

Smart Economy

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ABSTRACT

Smart ideas seem to be the answer to many contemporary challenges. The concept of “smart city” is gaining more and more attention from scholars all over the world. The concept presupposes the integration of different parts: Smart Economy, Smart Environment, Smart People, Smart Living, Smart Mobility, and Smart Governance. A smart economy is an economic model focused on leveraging technology, innovation, and sustainability to enhance quality of life, productivity, and competitiveness. In today’s interconnected world, smart economy solutions can enable businesses to reach new markets and connect with customers from around the globe, leading to increased competitiveness and profitability. The goal of this paper is to determine the direct effects of smart economy on other smart components.

KEYWORDS: *smart technologies, smart economy, smart cities, smart components.*

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INTRODUCTION

With a rapidly growing world population, urban populations are estimated to increase significantly over the next decades. This trend is reason for concern since the planet's resources are limited, and climate change is inherent. How can cities respond to the multitude of challenges by employing technology and at the same time ensure the public well-being, improve the quality of life of city inhabitants? The concept of smart city answers this question.

The smart city model is shown in Figure 1 [1]. In realizing a smart city, a city must implement seven important indicators [2]: Smart People, Smart Economy, Smart Government, Smart Environment, Smart Living, Smart Mobility, and Smart Branding. These dimensions of a smart city are illustrated in Figure 2 [3]. It is evident that one of the indicators is smart economy. Cities that declare themselves as smart cities must have programs that support smart economy.

Economic developments are essential for a city to run and survive. Take Seoul, South Korea, for example, which claims to be a city that was reborn as Smart Economy City in 2020. Seoul has smart economic

projects, one of which is the construction of a special industrial complex containing the four main industries in Korea, which are clothing, jewelry, printing, and machinery. This development is aimed at the activation of industry and the creation of jobs.

Smart economy is a constituent part of national economy; the level of economic development and economic indicators can affect all the processes in the nation. Smart economy is the area where the new economic phenomena take place. It is an environment for facilitated development of e-business and e-commerce and new opportunities for entrepreneurs. The main principles of smart economy are based on the resource efficiency, which is achieved via technological innovations [4].

CONCEPT OF SMART ECONOMY

The concept of a smart economy refers to the integration of digital technologies and innovative applications in different areas of economic activity. A smart economy is an economy that is based on technological innovation, resource efficiency, sustainability and high social welfare as engines for success. It emphasizes the use of digital technologies,

data analytics, and resource efficiency to drive economic growth and improve various aspects of society. It adopts innovation, new entrepreneurial initiatives, increases productivity and competitiveness with the overall goal of improving the quality of life of all citizens.

Smart economies depend heavily on the adoption and development of new technologies, such as artificial intelligence, IoT, and blockchain, to optimize processes and create new opportunities. They leverage AI for various applications, including optimizing supply chains, improving customer service, and enhancing public safety. For smart economy, as one of the many areas of a smart city, information communication technologies and their newest applications are key to enabling the transformation of traditional economies into more dynamic and interconnected ones linking local and global economies.

The present study seeks to explore the concept of “smart economy” through the definition of the smart city. The goal is to determine the direct effects of smart economy on other smart components of smart cities (smart people, smart mobility, smart society, smart environment, smart governance, and smart living) since economic factors allow the allocation of resources. These components are explained as follows [4]:

- *Smart People* suppose them to be creative, flexible in all areas of their lives, and integrated into society, having highly developed professional competences and skills, actively participating in all initiatives, and always ready to learn.
- *Smart Environment* refers to sustainability in resources use, allocation and management, protection of nature, and decreased pollution and is oriented toward preservation of green areas.
- *Smart Society* combines the “traditional” smart domain (smart governance) and social indicators, which describe the various types of inequality in the society, and government traditionally takes responsibilities for these areas. New economic structures have become the integral part of life and affect even the areas that are traditionally supposed to be under governmental control.
- *Smart Living* comprises such areas as safe and convenient living environment, efficient technological and user-friendly communication, the balance of working and non-working hours, contributing to the possibilities of development of people, technological home environment, and the

efficient use of resources and convenience of people.

- *Smart Mobility* means that the city should have national and international accessibility. Use of ICT ensures that technology has been used widely during the design of national highways and bridges. Metros, monorails, and an intelligent transport system will be used by daily commuters. Smart mobility is very dependent on investments in new infrastructure and new technologies and should satisfy the increased needs of smart people and green smart environment.
- *Smart Governance* usually refers to the participation of the population in decision-making processes and the transparent and democratic way of authorities working, which is achieved via the creation of public services.

These smart components are being developed in many countries all over the world. Figure 3 shows the relationship between smart city, smart people, and smart economy [5].

APPLICATIONS OF SMART ECONOMY

Smart economy solutions can be applied across all sectors of the economy, including production, services, commerce, finance, and tourism, to unlock new efficiencies and create value for customers. Applications of the smart economy include e-commerce, e-business, fintech, smart energy grids, waste management systems, intelligent transportation to reduce congestion, and data-driven decision-making for city planning and economic investment. Common applications of smart economy include the following [6]:

- *Smart Cities*: With digitization and disruptive technologies changing the requirements of many jobs today, smart cities will have to develop strategies to address jobs of the future that will power Industry 4.0 and the smart economy. There are six roles of smart city pillars, which are a well-established and globally connected economic sector, good and continuous research and innovation capacity, comfortable to live in, attractive cultural value for visitors, a clean, comfortable and sustainable environment, and connected intra- and inter-city [2]. Cities like Seoul and New York are implementing smart city initiatives that include digital platforms for businesses, data-driven solutions for urban management, and smart infrastructure. Singapore is implementing a Smart Economy by presenting a Networked Trade Platform which is a one-stop service for various business management and trade permit applications that can be processed in just one hour.

- *E-commerce*: Smart economy solutions facilitate digital banking, online shopping, and other e-commerce activities, providing greater convenience and choice for consumers. Smart economy can also have a significant impact on citizens who benefit from the convenience of digital banking applications, a wider selection of online shopping options, and shipping choices that are better suited to their needs. For optimal results, the implementation of smart economy cannot be done alone by the government. Organizing various collaborative activities triggers the development of information and communication technology innovations that can solve city problems.
- *Virtual Assistants*: AI-powered virtual agents can analyze user data and interact with other systems to offer customized financial and shopping solutions, simplifying purchases. They provide secure, real-time banking support by handling balance inquiries, fraud alerts, and loan applications. They also help customers manage their finances by analyzing spending habits and offering personalized budgeting advice.
- *Smart Grids*: IoT sensors monitor energy use, optimize consumption in smart grids, and manage smart lighting systems to reduce waste and costs.
- *Smart Waste*: Sensors monitor waste levels to optimize collection routes and water distribution systems to detect leaks and conserve resources.
- *Intelligent Transportation*: Intelligent transportation systems use real-time data to monitor traffic, optimize public transit, and provide smart parking solutions, reducing congestion.

BENEFITS

One of the main benefits of smart economy solutions is their ability to improve the performance and profitability of businesses by enhancing their e-commerce services, logistics, and product offerings. Smart economy solutions have the potential to improve the sustainability and efficiency of cities by promoting circular economy practices, reducing freight traffic, and attracting new businesses using online tools. Smart economy initiatives can lead to better access to services, enhanced public safety, and a more sustainable environment, ultimately improving the quality of life for citizens. Other benefits of a smart economy include [2,7]:

- *Data-driven Decision-making*: Advancements in “big data” and connected devices have allowed cities access to information that is never been available before. A well-designed data analytics

strategy gives city officials the ability to access and analyze a massive amount of information — and easily glean meaningful, actionable insights. When a city can monitor desired metrics in real-time, service levels quickly rise.

- *Engagement*: Citizens today expect their cities to deliver robust, user-friendly digital services. Collaboration tools, modern and intuitive websites, mobile applications, self-service portals, and convenient online accounts have become the standard in many facets of life, and citizens expect no less from their city. Expanding digital services in communities make smart cities a more attractive place for residents to live and promote a connected citizen experience. Accessible government data, interactive maps, government performance dashboards, transparency into budgeting, live-streamed city hall meetings, and a strong social media presence all assist smart cities in creating closer relationships with citizens. These smart technologies help increase civic engagement and trust in city officials.
- *Improved Transportation*: Connected transportation systems have some of the greatest potential to drastically enhance efficiencies throughout a city. From enhanced traffic management to public transit riders' ability to track bus or train locations, smart technologies allow cities to better serve citizens despite often rapidly growing populations.
- *Economic Development*: Smart economies can drive economic growth by attracting investment, fostering innovation, and creating new job opportunities. By leveraging technology and innovation, smart economies can boost productivity and enhance their competitiveness in the global market. Many large private sector companies are also teaming up with local governments to invest millions of dollars in smart city infrastructure and initiatives. Smart city investments are playing an increasingly important role in enhancing cities' regional and global competitiveness to attract new residents and businesses.
- *Sustainability*: Smart economy practices, such as resource efficiency and circular economy initiatives, can contribute to a more sustainable and environmentally friendly future. The ideas of sustainable development are supported by many countries, and sustainability has become the dominating idea in ecology, consumption, economy, science, and so on. Sustainable development puts forward the requirements towards all components of human activities.

CHALLENGES

The adoption of smart economy solutions presents some challenges, including the need for reliable and secure internet coverage, potential job insecurities due to automation and changing labor markets, and concerns related to online privacy and security. Smart economy must be efficient, providing the necessary balance of costs and benefits. Other challenges include [8]:

- *Digital Divide*: Ensuring equitable access to technology and digital literacy is crucial for preventing a digital divide. Studies have shown that giving women more access to education, to markets (labor, land, credit), and to new technology, and giving them greater control over household resources often translates into greater well-being for themselves and their families. For women, their families, and their communities, this is smart economics.
- *Gender Inequality*: This refers to the sharp differences between men and women in access to assets and opportunities in many developing countries. It restricts women's basic freedom to choose and has negative consequences for the well-being of their children, families, and communities. These differences entrench inequality and are unfair. Gender equality does not necessarily mean equality of *outcomes* for males and females; it means equal access to the *opportunities* that allow people to pursue a life of their own choosing and to avoid extreme deprivations in outcomes; that is, gender equality in rights, resources, and voice. As shown in Figure 4, gender equality can help reduce poverty [9].
- *Performance*: Measuring smart city performance is a complex task but is critically required. Advancing the measurement agenda calls for a comprehensive, multi-sectoral and flexible framework that is aligned with local and national strategic priorities and embraces efficiency, effectiveness, and sustainability dimensions.
- *Privacy Concerns*: Smart city technologies collect vast amounts of data, raising concerns about privacy and data security. In today's climate, government entities and private companies face rising scrutiny over data collection, with increasing public demand for transparency and oversight. The burden falls on local officials and city planners to prove that data collection is legal, responsible and, ultimately, in the interest of the public.
- *Collaboration*: Collaboration and cooperation between key stakeholders in municipalities and

the private sector can be another hurdle for smart economy. Government agencies and private sector organizations are often reluctant to share sensitive data or standardize on common networks, tools and infrastructure. For organizations in the private sector, treating the city as a valued customer, getting to know the other players in the smart city market and identifying potential partners are all effective ways to promote a convergence of smart city stakeholders. All stakeholders should be involved and collaborate in the economic development, as typically shown in Figure 5 [2]. Organizing these kinds of collaborative activities triggers the development of information and communication technology innovations that can solve city problems.

- *Cybersecurity Risks*: Smart economy initiatives rely on data and digital infrastructure, making them vulnerable to cyberattacks and data breaches.
- *Job Displacement*: Automation and technological advancements can lead to job displacement in some sectors, requiring proactive strategies for workforce adaptation and reskilling.

CONCLUSION

Smart economy is an economy based on technological innovation, resource efficiency, sustainability, and high social welfare. It adopts innovations, new entrepreneurial initiatives, increases productivity, and competitiveness, with the overall goal of improving the quality of life of all citizens. A smart economy is driven by innovation and supported by universities. Cities that declare themselves as smart cities must have programs that support smart economy. Their development should aim at the activation of industry and the creation of jobs. For optimal results, the implementation of smart economy cannot be done alone by the government; it requires collaboration among stakeholders. More information on smart economy is available from the books in [10-17] and a related journal: *Smart Cities*.

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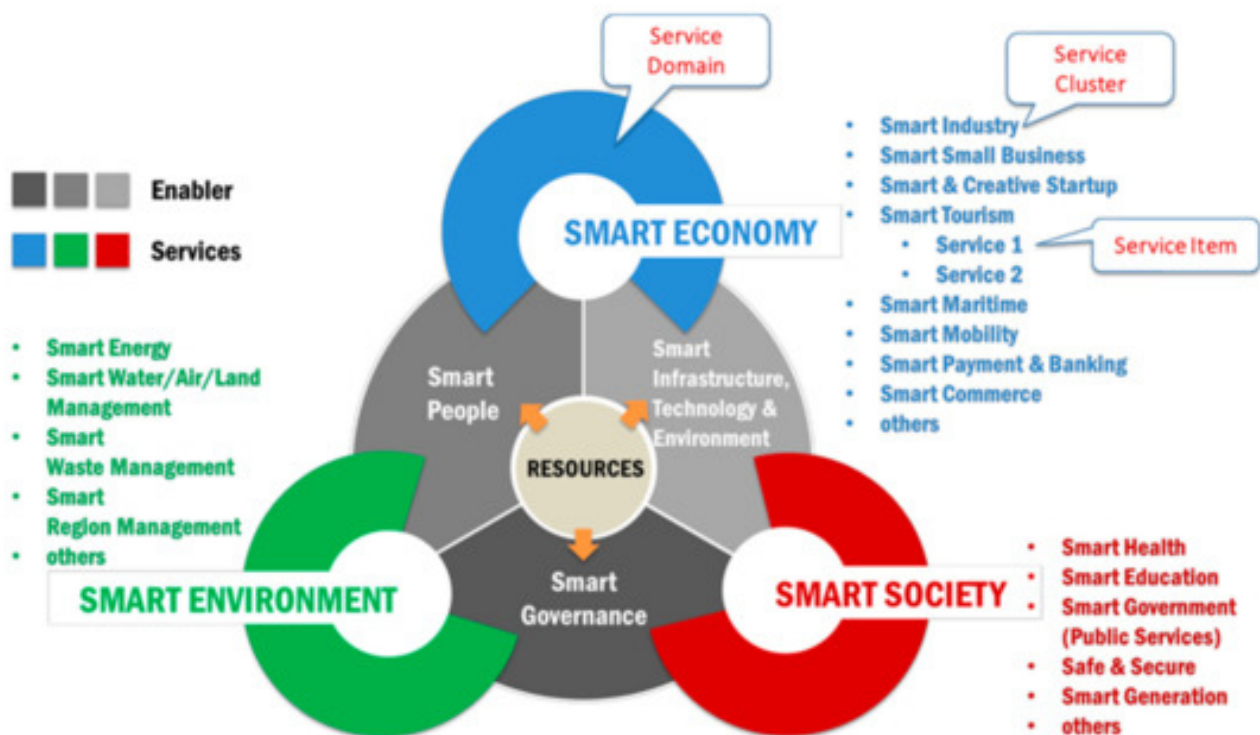


Figure 1 The smart city model [1].

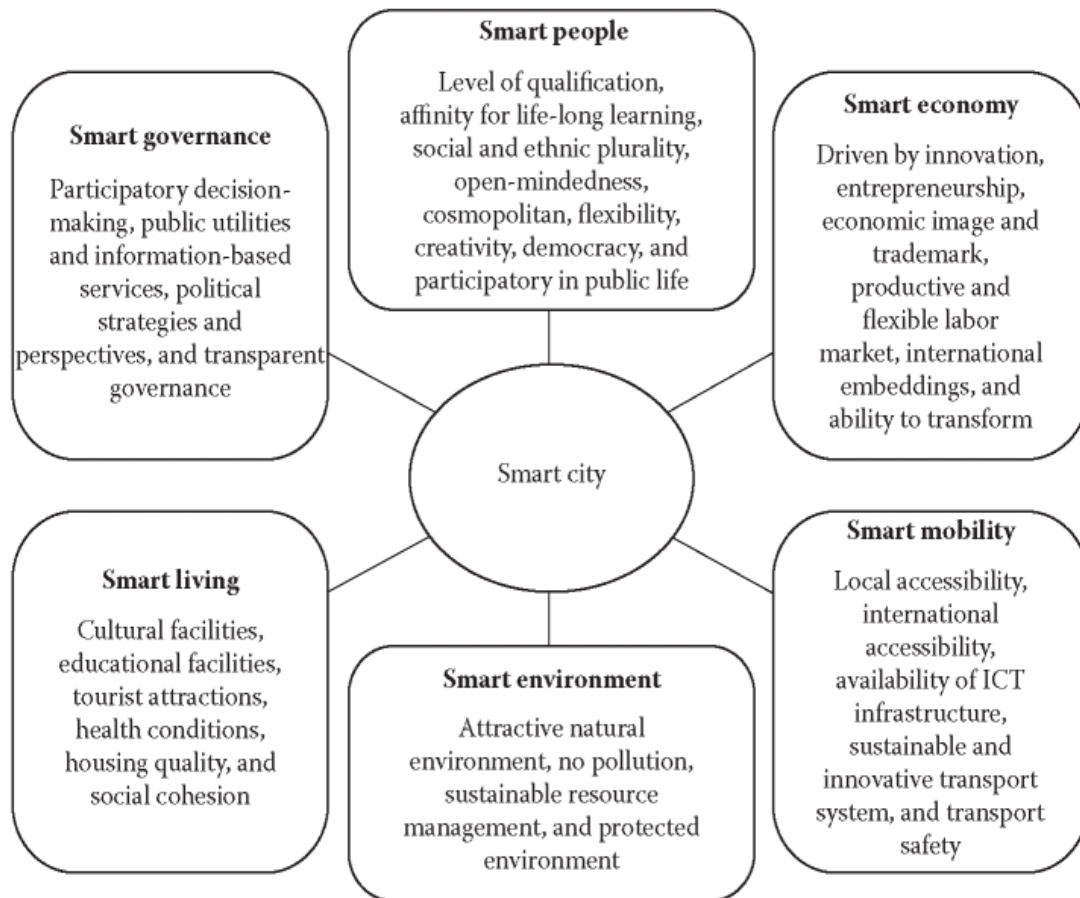


Figure 2 Dimensions of a smart city [3].



Figure 3 Relationship between smart city, smart people, and smart economy [5].

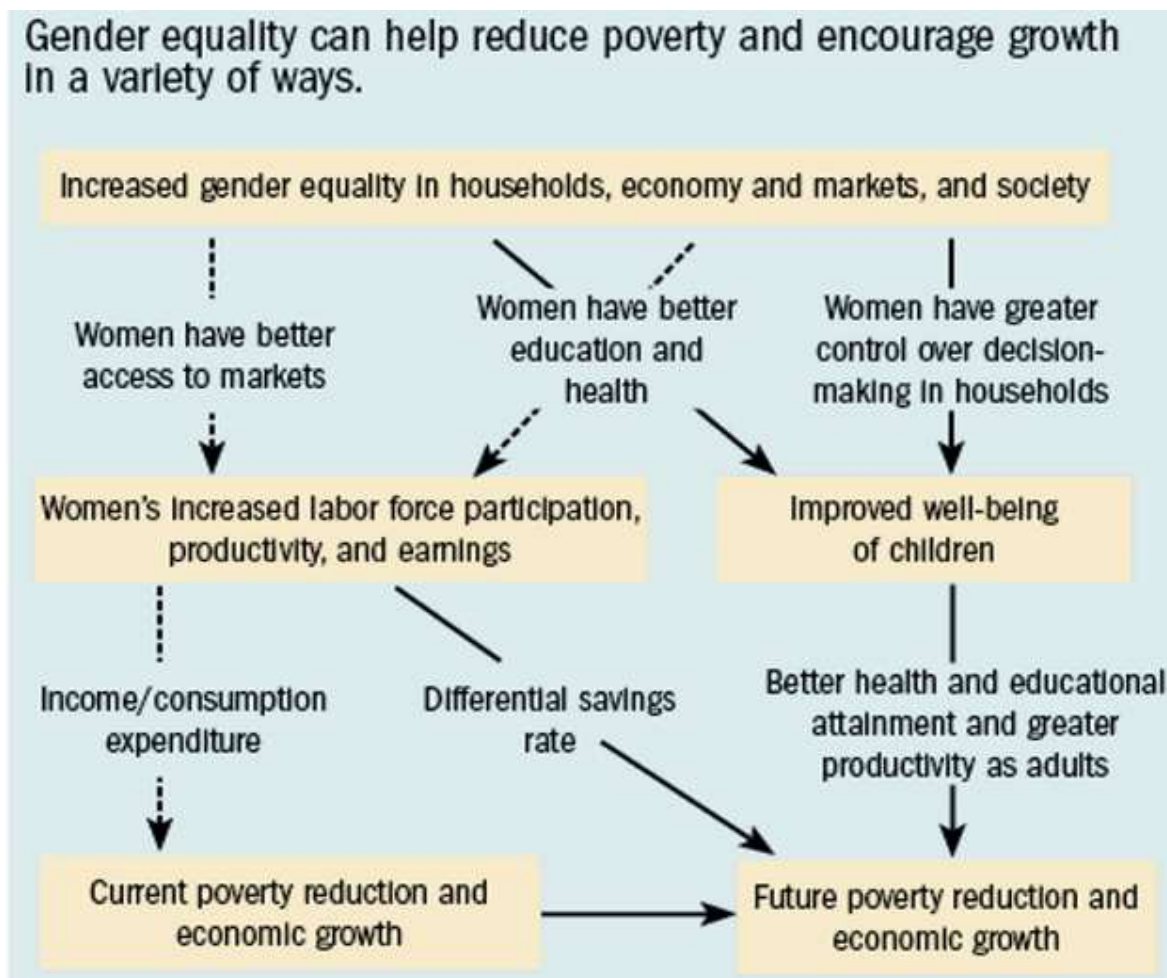


Figure 4 Gender equality can help reduce poverty [9].



Figure 5 All stakeholders should collaborate in the economic development [2].