Methodology – the research applies such approaches as comparative, systematic, dialectical. Scientific references observation to define tendencies in the concept of shifting to «green» economy are studied as well.

Originality / value of the research is in the argumentation of the relevance of the concept of transition to "green" economy in Kazakhstan and some foreign countries based on ecological branding as an active driver of economic growth to achieve the purposes of sustainable development.

Findings – primary evolution steps in transition to "green" economy in the Republic of Kazakhstan, key directions as a tool to provide national economic and ecological safety are taken into consideration. Needs for investments to shift to «green» economy, obstacles and restraining barriers to develop and install renewable sources of energy are defined as well. The article shows the experience of some countries to transit to "green" economy as a significant aspect to solve massive ecological, social and economic problems. The research studies possibilities to use certain aspects of international experience in Kazakhstan for a further development of «green» economy based on greening taking into account economic and social specificity.

Keywords: «green» economy, «green growth», renewable sources of energy, ecologically pure technologies, ecological sustainability.

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CULTIVATING SUSTAINABLE SMART CITY FUTURES: THE POWER OF CREATIVE ENTREPRENEURSHIP IN KAZAKHSTAN

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ABSTRACT

Purpose of the research: To examine the pivotal role the smart cities play in stimulating creative entrepreneurship alongside with following the goals of sustainable development in Kazakhstan. Marking out the necessary policy to create a favorable ecosystem and architecture for creative businesses within these urban environments is an essential part of this work.

Methodology: In-depth interviews with creative entrepreneurs from various regions of Kazakhstan served as a foundation for a qualitative research method to be applied in this work. The interview results disclose the constrains and potentials encountered by these businesses and the opportunities for smart city initiatives to become a vital element making these businesses prosper in Kazakhstan.

Originality: This work covers a momentous knowledge discrepancy through reviewing the overlap of creative entrepreneurship and smart cities in the Central Asian setting. The findings provide vision for policymakers, educators, and business leaders who strive to promote economic growth in the region.

Findings: The research accentuates that, nevertheless, programs like Creative Spark and other smart city initiatives have increased Kazakhstan's creative economy, it still can benefit from government support, particularly in the area of infrastructure. High-speed internet, efficient workspaces and hoc hardware in smart cities, legislative impediments and bureaucracy, as well as, the need for up-to-date education to outfit creative individuals with digital skills are disclosed as the principal constraints of the industry development according to the in-depth interviews.

Key words: industries, smart cities, creative entrepreneurs, Kazakhstan.

INRTODUCTION

The advancement of programs similar to Creative Spark and smart city technology lining up with UN Sustainable Development Goals, particularly Goal 11 – focusing on the creation of sustainable cities and communities, transforms the creative sector of Kazakhstan. International networking opportunities, funding and training provided by the Creative Spark enacted a fundamental role in the support of Kazakhstan creative economy [1]. Alongside, the smart cities advancement in the areas of technologies and modern infrastructure in Kazakhstan initiated the creation of the reference standard for smart cities [2]. All the essential resources are meant to be provided in these cities in order for the businesses to prosper and the community to benefit from it. As the result, the creative economy should expand making the prominent contribution to the overall economy and cultural advancement of the country.

Undoubtedly, there are tremendous benefits to the creative sector of Kazakhstan from initiatives like Creative Spark and the development of smart city technologies. Nevertheless, the success of these projects depends on and highly influenced by city size, state of the economy and available urban infrastructure. The findings in this work are anticipated to point out the vital elements to stimulate a flourishing creative economy with the access to smart cities technology. Through the in-depth interviews of creative entrepreneurs, the research will point out the specific needs and challenges faced by these professionals. The work will offer insights how to address that issue through the targeted policy and infrastructure investments. Moreover, the work will assess the impact the investments might have on boosting the innovations, increased collaboration, and the growth of the entrepreneurship within the creative sector. Interaction awareness between the technology, government support and peculiar demands of creative industry will serve as thorough blueprint for the stakeholders. This research will make contribution to the development of a robust creative ecosystem in the emerging cities of Kazakhstan and supply essential information for strategic decisions to form the future of creative industries.

Literature review. De Marco and Mangano [3] in their work analyzing trends in the changing nature of smart cities, pointed out the attributes of smart city initiatives and the influence of semantic components on their performance. Their research specifies that larger, far-sighted urban environments tend to lack motivation to engage into smart city initiatives. Although, the factors like thriving economy and predominant architectural arrangements form the precedence of projects in the energy and construction industries. De Marco and Mangano [3] studied contextual factors influencing smart city development in established urban areas, while Antwi-Afari et al. [4] developed a framework for smart and sustainable urbanism in developing nations. They devised a framework to attain smart and sustainable urban areas in developing nations, with a specific emphasis on the situation in Ghana. Their research employed factor analysis to identify crucial sustainability principles, highlighting the need of tackling urbanization concerns and establishing conducive settings for enterprises.

A limited number of studies by B. Jász, E. Gwiaździński, et. al, [5,6] and S. De Souza, M. Pablo [7] investigating the role of smart cities in the context of creative entrepreneurship constitute a gap in research that

needs to be covered in light of the increasing attention given to the concept of “creative industries” in social research. In response to the existing theoretical and contextual gaps, the study aims to identify the necessary legislative frameworks and infrastructure investments in Kazakhstan for creating a favorable environment for creative businesses in smart cities.

The creative economy is a way of doing business in which new ideas are employed to develop new products and services or to enhance already existing ones. Creativity is the capacity to come up with novel ideas, and it doesn't depend on exploitation of finite resources like labor and land. The creative economy differs from traditional economic systems, since it depends on the production and application of knowledge and creativity according to D. Veselá, and K. Klimová [8]. The term "creative industries" originates from the conception "cultural industries" which is referred to the concept of "creative economics". The concept of a creative economy encompasses all aspects of the economy, including socioeconomic processes and the division of labor or other creative ways. In cultural entrepreneurship, an intellectual resource is transformed into a creative product. The development of new goods and services through the application of creativity is the primary goal of the creative industries. They can encourage innovation, conserve cultural heritage, and advance social unity. Design, architecture, fashion, and advertising are just a few examples of the activities that fall under the umbrella of the creative industries. Activities including music, movies, television, publishing, and the arts are often included in the cultural industries. Creative industries are seen as key contributors to innovation and economic growth, helping to create jobs, attract tourists, and promote urban development according to V. Božić, [9] and M. Syafri et. al. [10]. Richard Florida suggested that to foster urban growth, it is vital to leverage the creativity of entrepreneurs by developing "creative clusters" or "creative cells" within cities [11].

According to the legal framework for the Creative Europe Program, the cultural and creative sectors are all sectors whose operations are based on cultural values or other forms of individual or collective artistic expression [12]. The cultural and creative industries in the EU employ 8.7 million people, or 3.8 % of all EU workers, and account for 1.2 million businesses, according to Eurostat data [13]. The British government implements various programs like Creative Spark to encourage and support innovative business ventures. The UK's Creative Spark initiative aimed to enhance its soft power, boost economic development, promote cultural exchange, tackle global challenges, attract skilled individuals and enterprises to the UK, promote UK firms, and honor international obligations.

Creative Spark: Empowering Creative Industries in Kazakhstan. The British Council, as the global entity for fostering cultural linkages and educational prospects, supports creative industries in other nations to showcase its achievements, stimulate creativity, and establish mutually beneficial collaborations. Creative Spark also promoted cultural exchange and deepens understanding among artists, entrepreneurs, and communities, fostering cooperation and communication. UK firms can have a global outreach and spread their specialized knowledge through this initiative. The Creative Spark [1] has contributed to the creativity expansion and the rise of entrepreneurial spirit of Kazakhstan in several ways. It provided support to the growth endeavors of creative industries, alongside with the increasing focus of income creation and employment opportunities while delivering support to creative entrepreneurs in underdeveloped nations embracing mentorship, training and funding opportunities. The implementation of the program in Kazakhstan launched in 2018. Since then the progress of creative industry inside the nation has been significantly influenced: the entrepreneurs gained access to international networks, educational programs and funds [14]. The availability of those resources enabled the businesses to overcome some challenges and extend their operations. Generation of new employment prospects and support in enterprise establishment that was gained through the program furthermore encouraged the expansion of creative industries sector.

A novel approach to comprehension of the Kazakhstan’s creative economy can be adopted through the concept of the quadruple helix communication model proposed by P. Ahmad [15]. The model facilitates both unidirectional and bidirectional communication via the development process of a creative city. The active participation of all creative stakeholders can be observed in this model. The multidirectional communication promotes opportunities to form policy, transparency, consultation, innovation and government accountability. Therefore, comprehensive and timely problem-solving within the policy architecture fosters harmonious col-

laboration between all the stakeholders. The Creative Spark program in Kazakhstan is a perfect model that draws attention to interaction between the key players: government, academia, businesses, and civil society. Through the increased financial resources, government recognition of creative sector and its significance, and education the program facilitates the interconnection between these players. Creative Spark proved itself as a successful model promoting creative entrepreneurship, and might be considered a potential blueprint for the government of Kazakhstan when broadening the support system for the industry. The initiative didn't directly command the policy in the creative sector, more likely it "sparked" the potential and challenges to motivate the government become a more active participant in its growth.

Kazakhstan has improved its legislative framework to promote the growth of the creative economy, with the goal of reinforcing regional identity via the cultivation of common cultural values and ambitions.

The creative industries are one of the important sectors of Kazakhstan's economy and they are playing an increasingly important role in economic development and job creation. There is a growing demand for creative workers in all sectors of the economy and the Kazakh government is committed to developing the creative industries as a key driver of economic growth. It has adopted the Concept for the development of the creative industries for 2021–2025. This strategic plan anticipates that by 2025, Kazakhstan's creative industries will contribute 5% to the nation's GDP, employ 4 % of the workforce, and have 1.5 times more small and medium-sized businesses compared to other economic sectors [16]. The creative sector in Kazakhstan consists of 43 different categories of activities including architecture, fashion, art, music, design, film, information technology, folk crafts, and other creative fields. According to the register of legal entities in Kazakhstan, as of January 2018, there were 17,581 creative enterprises, accounting for 3.8 % of all registered legal entities in the country. This data [17] indicates that the creative industries are a significant sector of the Kazakhstani economy, and that Almaty and Astana are the primary drivers of this sector (Figure 1). Almaty remains a key player in the country's creative industries due to its large population, historical role, and dynamic cultural landscape. The city's high concentration of educational institutions contributes to a strong talent pipeline. Almaty hosts 8.8 % of Kazakhstan's creative enterprises, employing around 44,900 people and generating 37.7 billion tenge in tax revenue and 402.8 billion tenge in service revenue in 2020. This highlights Almaty's economic contribution and potential for further development as a creative hub [18].

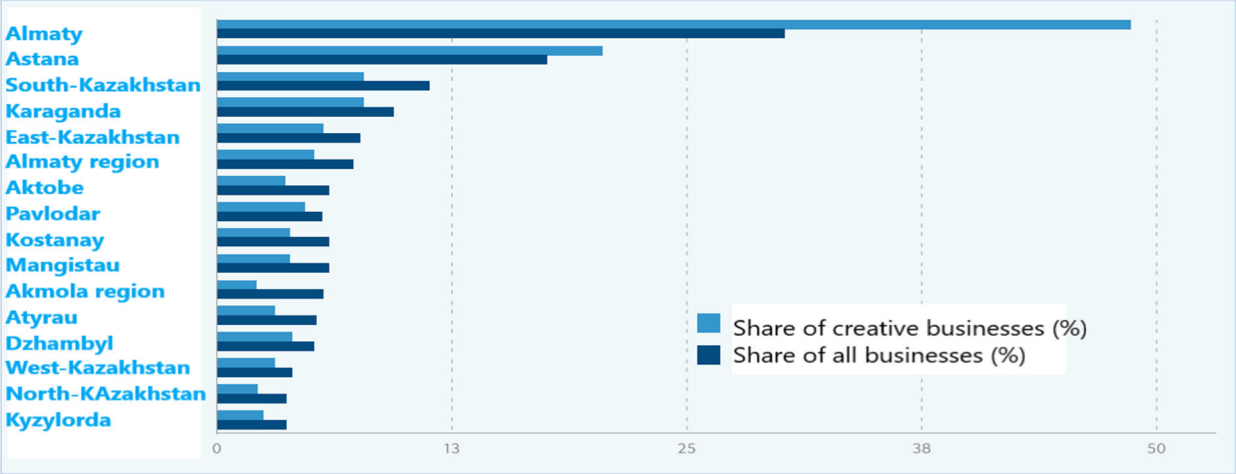

Figure 1 – Share of all registered creative businesses in the regions of Kazakhstan in 2018

Note – Pratt et al. [17]

The Smart Sustainable City Profile of Almaty [19] was developed by the Almaty City Government using funds from the UNDA regional project «Smart Sustainable Cities for the 2030 Agenda for Sustainable Development and the New Urban Agenda in the UNECE Region». The project aims to assist cities in transitioning

towards intelligent and sustainable development, accelerating the realization of Sustainable Development Goal 11 [20] and other urban-related SDGs. The Almaty Smart Sustainable City Profile provides a basis for understanding the city's sustainability issues and potential, enabling Kazakhstan to advance towards its sustainability goals. The city's digitalization strategy, «Smart Almaty» for 2020-2025, aims to create a digital environment for efficient public service deployment, smart interaction, and collaboration with private initiatives. The strategy builds on collaboration among state bodies, private sector, and science [19].

The creative industries employ 95 thousand people now, with fixed asset investments totaling 33.3 billion tenge [21]. There are 32 thousand active corporate entities, and the creative industries contribute 2.7 % of Kazakhstan's economy. The gross value added is significant in the creative industries (Figure 2).

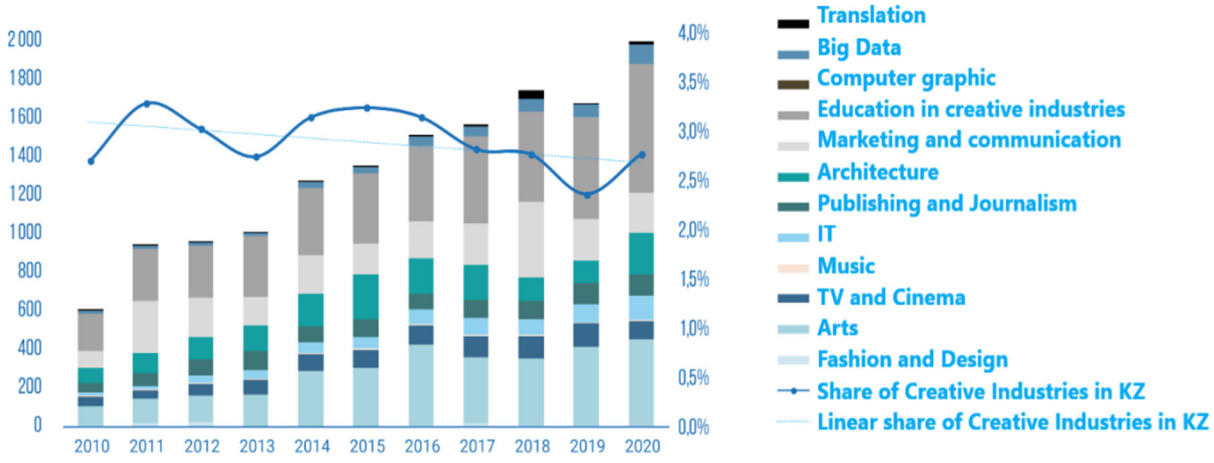

Figure 2 – Gross value added dynamics in Creative Industries 2010-2020, billion tg

Note – Economics Research Institute [22]

This number has risen in Kazakhstan during the past ten years, yet only roughly 3% of Kazakhstan's GDP is made up of creative businesses.

Additionally, employers find the creative sectors more appealing. In 2020, 3.4 % of all jobs in Kazakhstan were in the creative economy, which employed roughly 310 thousand people [22]. Between 2010 and 2020, employment in the creative industries grew at an average annual rate of 2.8 %, compared to the national average of 0.6% (Figure 3).

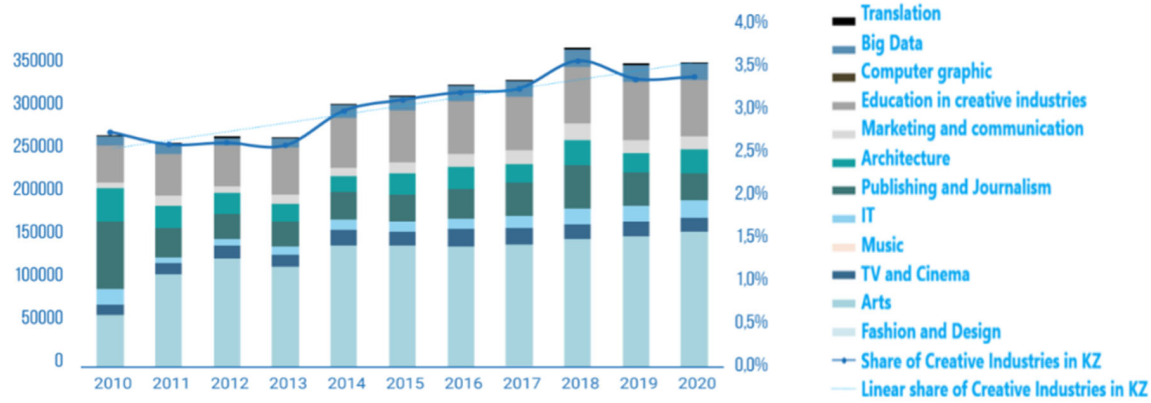

Figure 3 – Employment in Creative Industries, 2010-2020, people

Note – Economics Research Institute [22]

The design, art, and marketing industries saw the fastest percentage growth in the number of employees.

In the beginning of 2024, the UNDP, Ministry of Culture and Information, and Almaty Management University conducted training workshops on creative industries in Astana [23]. The sessions targeted local akimat representatives and took place at the Academy of Public Administration. Katarzyna Wawiernia, UNDP Resident Representative in Kazakhstan, highlighted the importance of creative industries in promoting sustainable development. The workshops highlighted Kazakhstan's potential in this area, with skilled and visionary young people being the primary catalyst for long-term and environmentally responsible development**.**

Digital Transformation of Kazakhstan: Leaving Creative Industries Behind. Kazakhstan has achieved a lot in the fields of digitalization through immense investments and ambitious official projects, such as "Digital Kazakhstan" and, "Technological Leap" during 2018-2024.

The total amount budgeted for Kazakhstan's "Digital Kazakhstan" national program for the 2018-2022 period was 108.7 billion tenge, with a total budget for 2020 of 35 billion tenge [24]. From 2018 to 2021, 207.5 billion tenge were utilized, including 82.4 billion from the republican budget and 90.6 billion in private investments [25]. The program sought to digitalize all aspects of the State of Kazakhstan, moving towards the establishment of a digital state to implement the Digital Silk Road, develop human capital, and foster innovation. It was intended to increase labor productivity and capital growth through the transformation of traditional sectors, the transformation of public services into state functions acting as infrastructure, and the establishment of a creative society for the knowledge economy. This program further aimed to create stable horizontal connections between business, science, and the state acting as a catalyst for fostering technological entrepreneurship and innovation.

Launched to curb the digitalization in Kazakhstan, the National Project "Technological Leap" (2021-2025) requires 2.26 trillion tenge as funding, and it can produce about 100,000 jobs and possibly increase the information and communication technology sector share of GDP by about 5% [26].

Nevertheless, there are still gaps exist in the creative sectors because they have been given less attention in the overall strategy for digitization. The development of infrastructure, digital public services, support for tech entrepreneurs and introducing digital technologies into traditional economic sectors are the primary goals. While activities focus on these areas, human-capacity issues remain the highest priorities: training in IT skills and developing digital skills.

The development of the creative industries in Kazakhstan during the ongoing phase of digitalization is hampered by a lack of well-laid plans, funding shortages, weak infrastructure, inadequate knowledge about intellectual property, lack of sufficient economic resources, and many others. Key hindrances to progress are the absence of unified strategies for the development of creative industries in the digital context.

The Table 1 explains the potential economic impact and trade-offs of smart city technology implementation in creative industries in Kazakhstan. Capital costs cover initial investments in R&D, infrastructure, and entrepreneurship. However, long-term operational costs, like infrastructure maintenance, software upgrades, cyber security and data privacy measures are crucial to be considered.

Table 1 – Evaluation of economic costs and benefits

Potential Economic Costs	**Potential Economic Benefits**
Initial Investments:	Increased Productivity and Efficiency for creative industries: Smart City technologies enhance productivity in a number of transport, energy, and public service areas, leading to economic growth.
Smart City Infrastructure: Implementation of smart city-technologies, such as high-speed internet, efficient workplaces, and the Internet of Things (IoT) infrastructure, is expected to cost a considerable amount for either the government or the private sector.	
Supporting Creative Enterprises: Supporting entrepreneurship may involve financial outlays with regard to subsidies grants and tax incentives.	Job Creation: it can engender job creation and diversification, thus creating new jobs for designers and technologists to entertainers, diversifying economies away from dependence on traditional sectors.

Education and Skill Development: There are financial costs involved for training people on different educational courses in order to have them develop the skill set.	Economy Diversification: It could perhaps minimize the heavy reliance on natural resources in an economy by nurturing creative entrepreneurship.
Maintenance of Infrastructure:	Stimulating Investments: A vibrant creative economy stimulates foreign investment, contributing to job creation, and increases import of the national creative product to the international market.
Maintenance and upgrading of smart city infrastructure, including internet network maintenance, software updates, and cybersecurity actions, will incur continuing expenditures.	
Addressing Possible Risks:	The Better Quality of Life: Smart city technologies can significantly uplift quality of life by enhancing access to services, decongesting traffic, and augmenting environmental sustainability.
Data Privacy and Security: It is essential to implement data privacy and security measures to protect sensitive data collected by smart city technologies. These systems can also be expensive.	
Job Displacement: The adoption of smart city technologies may result in the job displacement of some sectors.	
Note – complied by the authors	

Fostering Creativity: How Smart Cities Support Creative Industries. Urban smart cities play a crucial role in promoting creative industries. This is done via employing advanced technologies and innovative infrastructure to cultivate environments that encourage creativity and entrepreneurship. Through data-driven solutions, these cities enhance connectivity, streamline public services, and improve the quality of life, thereby drawing in creative professionals and businesses. Smart cities provide state-of-the-art facilities such as co-working spaces, incubators, and tech hubs, which offer the necessary resources and networks for the growth of creative enterprises. Moreover, they emphasize sustainability and cultural richness, making them appealing to creative talents seeking dynamic, eco-friendly, and culturally vibrant urban settings. Komninos & Kakderi [27] stated that by incorporating smart technologies into urban planning and development, these cities establish ecosystems where creative industries can flourish, fostering economic growth, job creation, and innovation.

The creative industries play a crucial role in driving economic growth, and smart cities provide novel prospects for these sectors. Cultural and creative areas contribute to the improvement of the quality and liveliness of urban life, hence increasing the attractiveness and sustainability of cities (Table 2 **in Appendix 1**).

Smart cities promote creativity by implementing advanced infrastructure, establishing a supportive environment, utilizing digital technology, implementing human-centric management practices, generating employment opportunities, and providing cultural places. Their role include facilitating the development of infrastructure for research and development initiatives, fostering innovation, and making investments in management practices that prioritize the well-being and needs of individuals [11].

These aspects jointly contribute to the growth of a prosperous creative economy, which in turn stimulates innovation, social unity, and environmental sustainability. Smart cities in Kazakhstan enhance creative industries by utilizing cutting-edge technologies and modern infrastructure to foster an environment that encourages creativity and entrepreneurship.

The evolving landscape of creative industries calls for places and working-settings, which can cater to creativity and share the work of living. The term 'co-working' is a very interesting and fast-growing idea in the last few years [33]. The situation in the labor market is changing rapidly. More and more people do not want to go to the office daily and receive a monthly fixed salary. Freelancing and self-employment have increasingly become more attractive alternatives to the "9-to-5" job, especially for entrepreneurs in the creative industry. That is why creating co-working centers in each city of Kazakhstan is a non-complex and good decision for stimulating the work of creative entrepreneurs.

Ust-Kamenogorsk city is located in East-Kazakhstan, offers unique opportunity for the development of a co-working platform due to the growing creative sectors and smart-city initiatives. The cost-benefit analysis [34] can be conducted to find the viability of creating a co-working space, mainly for the creative industries, using smart city technology in Ust-Kamenogorsk, East-Kazakhstan (Table 3). The costs in the table are approximate and may vary depending on the factors like location, equipment selection, and the desired capacity of the co-working space.

Table 3 – Cost-Benefit analysis: Creating co-working space

Expenditures	**Min amount (average value) tg**	**Comments**
Initial costs		
Furniture and equipment	10 000 000	Varies depending on the amount of equipment purchased (20 work spaces, 10 computers,1 3D printer, 1 projectors, 2 printer, 1 coffee machine, water coolers, routers, hubs, etc)
Advertising campaign	400 000	Print and digital commercial
Business registration (individual entrepreneur)	0	Registering individual entrepreneur form of business online is free (https://egov.kz/cms/ru/articles/Kak-otkryt-IP). Additional expenditures might be associated with banking activities
Renovation, design and furnishing	6 000 000	
Automation of the center with smart-home systems	1 500 000	Access control systems (e.g., biometric systems or access cards), platforms for managing bookings and payments: the cost of the license can vary depending on the functionality, customer accounting and CRM systems, installation of high-speed internet and Wi-Fi equipment, video surveillance and security systems.
Total	17 900 000	
Monthly costs		
Rent 100 m^2	800 000	8 000 tg -10 000 tg per m^2 in the downtown
Consumables	500 000	Stationary, ink, coffee, toilet paper, soap
Utilities	300 000	Utilities and internet
Depreciation	500 000	
Salary fund	1 100 000	Director: 300,000 tenge Administrators (2): 400,000 tenge Cleaner: 150,000 tenge Taxes/deductions: 250,000 tenge
Total costs	3 200 000	
Revenue		
Minimal number of users per month	100	
Average monthly fee	50 000	
Total	5 000 000	
Calculations		
Net profit per month	1 800 000	Revenue-Monthly costs
Annual net profit	21 600 000	Net profit *12
Payback period	0,83 years (approximately 10 months)	Initial cost/annual net profit
Benefit-cost ratio	1,56	Revenue/monthly costs
Note – complied by the authors		

Since the benefit/cost ratio is more than one and payback period are less than a year, such a project would be viable. In order to increase the revenue potential and attract more visitors, the creative spaces can implement subscription models, added value services, partnerships and sponsorships, marketing and outreach, community building, flexible workspace options, accessibility, and government support. Some of the additional services that would be great for added revenue include workshops, training courses, and courses for technical training, training for professional development, equipment rentals, and an on-site café. To ensure accessibility and promote inclusivity, this kind of co-working centers can be established in diverse locations across the city. The operation costs of these centers will vary depending on the factors such as location and availability of the resources.

THE MAIN PART OF THE RESEARCH

Methodology and findings. The research focuses on identifying key areas where policy and infrastructure development can promote a flourishing creative industry, thereby contributing to the country's smart city am-

bitions. It also aimed to understand the effects of a proposed policy framework and infrastructure investments on cooperation, creativity, and business expansion within the creative sector. A qualitative research method was adopted whereby individual interviews with creative entrepreneurs were conducted in order to reveal key challenges existing in the sector. The study's key research question has been formulated as: "What policy frameworks and infrastructure are required in Kazakhstan to provide a supportive sustainable ecosystem for creative enterprises inside smart cities?"

The original Quadruple Helix Model, reconceptualized by the authors to investigate the policy and infrastructural prerequisites for fostering a conducive environment for creative enterprises within Kazakhstani smart cities, underscores the intricate interplay among its constituent elements (Figure 4).

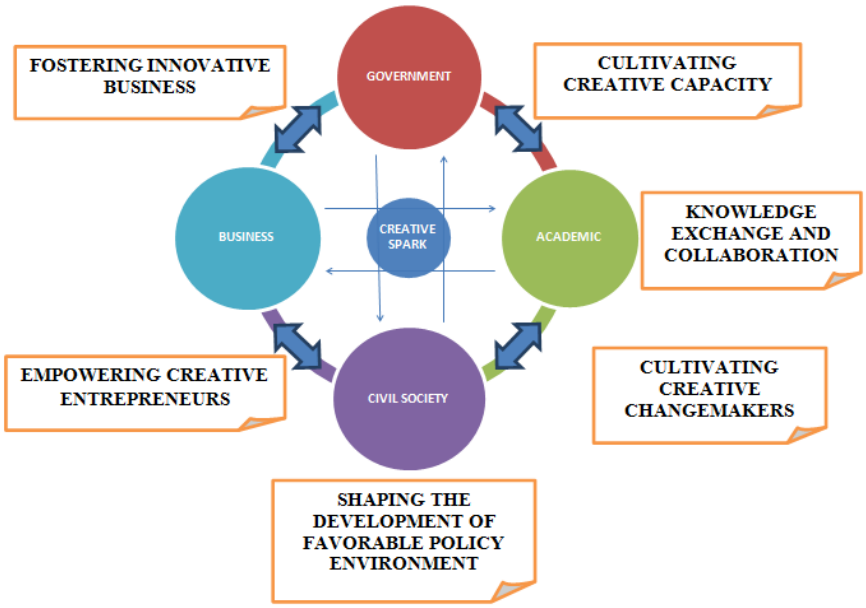

Figure 4 – Quadruple Helix Model for Kazakhstan's Creative Economy

Note – Developed by the authors based on the source [15]

The Quadruple Helix Model, tailored for Kazakhstan's creative economy, emphasizes the significance of collaborations among government, academia, business, and civil society to establish a sustainable creative ecosystem in smart city areas. Government policies serve as pivotal determinants of consumer preferences, while universities contribute by cultivating requisite educational programs. In parallel, invaluable practical training is being offered by the businesses, alongside with the civil society organizations advocating for policies to promote creative economy. Through this successful model the players of can enhance the collaboration within the creative economy of Kazakhstan. The model also empowers the stakeholders to mutual work for the sake of the dynamic and thriving creative sector, which in turn contributes to the economic and social development of the whole country.

The interactions between the stakeholders along with the benefits for a thriving creative economy resulted from Figure 4 are described in details in Table 4 **in Appendix 2**, where SMART goals and KPIs are being utilized as clear metrics to evaluate their effectiveness. By tracking these KPIs, stakeholders can make adjustments to achieve the desired outcomes for a flourishing creative ecosystem.

The collaboration between government and businesses is essential for promotion of innovative enterprises to increase resources, create jobs and contribute to the country's GDP. It is also crucial to empower entrepreneurial individuals, share knowledge and promote educational initiatives. The final interaction between academia and civil society concentrates on nurturing creative changemakers through the integration of social awareness and ethics into creative education. Community oriented projects are the examples that can be used

to address social issues through creative solutions. Successful collaboration between those stakeholders will lead to a vibrant and enduring creative ecosystem in Kazakhstan. Application of this approach guarantees a more prosperous and innovative creative sector.

To explore the viewpoints and practical experiences of the creative entrepreneurs from several areas of Kazakhstan the work implements a qualitative research approach, embedded in the Quadruple Helix Model. Seventeen in-depth interviews with entrepreneurs from Ust-Kamenogorsk, Almaty, Astana and Semey were conducted for this study to gain comprehensive, firsthand perspectives of the challenges and opportunities they experience. Moreover, their answers can start a base for the support mechanism essential for nurturing a robust creative economy of Kazakhstan since the challenges they experiencing are similar to the most of the industry. According to L. Altinay, & A. Paraskevas [35] the qualitative approach is commonly reputed as the most effective data collection method to comprehend the data from the in-depth interview and represent in details the studied phenomenon. This most appropriate data collection technique to gather the primary data through semi-structured interviews was chosen for this study for several reasons. Foremost, the interviews allow the researchers to obtain substantial and thorough data regarding the up-to-date state of the emerging creative industry in Kazakhstan. The absence of precise statistical data on the creative sector makes it difficult to analyze and forecast which is crucial for strategic planning in this industry. Moreover, personal interviews provide the opportunity to see the authentic insights of the creative entrepreneurs and more precisely distinguish their challenges.

The research used Braun and Clarke's [36] thematic analysis with the aim of uncovering critical factors for exploring the necessary legislative frameworks and infrastructure investments for creating a favorable environment for creative businesses in smart cities. Participants were interviewed in their native languages, Kazakh and Russian, to facilitate open and confident communication. Each interview lasted 20-30 minutes, aiming for in-depth responses while staying focused. The verbatim transcriptions were later translated into English for further analysis. The demographics of respondents are provided in Table 5.

Table 5 – Demographic profile of the respondents

Respondent	Gender	Age range	Region	Type of Creative Entrepreneurship
R1	Female	18-25	Ust-Kamenogorsk	Creative product development
R2	Female	46-55	Ust-Kamenogorsk	Creative product development
R3	Female	56-65	Ust-Kamenogorsk	Creative service development
R4	Female	35-45	Ust-Kamenogorsk	Creative product/service development
R5	Female	35-45	Ust-Kamenogorsk	Creative service development
R6	Male	18-25	Ust-Kamenogorsk	Creative product development
R7	Female	35-45	Astana	Creative technology development
R8	Female	35-45	Ust-Kamenogorsk	Creative product development
R9	Female	26-35	Semey	Creative service development
R10	Female	35-45	Ust-Kamenogorsk	Creative product/service development
R11	Male	56-65	Ust-Kamenogorsk	Creative product development
R12	Female	26-35	Ust-Kamenogorsk	Creative product development
R13	Male	26-35	Ust-Kamenogorsk	Creative service development
R14	Female	18-25	Ust-Kamenogorsk	Creative product development
R15	Male	35-45	Semey	Creative product development
R16	Female	35-45	Almaty	Creative product/ service/technology development
R17	Female	18-25	Oskemen	Creative product development
Note – compiled by the authors based on the conducted survey sources				

Maguire & Delahunt in their work dedicated to thematic analysis [37] declared that meticulous investigation of the collected qualitative data in forms of interview transcripts or textual materials is the initial step of data immersion. In the initial state the data gets organized systematically via coding – a process that breaks down the extensive amount of data into smaller pieces. Two coding techniques – the open and axial were

adapted to correlate with the research objectives and implied the detailed examination of the transcripts. A comprehensive list of codes was generated from the data received following the methods described my Braun and Clarke [36]. The major goal was to pinpoint the patters and correlations across the entire data sent [38]. Those were the key characteristics of the dataset relevant to the research focus and unveiled the distinct patterns. The next phase entailed their further adjustment.

Key Benefits of Integrating Smart City Technologies and Creative Industries in Kazakhstan. A multidimensional influence on creativity was revealed through the in-depth interviews on the integration of smart city technologies into the creative industries of Kazakhstan. Several major potential areas for the technologies to stimulate the transformation and expansion were highlighted by the participants. As the key benefits of smart city technology integration into the creative industries in Kazakhstan were emphasized the following criteria: "*Improved motivation and creativity*", *"Enhanced resource management and efficiency"* and *"Greater marker opportunities"*. Admission to the leading technologies facilitates more effective generation and implementation of new ideas by the creative entrepreneurs. More resonant and impactful work can be produced with the data analytics providing insights into the target audience preferences. Creative individuals from diverse fields can collaborate easier due to the environment fostered by the smart city technologies:

"…Creative self-realization, is something I believe can be provided as the result of smart technologies. For instance, the use of data and analytics will help us to better understand our audience and create more resonant work. In addition, smart cities can serve as platforms for showcases, allowing us to reach a wider audience…

Furthermore, some respondents predicted the appearance of novel artistic formats like interactive installations though the use of augmented reality and immersive virtual theaters. It is expected that these innovation will serve as a major attraction to new audiences and boost the creativity within the arts:

"…New creative formats are about to emerge through the integration of smart city technology and creative industry. Interactive art installation via augmented reality technologies or virtual theaters where the spectators are to be completely immersed in the performance can be imagined already. Such innovations will stimulate creativity and attract new art fans…"

Respondents expressed confidence that integrating smart technologies will yield long-term benefits, laying a foundation for the development of Kazakhstan's creative economy. This integration is seen as a pathway to sustained innovation and growth. Interviewees expect that smart technologies can enhance efficiency by streamlining workflows. Tools like cloud storage and project management systems allow creatives to collaborate remotely, freeing up time for more creative pursuits and reducing the burden of routine tasks. The use of virtual and augmented reality technologies can expand market opportunities for creative professionals, making their work accessible to global audiences. This potential for broader distribution is viewed as a significant advantage in enhancing the competitiveness of Kazakhstan's creative industries. The insights from the interviews suggest that Kazakhstan's creative industries are on the brink of a significant transformation. By leveraging smart technologies, creatives can tap into global markets, thereby increasing their visibility and sales potential. This global reach is vital for the sustainability and growth of the creative economy in Kazakhstan:

"…Smart technologies can help creative businesses in Kazakhstan improve the quality of their products and services, making them more competitive in the international market; … Smart cities can become a new market for creative products and services…"

Key Challenges in Integrating Smart City Technologies and Creative Industries in Kazakhstan. The integration of smart city technologies and creative industries in Kazakhstan faces several significant challenges that must be addressed for successful development and growth. Insufficient funding from both public and private sources is a major barrier to implementing innovative projects, purchasing necessary technologies, and ensuring adequate infrastructure. Lack of available credit lines, limited budgets, and complex grant procedures hinder investment in these areas by various stakeholders:

"…Insufficient funding poses a significant barrier to the development of smart cities and creative industries in Kazakhstan. This limits the ability to implement innovative projects, purchase necessary technologies and ensure the availability of infrastructure. Lack of available credit lines, limited budgets and complex grant procedures hinder both public and private actors from investing in these areas…"

Poor infrastructure, shortage of skilled personnel and limited availability of dedicated spaces for creative enterprises, makes it difficult to implement and use smart city technologies effectively. The absence of specialized spaces, co-working centers, studios, and exhibition facilities also holds back the growth of creative industries:

"…Broadband internet access is vital to the operation of many smart city technologies, such as traffic management systems, smart lighting systems and connected devices. In some regions of Kazakhstan, access to high-speed Internet is limited or absent, making the adoption of these technologies difficult. An efficient transport system is a key to the successful operation of smart cities. However, in some regions of Kazakhstan, the transport system is outdated and does not meet the requirements of modern technologies…

... The development, implementation and maintenance of smart city technologies require skilled personnel in information technology, engineering and other related fields. There is a shortage of such specialists in Kazakhstan, which hinders the development of smart cities…"

The lack of clear legislation governing the use of smart city technologies and the operation of creative industries creates uncertainty and hinders the development of these sectors. The investments and growth opportunities are limited because of the bureaucratic barriers, weak approval processes, and a lack of government incentives for innovation:

"…The uncertainty, lack of clear legislation governing the application of smart city technologies along with the creative industry operations hinders the development of these sectors. Bureaucratic barriers, weak approval processes, lack of government incentives for innovation, all of the above holds back investment and growth opportunities…

The Table 6 proposes a strategy to improve the efficiency of the ecosystem of the creative industries in Kazakhstan. It is performed by mitigating bureaucratic barriers and ambiguous layers of legislation.

Table 6 – Improvement strategies for regulatory landscape

Eliminating Bureaucratic Barriers & Ambiguous Legislations	Improving Legal Clarity
Applications of Improved Regulatory Processes:	A Complete Legal Review: The review of legislation relating to the developing creative industries in smart cities to ascertain where there are inconsistencies, conflicts, ambiguities, or overlaps.
One-Stop point: Create an online platform for businesses to collect all the necessary licenses, permits, and approvals.	
Digitalization of Administrative Procedures: The digitization of administrative processes will significantly reduce paperwork, time taken, and corruption risks.	Build Clear Legal Frameworks: Develop clear legislation to spur creative entrepreneurship by promoting interests that go against the traditional corporate business models. These include issues of this nature, such as intellectual property rights, data protection, and digital rights.
Risk-Based Approach: Run a risk-based approach to regulation, focusing on high-risk sectors, while minimizing unnecessary strain on low-risk creative companies.	Public Consultation: The involvement of relevant stakeholders (creative entrepreneurs, industry associations, legal experts) in the development and review phases of new legislation to ensure it meets the sector's needs.
Specific Examples within the Kazakhstan Context:	Creating Trust and Transparency: Establish clear links of communication for the transparent communication of governmental agencies to creative entrepreneurs.
Develop and implement a separate "creative industries act" that addresses the concrete needs and challenges of the creative sector in Kazakhstan.	
Establish an advisory body called the "Creative Industries Council". This body will create a platform through which industry representatives can interact and cooperate with public officials and academic institutions.	Promoting accountability: Monitor and evaluate the effectiveness of regulation and respond to business community concerns raised.
Create a special fund to support developing digital infrastructure and skills training for creative entrepreneurs in smart cities.	Confronting Corruption: Strengthening anti-corruption measures so that there is a fair and equitable treatment for all businesses touching creative industries.
Note – complied by the authors	

A multi-pronged approach is suggested to improve regulatory clarity, administrative streamlining digitization, creating clear legislative architecture, a risk management approach, and engaging stakeholders for the elaboration and review of legislation. Clear lines of communication between government agencies and creative entrepreneurs bridge the gap between transparency and confidence. Once the stronger monitoring and evaluation mechanisms are in place, it allows for accountability; working on anti-corruption issues; and providing stimulus for innovation with a special fund for digital infrastructure and skills training in support of creative entrepreneurs operating in smart cities. Such measures aspire towards a conducive environment for the flourishing of Kazakhstani creative industries.

The Role of Public-Private Partnership Policy Framework and Innovation Hubs in Developing Smart Cities and Creative Industries in Kazakhstan. The findings discovered through the qualitative research emphasize the critical importance of public-private partnership policy and encourage incubators and hub development boosting the advancement of smart city technologies and creative industries in Kazakhstan. To successfully integrate the smart city technology and creative industry it is essential for the government to collaborate with the private sector. Knowledge and experience that those sectors poses should be combined to create synergies and more efficiently use the resources to stimulate the growth of economy, better the quality of life, and create innovative solution. The government is a key player to enable environment for a working public-private partnership policy incentives, R&D funds, and regulatory framework creation. This can be done through the support of public-private partnership, co-financing projects mechanism creation and acquisition procedures. It is crucial to understand that those incentives along with the funding become available for small and medium-sized enterprises vital to the creative economy development, in addition to the large companies:

"…To accelerate the development of smart cities and creative industries in Kazakhstan it is important for the state and private sector to cooperate and support innovation centers and incubators. The public sector possess the authority and resources to build up the fitting environment for the creative industries and smart cities development. The private sector has the innovative solutions and experience and investment potential. Synergies and more effective use of available resources can result from the collaboration of these two sectors;

... The development of creative industry and introduction of smart city technologies can result from the creation of hubs, innovation centers and incubators. Entrepreneurs can get access via those centers to the needed resources, mentorship, and funding to implement their ideas to life…"

The development of the creative industries and adoption of smart city technologies can result from the creation and support of innovation centers and incubators. Creative entrepreneurs can get access to whole range of resources needed to implement their ideas. The government should focus on supporting infrastructure development and actively participate in increasing awareness about their role in promoting entrepreneurship. The creation of networks can further boost the innovation and creativity ecosystem.

CONCLUSION

The creative sector in Kazakhstan is undergoing a transformative phase, stimulated by the development of smart city technologies and the initiatives like Creative Spark. This program has provided a tremendous support to creative entrepreneurs through funding, global networking and training. Meanwhile, smart city technologies empower the environment for creativity with the help of modern infrastructure and sophisticate technologies. The synergy is paramount when boosting innovation, collaboration and economic expansion within the creative industries of Kazakhstan.

The goal of this research was to point out the development of essential legislative architecture and investment infrastructure to create a favorable ecosystem for creative businesses within the smart cities of Kazakhstan. Seventeen in-depth interviews with creative entrepreneurs from several regions were conducted through qualitative research to uncover the specific challenges they face in their profession. During the thematic analysis of the interviews critical factors like improved innovations, enhanced efficiency and greater market opportunities due to smart city technologies were highlighted.

Nevertheless, there are challenges to integrate smart city technologies into the creative sector such as insufficient funding, lack of infrastructure and indeterminate legislation. A favorable ecosystem for creative indus-

try needs to be established to be able to contribute to the sustainable development. These issues can be addressed through the strategic policy framework, investment in infrastructure, and public-private partnerships.

The Quadruple Helix Model for Kazakhstan's Creative Economy suggested by the authors and the description of the stakeholders' interactions help to understand the interplay between the key actors: government, society, business and academia, assisting the policy makers in development of a robust creative ecosystem.

This work contributes to the academic discourse and provides practical strategies directing the creative industries in an incrementally technology powered future of Kazakhstan.

The insights from this work will provide a considerable input for strategic decisions to foster economic and cultural growth of Kazakhstan in its pursuit to embrace technological progress and creative entrepreneurship development.

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АҚЫЛДЫ ҚАЛАЛАРДЫҢ ТҰРАҚТЫ БОЛАШАҒЫН ҚАЛЫПТАСТЫРУ: ҚАЗАҚСТАНДАҒЫ ШЫҒАРМАШЫЛЫҚ КӘСІПКЕРЛІКТІҢ КҮШІ

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АҢДАТПА

Зерттеу мақсаты: Қазақстандағы шығармашылық кәсіпкерлікті дамытудағы және тұрақты дамуды ынталандырудағы "ақылды қалалардың" маңызды рөлін зерттеу. Зерттеу осы қалалық ортада шығармашылық бизнес үшін қолайлы экожүйені құру үшін қажетті саясат пен инфрақұрылымдық құрылымдарды анықтауға бағытталған.

Зерттеу әдіснамасы: Қазақстанның әртүрлі аймақтарындағы шығармашылық кәсіпкерлермен терең сұхбаттарды қамтитын сапалы зерттеу әдісі қолданылды. Сұхбаттарда осы кәсіпорындардың алдында тұрған қиындықтар мен мүмкіндіктер, сондай-ақ олардың "ақылды қала" бастамаларының рөлі туралы көзқарастары қарастырылды.

Зерттеудің бірегейлігі / құндылығы: Бұл зерттеу орталық Азия контекстіндегі ақылды қалалар мен шығармашылық кәсіпкерліктің қиылысын зерттеу арқылы білімдегі айтарлықтай алшақтықты жояды.

Нәтижелер аймақтағы инновациялар мен экономикалық өсуге ықпал еткісі келетін саясаткерлерге, оқытушыларға және кәсіпкерлерге құнды ақпарат береді.

Зерттеу нәтижелері: Зерттеу Creative Spark және "ақылды қала" бастамалары сияқты бағдарламалар Қазақстанның креативті экономикасын ынталандырғанымен, мемлекеттік және инфрақұрылымдық қолдауды күшейту қажет екенін көрсетеді. Негізгі міндеттерге жоғары жылдамдықты интернетке қол жетімділік, ақылды қалалардағы үнемді жұмыс орындары мен мамандандырылған жабдықтар, бюрократиялық кедергілерге байланысты реттеуші кедергілер және шығармашылық тұлғаларды цифрлық дағдылармен қамтамасыз ету үшін кеңейтілген білім беру және оқыту бағдарламаларының қажеттілігі жатады.

Түйін сөздер: Шығармашылық индустриялар, ақылды қалалар, шығармашылық кәсіпкерлер, Қазақстан.

ФОРМИРОВАНИЕ УСТОЙЧИВОГО БУДУЩЕГО УМНЫХ ГОРОДОВ: СИЛА КРЕАТИВНОГО ПРЕДПРИНИМАТЕЛЬСТВА В КАЗАХСТАНЕ

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АННОТАЦИЯ

Цель исследования: Исследовать ключевую роль умных городов в стимулировании творческого предпринимательства и продвижении устойчивого развития в Казахстане. Цель исследования заключается в определении необходимых политических и инфраструктурных рамок для создания благоприятной среды для креативных предприятий в этих городских условиях.

Методология исследования: Использован качественный исследовательский подход, включающий углубленные интервью с креативными предпринимателями из различных регионов Казахстана. Интервью исследовали проблемы и возможности, с которыми сталкиваются эти предприятия, а также их взгляды на роль инициатив умных городов.

Оригинальность / ценность исследования: Это исследование заполняет значительный пробел в знаниях, изучая пересечение умных городов и креативного предпринимательства в контексте Центральной Азии. Результаты предлагают ценные идеи для политиков, педагогов и предпринимателей, стремящихся продвигать инновации и экономический рост в регионе.

Результаты исследования: Исследование подчеркивает, что хотя программы типа "Creative Spark" и инициативы умных городов способствовали росту креативной экономики Казахстана, требуется больше государственной и инфраструктурной поддержки. Ключевые проблемы включают доступ к высокоскоростному интернету, доступные рабочие пространства и специализированное оборудование в умных городах, регуляторные препятствия из-за бюрократических преград и необходимость улучшенных образовательных и учебных программ для оснащения креативных людей цифровыми навыками.

Ключевые слова: Креативные индустрии, умные города, креативные предприниматели, Казахстан.

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APPENDIX 1

Table 2 – Smart Cities Supporting Creative Industries

Areas of support	Description	Benefits for Creative Industries	Forms	Sources
Infrastructure and Ecosystem	High-speed internet, digital platforms, open data initiatives, and co-working spaces offer opportunities for collaboration, networking, inspiration, and project development, while also providing affordable workspaces and resources.	Increased cooperation, Exchange of information, access to new data and ideas, Expanded access to financing and assistance.	High-speed internet facilitates collaboration and networking, while open data inspires project development. Affordable co-working spaces and incubators provide resources and support, while creative clusters foster innovation and collective vibrancy.	[28, 29]
Digital Technologies and Human-Centric Management	Virtual and augmented reality enhance audience engagement, personalized marketing tools attract clients and investors, and smart city data informs artistic expression and creative solutions.	Enhanced audience outreach and interaction Precision marketing and audience cultivation Data-informed analysis for cutting-edge initiatives	VR/AR experiences enhance audience engagement, personalized marketing attracts clients, smart city data informs artistic expression, and human-centered design prioritizes accessibility, inclusivity, and community needs.	[28, 30]
Job Creation and Economic Evolution	E-commerce platforms and global connectivity create new market opportunities, enabling creative businesses to thrive and create new job roles in smart city technologies.	Enhanced opportunities to penetrate untapped areas and reach a wider international customer base Augmented economic expansion and broadened range of industries Novel professional prospects in technology-integrated creative sectors	E-commerce platforms offer global reach, increased visibility, and new job roles. The entrepreneurial ecosystem provides incubators, funding, and support networks for collaboration and collaboration.	[28, 31]
Cultural and Creative Spaces	Interactive public spaces are transformed into artistic platforms, cultural events are personalized and accessible through digital tools, and cultural heritage is preserved and reimagined.	Enhanced opportunities for creative creativity and audience participation Heightened accessibility and involvement in cultural endeavors Novel methods for safeguarding and elucidating cultural legacy	Digital installations and artistic expression in public spaces, personalized cultural experiences, and augmented experiences for cultural heritage preservation and reimaginationare key strategies for engaging audiences.	[28, 32]
Note – complied by the authors based on the sources [28 - 32]				

APPENDIX 2

Table 4 – Description of interactions between the stakeholders

INTERACTION NAME	INTERACTION GOALS	INTERACTION RESULTS	SMART GOAL	KPI
Fostering innovative business	**Government Goal:** Cultivation of a prosperous creative industry. **Business Goal:** Functioning within conductive and challenging settings.	-Improved allocation of resources -Expanded innovative enterprises -Generated employment -Enhanced contribution to GDP by the creative industry	Increase the number of new creative businesses launched within the smart city zones by 15% in the next three years	Number of new business registrations in the creative sector inside those smart city zones.
Cultivating creative capacity	**Government Goal:** Skilled workforce development **Academic Goal:** Industry aligned creative education program development and delivery	-Development of curricula -Increased enrollment -Skilled graduates sought by the businesses	Raise the participation rate of creative professionals in skills development programs offered within smart city zones by 10% within the next two years.	Number of creative professionals participating in training programs and workshops offered by smart city initiatives.
Knowledge exchange and collaboration	**University Goal:** Practical applicability of education and research improved **Business Goal:** access to highly skilled professionals and experts	-Practical training and students internships -Research initiatives -Product and services R&D -Enhanced employment prospects	Facilitate at least 10 successful collaborative projects between creative businesses and academic institutions within smart city zones within the next three years.	Number of collaborative projects, partnerships, and knowledge-sharing initiatives between creative businesses, academic institutions, and other stakeholders within smart city zones.
Shaping the Development of Favorable Policy Environment	**Civil Society Goals:** Advantageous creative economy policies promotion **Government Goals:** Efficient strategies formulation for creative industry advancement	-Government initiatives like tax exemptions and financial support. -Intellectual property safeguard system - Significance of the creative economy in the public eyes	- Develop and implement a comprehensive national strategy for the development of the creative industries within the next two years.	- Number of government agencies actively involved in the implementation of the creative industries strategy.
			- Increase public awareness and support for the development of the creative industries by 15% within the next three years.	- Number of public events and initiatives promoting the creative industries.
			- Increase the number of government programs and initiatives providing financial support and tax incentives to creative businesses by 10% within the next two years	Number of new government programs and initiatives specifically designed to support creative businesses, along with the number of creative businesses benefiting from government support programs.

Empowering creative entrepreneurs	**Civil Society Goals:** Cooperation facilitation and competitiveness enhancement **Business Goals:** Untapped markets expansion, specialized knowledge development, use of additional resources to exploit the advantages of artistic community.	-Design of the programs to enhance the skills and knowledge of creative entrepreneurs. -Mentorship and networking business opportunities. -Global markets access. -Rise of artistic products and services -Enhanced enterprise/institution collaboration -Funding/support of innovative projects -Talent and investment magnetization	Boost average revenue generation in smart city zones for creative enterprises by 20 % within the next five years.	Average annual revenue per creative business in those smart city zones
Cultivating creative change makers -	**Civil Society Goal:** 1.Up-to-date knowledge and methods provision 2.Ethical consideration incorporation in creative education 3. Cooperation enhancement between the public and universities **Academic Goal:** 1.Increased impact on society via creative education 2.Community oriented artistic endeavors 3.Researches through innovative solutions	-Social awareness and creative aptitude enhancement -Creative projects engaging community -Capacity building and knowledge transfer -Empowered change makers	Increase the number of social enterprises and social impact projects initiated by creative entrepreneurs in smart city zones by 8% within the next four years.	Number of social enterprises and social impact projects launched by creative entrepreneurs in smart city zones.
Note – complied by the authors				