the interviews allowed us to formulate the conclusion that the key role in the creation and development of Type 1 enterprises is played by extensive possibilities of obtaining financing (venture capital, private investors, business accelerators and incubators or crowdfunding). The respondents also emphasised the importance of the environment and the size of the city in which they operated. Young entrepreneurs were most often attracted to large cities by the cooperation that took place between the public sector, the private sector and academia.

According to the interlocutors, the UK has a very dynamic pro-development, creative environment which provides significant business support and is open not only to academia but also to other people with business ideas. For example, London was considered by the respondents to be a popular place for crowdfunding and a place for the development of start-up companies.

According to respondents in the UK, tax breaks were an important factor in the creation and development of creative industries – not only for new businesses but also for business angels supporting them. Given the little bureaucracy and business-friendly conditions created by the British government, it is no wonder that start-ups related to new technologies registered in the United Kingdom lead the way in terms of obtained funding.

When advising Polish entrepreneurs, British entrepreneurs pointed to the need for a well-thought-out start-up initiative strategy. They advised young entrepreneurs to gain some experience before establishing their own company and to get to know the competition and the target customer very well. They suggested that Polish entrepreneurs should not act alone and instead join an accelerator, and that they should continue to learn and improve their own competences.

Type 2 – 'highly creative and moderately technologically savvy'

Type 2 – 'highly creative and moderately technologically savvy' – encompasses enterprises relying on a high level of innovative solutions and the creative attitude of the owner, with a low or moderate level of intensity of ICT usage.

This category mainly includes micro- and small enterprises, those operating for only a couple of years as well as those with extensive business experience – the distribution was similar in each of the analysed creative industries.

The core business of an enterprise relies on the skills and talents of the founder-owner and people employed in the company. In this type, it can already be seen that business owners hire employees or cooperate with people with skills that they themselves lack. The owner of the company is usually a very creative person, but the number of ideas created is so large that there is a need for people to translate these ideas into action. Here, too, the influence of culture on the activity of entrepreneurs is visible.

In Type 2, there are no significant differences regarding the gender of the owners and their age – the youngest respondent was 27 years old, and the oldest 55. The surveyed entrepreneurs perceived themselves as very innovative and creative, simultaneously recognising their own entrepreneurial and managerial qualities. At the same time, they strongly emphasised that their success also depended on the skills of others.

According to the Gallup Talent Assessment Test, the analysed entrepreneurs of Type 2 are mostly people belonging to the group of strategic thinking talents,[4] in particular they possess such talents as ideation and futuristic as well as relationship building strengths[5] such as adaptability, developer and empathy (Rath and Conchie, 2008; Rath, 2017). A group of relationship building talents includes those that are activated to the largest extent thanks to people and for people.

Such individuals need other people in their work environment, they often act intuitively and experience a range of emotions. Individuals endowed with this talent recognise the value of others, their potential and skills, and – more importantly – they know how to utilize this potential and competence.

Business founders and other decision-makers, such as co-founders, are a key human resource. Family businesses also appear in this group (in the first and second generation). These are companies that usually obtain funds for the implementation of new technologies from generated profits. They also emphasise the importance of external financing which in their opinion translates into further development of their companies and their competitiveness.

Information and Communication Technologies are used in various areas (i.e. design and product development, sales, purchasing, business management support,

[4]*The composition of the group of strategic thinking talents is described in the section on Type 1.*

[5]*The relationship building talents include: adaptability, empathy, individualisation, connectedness, includer, relator, developer, positivity, and harmony.*

information collection and promotion), but they frequently treat new technologies as complementary to traditional and often direct forms of contact with the internal and external environment of the enterprise.

Enterprises of this type use advice when implementing new technologies, but this is usually advice from friends or people recommended by others. They treat new technologies as tools to gain access to new customers or new resources.

Companies belonging to this category make moderate use of external financing (EU funds, etc.) and seem to have some difficulty in adapting to the requirements of funding providers.

Type 2 refers to micro and small enterprises, including sole proprietors. These are entrepreneurs characterised by a high level of creativity. This group encompasses various types of creators, ranging from professional painters and musicians, who have combined their talents with business activity, to people for whom creativity is simply a form of being.

These are people who implement their creative and innovative ideas on many fronts and often take advantage of the opportunities offered by new technologies.

Among the Type 2 Entrepreneurs surveyed, the pandemic situation resulted in respondents with a high level of creativity of both their own and their enterprise declaring an improvement and understanding of the need to use new technologies and the level of their use in the enterprise increased significantly from 2019/2020. The year 2023/2024 was identified by respondents as a breakthrough year for decisions related to the use of AI in two areas: Content Creation and Chatbots and Customer Service.

Type 3 – 'efficient ICT implementer'

Type 3 – 'efficient ICT implementer'–encompasses enterprises relying on a moderate level of innovative solutions and the creative attitude of the owner, with a high level of intensity of ICT usage.

In this category, we can find a whole range of enterprises – from micro to medium-sized, from sole proprietorship to enterprises with more than one hundred employees. As in the above-mentioned cases, they use the potential of culture, with the binding force being the area of activity that utilises new technologies at a high level of intensity.

In this group of companies, there are no significant differences regarding the gender of owners and their age, but these are entrepreneurs with business experience. The owners of the analysed enterprises perceive themselves primarily as entrepreneurs

and good managers. Creativity and innovation are for them an extension of entrepreneurial and management features.

According to the Gallup Talent Assessment Test, the business owners of Type 3 are usually people belonging to the group of executing talents[6] (Rath and Conchie, 2008, pp. 30-38), having in particular the talent of responsibility, and the group of influencing talents (Rath and Conchie, 2008, pp. 40-46). The analysed respondents were most often characterised by such strengths as communication, activator, competition, and self-assurance. Entrepreneurs with such talents enjoy action.

They efficiently translate concepts into reality and feel very well where there is something to do, implement, repair, organise, or achieve. Very often they have charisma and are confident in the success of their company.

In this group, we will find companies that are eager to innovate in the field of ICTs or their entire know-how is based on these technologies. Such enterprises are eager to use both external financial support and all forms of advice.

There were no significant differences in this group of subjects due to the periods (2019/2020 and 2023/2024) of the studies conducted.

Type 4 – 'moderate in the ICT and creativity dimension'

Type 4 – 'moderate in the ICT and creativity dimension'– encompasses enterprises relying on a moderate level of innovative solutions and the creative attitude of the owner, with a moderate level of intensity of ICT usage. This group represented the smallest percentage of companies analysed in the qualitative study.

This category mainly includes small and medium-sized enterprises, and in none of the analysed creative industries any significant differences can be seen. The basis of their activity is formed by products and services adequate to the surveyed industries, not distinguished by anything special in relation to other products or services of a given creative industry. There is no single dominant attitude of the owner, the responses are evenly distributed between creative, entrepreneurial and management attitudes. Also in this case, the respondents declared drawing on the values and ideas of the cultural sector.

Entrepreneurs relying on a moderate level of innovative solutions and the creative attitude of the owner, with a moderate level of intensity of ICT usage, also do not have a strictly defined talent according to the Gallup model. Individuals included in this category are characterised by a mix of talents – they have not been found to have dominant features in any of the group of talents: executing, relationship

[6]*The group of executing talents includes: discipline, restorative, responsibility, arranger, focus, achiever, belief, deliberative, and consistency.*

building, strategic thinking, or influencing. They operate in each of the creative industries: architecture and interior design, fashion and industrial design, programming and computer games, as well as advertising and related activities.

The use of new technologies takes place in all areas of the company's operation but on a low or moderate scale. E-business revenues are merely a supplement to main revenues and are low or marginal. The situation of the enterprise is stable, it is profitable and constantly growing. It offers good, high quality products and is competitive in the market.

Similarly to the group of respondents belonging to type 3, also in the group belonging to type 4 there were no significant differences due to the periods (2019/2020 and 2023/2024) of the surveys conducted

6. Conclusions, Limits, Further Research Directions and Practical Implications

The typology presented in the paper allows a closer look at the relationship between the level of creative solutions and creative attitude of the owners of the surveyed enterprises and the level of use of ICT technologies. In conclusion, the essence and importance of ICT in creative industries business are incontrovertible in the contemporary landscape. Businesses that strategically leverage ICT gain a competitive advantage, fostering efficiency, collaboration, innovation, and global market reach.

As technology continues to evolve, embracing and adapting to ICT becomes imperative for businesses aspiring to thrive in the dynamic and interconnected world of commerce. Some of the companies analyzed knowingly do not choose to use ICT in uniqueness of product and service output due to the preservation of the traditional form of their manufacture.

It is worth emphasizing: (i) Creative industries are known for their ability to adapt to changing trends, technologies, and consumer preferences. This adaptability (including the use of ICT) is key to their continued development; (ii) Creative industries often face challenges related to funding and market volatility. This sector can be unpredictable, requiring resilience and adaptability; (iii) implementing AI in these areas can provide companies in the creative sector with a competitive edge, allowing them to streamline processes, enhance creativity, and better meet the needs of their clients and customers.

Despite the limitations inherent in the use of qualitative research, the results obtained made it possible to discover patterns and relationships between variables and provide a foundation for further research considerations. The results obtained can provide inspiration and guidance for further research in several areas. One

pivotal area warranting extended scholarly inquiry pertains to the meticulous assessment and measurement of the impacts of ICT tools on the creative industries.

Research endeavors should pivot towards formulating robust methodologies capable of appraising both tangible and intangible effects on economic, cultural, and societal dimensions. A second focal point for academic exploration encompasses the user experience and human-computer interaction (HCI). Investigations should concentrate on enhancing user experiences within creative processes by discerning the intricate dynamics between individuals and ICT tools, encompassing considerations of usability, accessibility, and overall efficacy.

Furthermore, an imperative research trajectory involves delving into the integration of emerging technologies, including artificial intelligence, virtual reality, and augmented reality, within creative processes. Scrutinizing the implications of these technologies on creativity, innovation, and the overarching production pipeline within the creative industries is essential.

The dimension of cross-disciplinary collaboration facilitated by ICT tools represents another facet requiring scholarly attention. Delving into how technology can serve as a bridge between diverse creative fields, fostering collaboration and giving rise to novel, hybrid forms of creative expression, constitutes a promising avenue. Continued academic endeavors in these domains are poised to engender a nuanced understanding of the multifaceted roles played by ICT tools in the creative industries, fostering innovation and ensuring the sustainable evolution of this dynamic sector.

The typology presented in the study also reveals important practical implications for companies in the creative industries. Firstly, integrating ICT technologies strategically within these businesses is not just beneficial but essential. This integration leads to enhanced efficiency, improved collaboration, and innovation, broadening the reach into global markets. Companies that effectively leverage ICT can differentiate themselves and maintain a competitive edge in the highly volatile creative sector.

However, the decision to not adopt ICT in order to maintain the uniqueness of traditional manufacturing processes also presents a strategic choice for some businesses. This highlights a critical balance between innovation through technology and the preservation of traditional craftsmanship, which can itself be a unique selling proposition in the creative industries.

Further practical implications include:

(1) Adaptability: The need for creative industries to remain adaptable to technological changes, consumer trends, and evolving market dynamics. This adaptability is crucial for the continuous development of these industries.

(2) Resilience: Due to the unpredictability related to funding and market conditions, resilience becomes a necessary trait for businesses within this sector. Companies must be prepared to face these challenges and adapt to remain viable.
(3) Artificial Intelligence: The implementation of AI can transform operational efficiency, enhance creativity, and improve the responsiveness of businesses to client needs. This suggests a strategic pivot towards adopting advanced technologies that can provide a substantial competitive advantage.

These practical implications serve as a foundation for further academic inquiry and business strategy development, suggesting that businesses, while navigating the challenges posed by ICT integration, stand to gain significant benefits from its thoughtful application.

Future research should continue to explore these dynamics, focusing on the assessment of ICT impacts and improving human-computer interactions to enhance user experiences in creative processes. This ongoing investigation will help define more effective strategies for integrating emerging technologies such as AI, VR, and AR, ultimately contributing to the sustainable growth and evolution of the creative industries.

7. Ethical Requirements

The research was conducted in accordance with ethical principles, including: the principles of voluntary participation, the principle of informed consent, the principle of no harm to respondents (including in an emotional sense), the principles of anonymity, confidentiality and truth. The measures taken fulfill the requirements of the Regulations of the Research Ethics Committee and the Rector's Regulation on the Personal Data Protection Policy at the University of Lodz.

The aforementioned acts stipulate the necessity of obtaining the Ethics Committee's approval only in two situations: (1) If biological material is collected, (2) Interfering with the human psyche. In other cases, the researcher (an employee of the University of Lodz) is bound by the above-mentioned regulations without the need to seek approval from the Ethics Committee.

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