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A SECTORAL PERSPECTIVE ON THE SHARING ECONOMY'S DEVELOPMENT

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Abstract

Research background: The sharing economy has experienced significant growth over the past decade. This phenomenon has introduced a new way of consuming services and goods. Nevertheless, while its benefits have been extensively studied, there is a limited understanding of its implications across various sectors.
Purpose: This study examines the potential of the sharing economy model and its application in different economic sectors. It seeks to understand the dynamics of each sector and provide a comprehensive view of the sharing economy's landscape from a sectoral perspective.
Research methodology: An expert survey approach was adopted for this study. Twelve experts with more than four years of experience and significant influence in different economic sectors were interviewed.

Results: The results showed that the sharing economy model is seen as an important factor with a high potential to change traditional business models, especially in the research and knowledge sector.
Novelty: This research is among the first to take a sectoral perspective on the sharing economy's development. By examining its implications across different sectors, this study offers a holistic view of the sharing economy, moving beyond the often singular focus on specific platforms. The insights derived from the research can inform policymakers, industry leaders, and entrepreneurs about the potential trajectories and considerations for the sharing economy in diverse sectors.

Keywords: development, digital platforms, digital transformation, economic sectors, sharing economy

JEL classification: L86, O33, C83

Introduction

The sharing economy is an economic model that relies on peer-to-peer activities through platforms that allow individuals and organizations to share, buy, sell, rent, and exchange goods and services. This form of economy is associated with development as it opens up new social, economic, and sustainability perspectives. The development of the sharing economy is commonly understood as the growth and spread of this economic model across different societies and sectors. This includes the development and improvement of new sharing economy models, the spread of existing models, and the evaluation of various aspects of these models, such as their impact on the economy, the social environment, etc. (Sundararajan, 2016).

The development of the sharing economy has been studied by many scholars from a wide range of disciplines such as economics, management, sociology, and law, and is an important area of research. Various authors have analyzed the specificities of the sharing economy, usually focusing on specific areas or platforms. Zervas et al. (2017) examined the impact of Airbnb on the performance of traditional hotels, while Guttentag (2015) investigated the motivations and behaviors of users on this platform. In the transport domain, Cramer and Krueger (2016) analyzed how these platforms affect urban traffic flows, while Chen et al. (2017) investigated how they affect consumers' transport choices. Sundararajan (2016) examined how food delivery platforms are reshaping the food delivery market and what challenges they pose to traditional businesses. Belleflamme et al. (2014) explored the patterns of these platforms in the financial sector and their impact on the traditional banking sector.

Scholars who have analyzed the development of the sharing economy in different contexts point out that the development of the sharing economy is understudied. While some initial research has been conducted, many questions regarding the direction of development, and applicability to other aspects are still unresolved (Frenken, Schor, 2017). Many scholars point out that the development of the sharing economy can vary across sectors, regions, and cultures, and therefore there is a need for developing research that identifies how sharing economies spread and take effect across different sectors, including primary, secondary, tertiary, and quaternary sectors.

This study aims to analyze the development of the sharing economy in five major economic sectors. While previous studies have often analyzed individual sectors, the current study seeks to bring together the different areas in order to gain a deeper understanding of the development of the sharing economy's development. The aim is to understand how each sector is responding to the challenges and opportunities of the sharing economy and to provide a comprehensive view of the phenomenon from a sectoral perspective.

An expert survey was chosen as the main research method. Detailed questionnaires were developed and distributed to industry experts. The data obtained was analyzed using quantitative and qualitative methods to provide meaningful insights.

1. Literature review

The development of the sharing economy in the primary, secondary, tertiary, quaternary, and quinary sectors of the economy is crucial (Figure 1). Sharing economy development in the main sectors of the economy is characterized by its uniqueness and versatility, capability to transform various areas of the economy, and adapt according to different environmental factors.

As the sharing economy evolves and develops, a growing number of scholars (Demailly, Novel, 2014; Barnes, Mattsson, 2016; Rosenberg, Butsh, 2021) are looking at how the sharing economy can help to address the challenges of the primary sector. Although the field is still relatively new and under-researched, there are already studies showing the positive impact of the sharing economy in the primary sector.

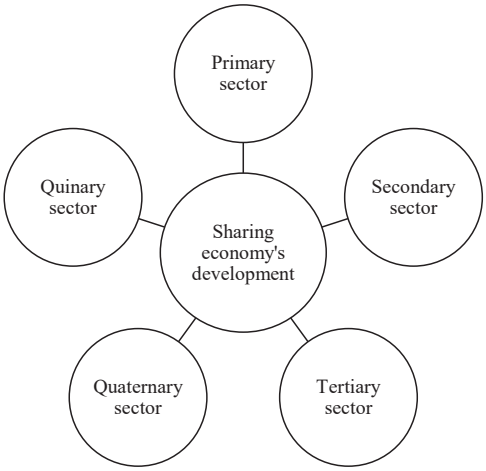

Figure 1. The development of the sharing economy in main economic sectors

Source: own elaboration.

The primary sector, including mining, agriculture, fishing, extraction, and forestry, is an important factor for sustainable economic growth and performance (Figure 2). It is noted that the application of traditional models in the primary sector has not been resolved in a diversified and efficient way and that the development of the sharing economy in this sector adds value and opens up new opportunities and perspectives for more efficient and effective development.

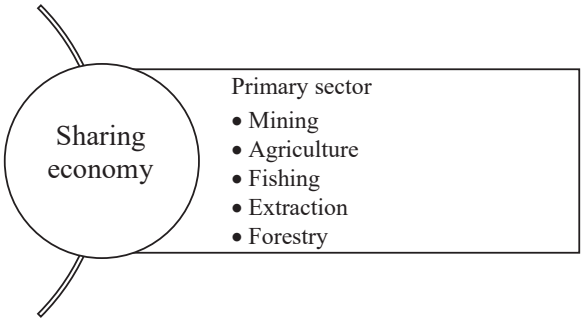

Figure 2. The primary sector in the sharing economy

Source: own elaboration.

Sharing equipment is a common practice in the primary sector, especially in agriculture and forestry. Sharing equipment such as tractors, harvesters, and other machinery can help reduce costs and increase efficiency, especially for small and medium-sized enterprises. In line with

Irvine and Martin (2006), equipment sharing can lead to cost savings, increased productivity, and improved access to technology for primary producers.

Knowledge sharing is another important aspect of the sharing economy in the primary sector. Peer-to-peer networks and digital platforms can facilitate the sharing of information and best practices among primary producers, helping to increase productivity and sustainability. Online platforms such as FarmHack and Open Source Ecology allow farmers to share information, experiences, and best practices, making farming practices more efficient and sustainable. Such knowledge sharing can also help build stronger communities and promote balanced action towards common goals. According to Brien and Hennerry (2013), knowledge sharing has an impact on empowering more sustainable farming, innovation, and the adoption of improved practices.

Resource sharing is also increasingly being applied in the primary sector, particularly in water management. Sharing water resources, such as irrigation systems and water rights, can help increase efficiency and reduce water use. The traditional model also involved farmers buying their own equipment, leading to high investment costs and under-utilization of equipment. However, with the advent of sharing platforms such as Farmers Business Network, FarmersEquipment, and MachineryLink, farmers are now able to share their equipment with others, resulting in lower costs and more efficient use of resources. According to a study published by Sieling and Williams (2014), sharing farm equipment can reduce costs by up to 50% compared to owning individual equipment.

Facilitating the sharing of knowledge and skills between farmers through online platforms has also become a crucial aspect of sharing economy development in the primary sector.

Cooperatives are also a form of sharing economy in the primary sector, where primary producers work together to share resources and knowledge and to market their products jointly. According to Gomez-Limon and Riesgo (2014), cooperatives can help increase the competitiveness of primary producers, especially in rural areas. The sharing economy has also affected the secondary sector, which includes construction, production, and other industrial activities (Figure 3).

Equipment sharing, as in the primary sector, is a common practice in the secondary sector, especially in the construction industry. Sharing equipment such as cranes, excavators, and other machinery can help reduce costs and increase efficiency, especially for small and medium-sized enterprises (Schaefers, Grosse, Hoffmann, 2017).

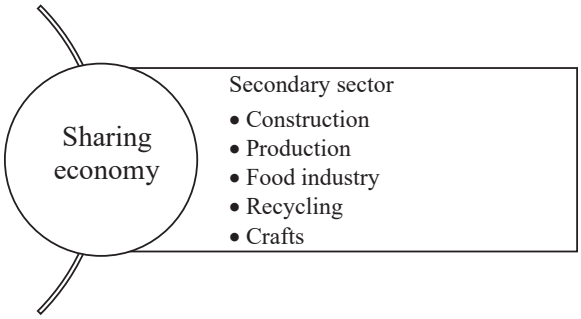

Figure 3. Secondary sector in the sharing economy

Source: own elaboration.

Knowledge sharing in the secondary sector can facilitate the sharing of information and best practices between companies, helping to increase efficiency and give an edge.

Co-creation is another form of the sharing economy in the secondary sector, where companies collaborate with customers and other stakeholders to create new products and services. Co-creation can help companies to better understand the needs and preferences of their customers, leading to more successful products and services. According to researchers who have analyzed co-creation (Ahlers et al., 2015), co-creation can lead to higher customer satisfaction and loyalty as well as better financial performance.

The application of the sharing economy in the secondary sector also contributes to making the circular economy more productive by enabling the reuse or recycling of waste from production, widening the range of potential users.

The sharing economy is also expanding in the tertiary sector, which includes industries such as tourism, retail, and healthcare (Figure 4).

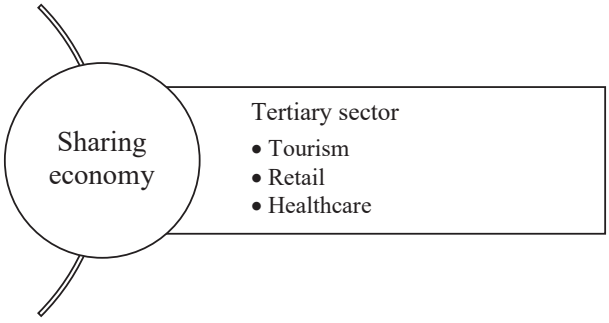

Figure 4. Tertiary sector in the sharing economy

Source: own elaboration.

In the tourism sector, the sharing economy has created opportunities for individuals to share resources, services, and experiences with travelers.

One of the most affected areas of the sharing economy in the tourism sector is accommodation. Platforms connect travelers with service providers offering temporary access, addressing the need for accommodation. Sharing to meet the need for accommodation offers unique benefits, including accessibility, and access to community and culture.

The sharing economy in the tourism sector has also changed the way people travel. Ride-sharing and peer-to-peer car rental services have provided cost-effective and convenient transport options for tourists. The sharing economy has not only expanded transport options for travelers but has also created greater economic opportunities for those with idle vehicles.

The sharing economy in the tourism sector has also influenced the sharing of information among tourists and the choice of tourist attractions available to them. Less standardization in these areas of tourism contributes to a more rounded presentation of information, the creation of more unique experiences, and the possibility of taking on the role of a personal tour operator. It also allows for closer social contacts, with members of the community who share similar interests. Sharing economy-based platforms in the tourism sector offering tourist attractions offers a wide range of experiences curated by local experts, including tours, workshops, and cultural activities.

The sharing economy has also transformed the retail market. Etsy, eBay, and Depop are prominent examples of the sharing economy in retail. On these platforms, individuals can buy and sell goods directly to each other, bypassing traditional retail channels. Peer-to-peer marketplaces have created new opportunities for small businesses and entrepreneurs to tap into broader markets and reach new customers. Co-consumption, which involves the sharing of goods and services between individuals and businesses, has created new opportunities for consumers to access goods and services at lower costs while reducing environmental impacts. According to Bocken et al. (2014), co-consumption can lead to more sustainable consumption patterns by reducing the need for resource-intensive production and consumption.

Birchbox and Dollar Shave Club are another example of the sharing economy in retail. These platforms allow consumers to access goods and services on a subscription model rather than buying them outright. Subscription services have given consumers new access to a broader range of products and services while reducing waste and environmental impact. In line with Bilgihan, Okumus, and Cobanoglu (2013), subscription services can increase customer loyalty and repeat purchases by providing personalized and convenient services.

The development of the sharing economy in the retail market has also enabled individuals and businesses to share office space and resources such as desks, meeting rooms, and equipment. Co-working spaces have created new opportunities for entrepreneurs and freelancers to access affordable and flexible workspaces, as well as promoting collaboration and communication. According to Bounchen, Ratzmann, and Pesch (2016), co-working spaces can facilitate knowledge sharing and learning, leading to increased innovation and productivity.

Healthcare sharing is an emerging area of the sharing economy, where individuals and companies share resources and services to improve access to healthcare. Healthcare sharing can include telemedicine, peer-to-peer support networks, and the sharing of medical equipment. According to Uscher-Pines et al. (2020), sharing health services can improve health outcomes, especially in rural and underserved areas.

The sharing economy is also expanding in a fourth sector, covering knowledge-based industries such as media, finance, services, real estate, and robotics.

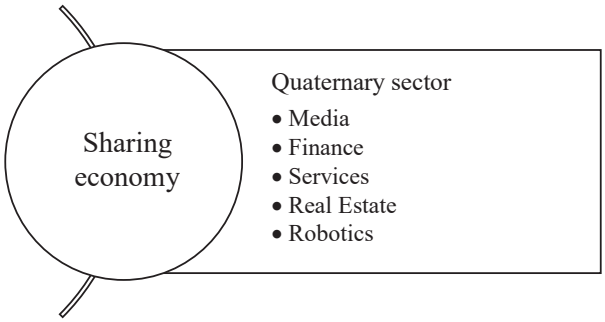

Figure 5. Quaternary sector in the sharing economy

Source: own elaboration.

The sharing economy has developed most in the fourth sector, finance. Peer-to-peer lending, which involves the use of online platforms such as Lending Club and Prosper to connect borrowers directly with investors, bypassing traditional financial intermediaries such as banks, has expanded access to credit and investment opportunities, providing borrowers with lower interest rates and investors with higher returns. According to Kshetri and Dholakia (2016), peer-to-peer lending can reduce information asymmetries and increase financial inclusion, particularly for small and medium-sized enterprises.

Crowdfunding is another example of the sharing economy in finance. It involves using online platforms such as Kickstarter and Indiegogo to raise funds from a large number

of individuals for a specific project or purpose. Crowdfunding has become an alternative source of funding for entrepreneurs, start-ups, and social enterprises, bypassing traditional fundraising methods such as venture capital and bank loans. According to Kshetri and Dholakia (2016), crowdfunding can help alleviate the constraints of financing start-ups and can be particularly effective for projects that are difficult to finance through traditional channels.

Co-insurance is another example of the sharing economy in finance. It involves pooling risks and resources between individuals and companies to provide insurance coverage. Coinsurance enables clients to form groups to share risks and reduce premiums. Coinsurance can promote transparency and customer confidence, reduce the risk of fraud, and increase the efficiency of the insurance market. According to a study by Gupta and Walthoff (2018), co-insurance can help reduce moral hazard and adverse selection, making insurance markets more efficient and fairer.

Another development in finance initiated by the development of the sharing economy is the sharing of investments. It includes the use of digital platforms such as AngelList and CircleUp to facilitate investment in start-ups and small businesses. These platforms allow investors to pool their resources and share the risks and rewards of investing in early-stage companies. Investment sharing can help democratize access to investment opportunities by allowing a wider range of investors to participate in the potential of high-growth start-ups. According to Duan and Whinston (2012), investment sharing can lead to better outcomes for investors and start-ups compared to traditional financing methods.

An analysis of the development of the sharing economy in other parts of the Fourth Industrial Sector found that the emergence of sharing economy platforms such as Upwork and Freelancer has enabled low-cost, large-scale, and high-access connections between freelancers and potential clients in need of knowledge-based services such as coding, graphic design or writing. These platforms have enabled individuals to offer their services globally and have disrupted traditional working relationships by allowing individuals to work remotely on projects of their choice. Sharing skills and knowledge in this sector also includes online courses, mentoring schemes, and established peer networks. A study published by Hou and Wu (2014) argues that skills sharing increases social capital and contributes to improved economic outcomes by facilitating the acquisition of missing knowledge and skills.

The sharing economy in the quinary sector can be defined as the use of networks of digital platforms to facilitate the sharing of knowledge, expertise, and resources between individuals, NGOs, and public organizations.

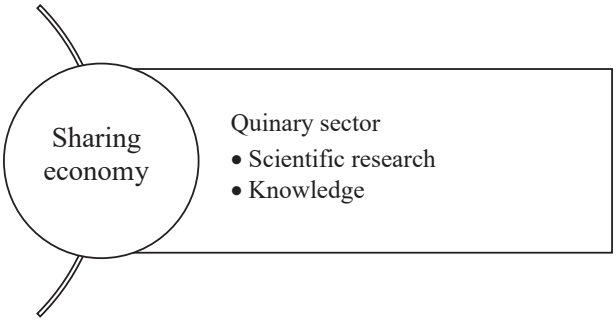

Figure 6. The quinary sector in the sharing economy

Source: own elaboration.

Sharing information relevant to fostering education is an important aspect of the sharing economy in the Fifth Sector, especially through online platforms such as Coursera and edX. Sharing education can provide more accessible and affordable educational opportunities for individuals beyond geographical, routine and employment criteria. According to Hosseini, Abadi and Ahmadloo (2017), the sharing economy in education can increase social capital and improve economic outcomes, particularly by strengthening intellectual capital in developing countries.

Sharing research data and resources can help increase the efficiency and effectiveness of research, as well as foster collaboration and innovation, and increase scientific output, especially in interdisciplinary and collaborative research projects (Liu, Xu, Ding, 2017).

Sharing of power is a new area of the sharing economy, where governments share resources and expertise to improve public services and policy-making. Government sharing can include open data initiatives, joint policymaking and shared services such as IT and human resources to improve the delivery of public services and increase efficiency, particularly in areas where resources are limited (Iqbal, Anwar, Haider, 2017; Kovacs et al., 2022).

However, while the development of the sharing economy is having an impact on the transformation of all economic sectors, there are challenges that hinder the development of the sharing economy in these sectors. It is observed that in not all sectors technology integration is sufficient for the sharing economy to contribute effectively to sectoral development. Legal challenges are also observed, due to regulatory gaps, and unclear and changing legislation. Despite the adoption of Directive 2019/790 on copyright and the digital marketplace in the European Union (EU) in 2019, it is notable that the legal status and limits of liability of platform participants and, in some cases, of the platforms themselves, remain unclear, leaving room

for legal conflict and regulatory gaps. Moreover, consumer confidence and satisfaction in the sharing economy are also a crucial factor. The introduction of the EU General Data Protection Regulation (GDPR) in 2018 was an important step towards strengthening consumer data protection and privacy. However, the data handling and security of sharing economy platforms that collect huge amounts of personal datacan is complex and pose challenges in terms of data breaches and loss of consumer trust. However, despite some domestic hostility to sharing economy integration, many EU countries are making efforts to create an enabling environment for the development of the sharing economy by promoting legal clarity, technology integration and consumer confidence (Straková et al., 2022; Tutar et al., 2024). This is an essential step towards creating a transparent, safe and efficient operating environment for the sharing economy in the EU.

In summary, the sharing economy is developing and growing in a wide range of sectors. Depending on the sector analyzed, the benefits of the sharing economy are captured in terms of improving economic, social and environmental opportunities. The sharing economy is most important in the third and fourth sectors, which focus on greater market participation by individuals.

2. Methods

An expert assessment approach is used to identify the development of the sharing economy in key economic sectors, considering the lack of statistical data. The following hypotheses are formulated to assess the results of the expert evaluation:

H1: The sharing economy is not equally spread across the main economic sectors;

H2: The sharing economy is widely spread in the tertiary sector.

Methodology for calculating the consistency of expert opinions. In this research according to different types of questions, two methods determining the coherence of expert viewpoints are used. For questions with ranks, the Kendall W formula is used. For questions with one option, Fleiss' kappa test is used.

Kendall's concordance coefficient (W). Once the expert group 'm' has assessed the specified metrics, these evaluations are initially converted into scores based on the subsequent table 1.

Table 1. Evaluation conducted by a group of experts

Expert's (respondent's) code	Criterion (quality indicator) marker i = 1, 2, …, n				
	X_1	X_2	X_3	...	X_n
E_1	B_{11}	B_{12}	B_{13}	...	B_{1n}
E_2	B_{21}	B_{22}	B_{23}	...	B_{2n}
...	...	...	...	...	
E_m	B_{m1}	B_{m2}	B_{m3}	...	B_{mn}

Source: Zavadskas, Turskis (2011).

Following this, all B_{ij} scores are transformed into ranks R_{ij}. In this system, the most critical indicator is assigned a rank of one, while the least significant indicator receives a rank of n, where n corresponds to the total number of benchmarks. The conversion of B_{ij} scores to R_{ij} ranks is executed using the following formula:

$$R_{ij} = (n + 1) - B_{ij} \tag{1}$$

where B_{ij} represents the importance rating (score) designated to the i-th criterion of the j-th expert. Furthermore, m – signifies the total number of experts (respondents), while n – stands for the number of criteria (elements) that are being evaluated.

Subsequently, for each criterion (i = 1, 2, ..., n) the summation of all ranks given by the experts, denoted as R_i is calculated using the following formula:

$$R_i = \sum_{j=1}^{m}(6 - B_{ij}) = m \times 6 - \sum_{j=1}^{m} B_{ij} \tag{2}$$

where B_{ij} is the importance estimate (score) for the i-th criterion of the j-th expert, m – the number of experts (respondents. The average rank $\overline{R_i}$ of each criterion is also as:

$$\overline{R_i} = \sum_{j=1}^{m} \frac{Rij}{m} \tag{3}$$

subsequently, for each criterion under consideration, the discrepancy between the sum of R_{ij} (the rank assigned to criterion i by expert j) and a constant is calculated. Here, m denotes the number of experts. The constant difference is subsequently determined as follows:

$$\sum_{j=1}^{m} R_{ij} - \frac{m(n+1)}{2} \tag{4}$$

In the equation R_{ij} refers to the rank given to the criterion *i* by expert *j*. Here, *m* represents the number of experts and n denotes the number of criteria. Moreover, it is imperative to compute the total *S* of the squares of the constant discrepancy, which can be calculated using the following formula:

$$S = \sum_{i=1}^{n}\left[\sum_{j=1}^{m} R_{ij} - \frac{1}{2}m(n+1)\right]^2 \tag{5}$$

In this equation, the value of *S* represents the maximum possible value, occurring when the viewpoints of the experts align and are in complete harmony. After obtaining all the values, the concordance coefficient is then computed using the following formula:

$$w = \frac{12S}{m^2\left(n^3 - n\right) - m\sum_{j=1}^{m} T_j} \tag{6}$$

In this equation, *W* represents the concordance coefficient, *S* denotes the sum of squares of the median ranks, *m* – the total number of experts, *n* – stands for the count of presented criteria, T_j – signifies the index of correlated ranks.

When the number of benchmarks (elements) is small ($3 < n < 7$), and the critical value of the distribution x_{kr}^2 is bigger, the minimum concordance coefficient $W_{\min}$, is calculated. This $W_{\min}$ serves as the threshold at which we can assert that there is consensus among expert opinions.

$$W_{min} = \frac{x_{v,a}^2}{m\left(n-1\right)} \tag{7}$$

Here $x_{v,a}^2$ represents Tearson'scriterion with a selected confidence level, m indicates the number of experts, n stands for the number of criteria. The significance of the concordance coefficient, ascertained based on Tearson's x^2 criterion, is subsequently appraised. If the computed value surpasses the x_{kr}^2 value, it suggests that the evaluations provided by the experts are congruent Tsquared value is computed using the following formula:

$$x^2 = W \times m \times \left(n-1\right) = \frac{12 \times S}{m \times n \times \left(n+1\right) - 1/\left(n-1\right) \times \sum T_j} \tag{8}$$

In this case, *W* denotes the concordance coefficient, *S* is the total of median rank squares, *m* represents the number of experts, n indicated the number of presented criteria, T_j is the

indicator of linked ranks. The relevance of the assessed criteria (elements) is evaluated by computing the significance indicator Q_i, which is determined:

$$q_n = \frac{R_n}{\sum_{i=n}^{n} \overline{R_i}} \tag{9}$$

$$Q_n = \frac{1 - q_n}{n - 1} \tag{10}$$

where n – number of criteria, $\overline{R_i}$ – the average rank of criterion i.

The significance indicator Q_i reveals the hierarchical order of the analyzed indicator's importance, demonstrating the extent to which one indicator is deemed more important than another.

Fleiss 'kappa coefficient. The Fleiss' Kappa coefficient is used as a mathematical tool for assessing the compatibility of experts when each valuer has classified the properties into one of five categories – A, B, C, D or E – independently of the other valuers. The Fleiss' Kappa coefficient is calculated using the following formula:

$$K = \frac{P_0 - P_e}{1 - P_e} \times \frac{1 - q_n}{n - 1} \tag{11}$$

here P_0 is the expected coincidence, P_e is a random coincidence. P_0 is calculated as the average of all assessors 'levels of agreement. P_e is the probability that two raters randomly choose the same category.

The values of the Fleiss' Kappa coefficient range from –1 to 1, where –1 means a complete mismatch, 0 means a match that would be expected by chance and 1 means a complete match. Traditionally, coefficient values above 0.75 are considered good levels of agreement, 0.4 to 0.75 are considered moderate levels of agreement, and values below 0.4 are considered poor levels of agreement.

3. Results and discussion

The expert survey was carried out with 12 experts. The choice to draw on the insights of 12 experts is based on a number of scientific considerations. Firstly, according to the researchers, the optimal number of experts ranges between 10 and 15 to ensure reliable information while maintaining an efficient and manageable survey process (Doloi et al., 2011). A smaller number of experts may reduce the reliability of the survey, while a larger number

may increase the complexity and time cost of the survey. Moreover, an expert survey with a specific number of experts allows for qualitative as well as quantitative information to be obtained, as each expert can provide detailed and in-depth information on the challenges and opportunities in their field (Brooks, 1979). At the same time, experts with long-term experience participating in the survey can provide a deeper insight into how sharing economy models are working in specific areas of the economy, or what challenges may arise in the future. After all, all participating experts are important decision-makers or operators who have a direct influence on the implementation and development of sharing economy models. Their insights and experience ensure that the survey results reflect real market trends and are valuable for further research.

The analysis of the characteristics of the 12 experts involved shows diversity in terms of both experience and organizational transformation. A significant proportion of the experts (25%) had between 4 and 10 years of experience, while 16.7% had less than 4 years and 16.7% had more than 10 years. In terms of company size, the majority of the experts surveyed (66.7%) were active in small companies, while 25% worked in medium-sized companies. Only one expert (8.3%) reported working in a micro enterprise. The activities of the participating experts covered different areas of the economy. For example, 16.7% of the experts worked in secondary sector companies, 25% in tertiary sector organizations, and 25% in the fourth sector. In addition, 16.7% of the experts were active in the fifth sector, which is dominated by knowledge and research activities. There were mixed trends in educational levels. The majority of the experts surveyed (50%) had a Master's degree or equivalent, 33.3% had a Bachelor's degree and 16.7% had a PhD. In their current position, the majority of the experts (58.3%) held management positions such as department or project managers. However, there were also specialists and researchers, who accounted for 16.7% of the total number of participating experts.

The majority of respondents (7 out of 12) believe that the state of the sharing economy in the primary sector is still at an early stage. This may indicate that sharing economy models are not yet widely established in this sector and that business models and technologies are still emerging. The second most frequently selected answer (4 out of 12) indicates that some respondents believe that the sharing economy is at a secondary stage of development (growth phase). This may indicate that at this stage sharing economy models are starting to be put into practice, but there is still a lot of space for improvement and development. Only one expert rated the sharing economy in the primary sector as being at a mature phase of development. No respondent considered the primary sector to be at a very advanced stage, which may indicate that there is still a lot of room for innovation and development in this sector. Overall, the

primary sector in the sharing economy is still in the early stages of development, but there is a visible trend towards growth and development.

In the next question, the respondents had to evaluate the sharing economy's development in the secondary sector. According to the experts' answers on the challenges faced by the sharing economy in the secondary sector, the sharing economy in the secondary sector faces several challenges at the same time, which include regulatory gaps, lack of technology adoption, and consumer mistrust. Consumer distrust as a key factor triggering the development of the sharing economy was the second most popular choice. Based on the results obtained, we can say that it is consumer mistrust that is the main challenge that the sharing economy faces in the secondary sector. Lack of application of technology received 1 choice. Although this challenge was less mentioned than the others, there is still a certain proportion of respondents who consider it to be a major problem. Regulatory shortcomings were not selected by any respondents as a key challenge of the sharing economy's development in the secondary sector, but it was included in the overall response.

The vast majority of respondents are convinced that the sharing economy has great potential to transform the provision and use of many traditional services in the tertiary sector. This is supported by seven responses that indicate that the sharing economy has the potential to be a revolutionary force in changing the way we perceive and use tertiary sector services. However, five respondents indicated that the potential of the sharing economy is limited in certain areas of the tourism sector. Importantly, no respondent chose the answer that the sharing economy has no potential to change the tertiary sector, or that this influence would be very minimal. This can be interpreted as a clear signal that the sharing economy is seen as an important and significant factor in the future of the tertiary sector.

The next question sought to analyze respondents' views on the degree of integration of the sharing economy in the quarterly sector of media, finance, services, real estate, and robotics. First of all, it is worth noting that the vast majority of respondents indicated that the sharing economy is either in its infancy or is actively growing, but has not yet established a dominant market position. This shows that although the sharing economy is evident and visible in the quarterly sector, it has not yet become a mainstream business model. On the other hand, two of the respondents' answers indicate that the sharing economy is one of the main activities of the sector. This shows that the sharing economy can be very influential in some areas of the sector and is already playing an important role. What is more, none of the respondents considered that the sharing economy had already fully developed and become the dominant model in the quarterly sector.

The fifth sector, research and knowledge, is vital for the progress of society. Changing economic conditions raise the question of whether sharing economy models can be effectively integrated into this sector and how this might affect the quality and results of research. The results of the expert survey show that some respondents (2 out of 12) believe that sharing economy models have some potential in this sector. A bigger part of respondents (4 out of 12) believe that the sharing economy has the potential to radically change the fifth sector, while 6 respondents stated that this potential is limited to certain areas. This may suggest that while sharing economy models can bring some benefits to research, there are areas where they may not have such a strong impact. For example, perhaps some research is too complex or specific to be effectively developed using sharing economy models.

In the last question experts evaluate the potential trajectory of the sharing economy in main economic sectors over the forthcoming half-decade, in comparison to the present context.

Table 2. The Sharing economy's development over 5 years

Expert's (respondent's) code	Criterion (indicator) marker				
	primary sector	secondary sector	tertiary sector	quaternary sector	quinary sector
Sum of ranks $\sum_{j=1}^{m} B_{ij} = B_i$	34	45	33	31	45
Average rank $\overline{R_i} = \sum_{j=1}^{m} \frac{Rij}{m}$	2.83	3.75	2.75	2.58	3.75
Difference $\sum_{j=1}^{m} R_{ij} - \frac{m(n+1)}{2}$	–2	9	–3	–5	9
Square of difference $\left[\sum_{j=1}^{m} R_{ij} - \frac{1}{2} m(n+1)\right]^2$	4	81	9	25	81
Q	0.285	0.135	0.2875	0.315	0.135
Hierarchy	3	4–5	2	1	4–5

Source: own elaboration.

In the primary sector, which encompasses agriculture, fishing, mining, and forestry, forecasts indicate stable growth. Such an assessment hints that sharing economy models within this domain have firmly rooted themselves and are anticipated to persevere with minimal disruptions. The secondary sector, incorporating elements like construction, manufacturing, food industry, processing, and handicrafts, is also projected to experience consistent growth.

This can be interpreted as a reflection of the appeal of the sharing economy models within this sphere, which are capable of presenting avant-garde solutions in both production and construction dynamics. Forecasts for the tertiary sector, covering tourism, retail, and healthcare, lean towards moderate growth. The influence of sharing economy models might be profound in specific facets of this sector, particularly in segments where technological advancements can entirely metamorphose service delivery. Regarding the quaternary sector, which pertains to media, finance, services, real estate, and robotics, a modest surge is projected. Such a prognosis provides potential avenues for novel sharing economy models in this sector, contingent upon both technological breakthroughs and shifts in regulatory landscapes. Lastly, the quinary sector, orbiting around research and knowledge, is predicted to enjoy a steady ascent. This projection underscores the potential for integrating sharing economy paradigms, albeit in a more restrained path, aligning with the idiosyncrasies intrinsic to this field.

Conclusions

The implementation of the sharing economy model in different sectors of the economy is particularly relevant in the current global economic environment. The results of this study show that the sharing economy is valued differently in different sectors. In the research, we found that the primary and secondary sectors perceive the model as growing steadily, while the tertiary sector expressed the view that the sharing economy will develop at a moderate pace here. Furthermore, we were able to find that experts believe that sharing economy models can be effectively integrated into the fifth sector, although the model is still in its infancy in this area. The sharing economy model has great potential to change existing business models in different sectors of the economy.

Considering that sharing economy models are still new to many stakeholders, it is recommended for companies in these sectors to invest in digital platforms, gain knowledge about sharing economy to evolve towards a modern and more efficient business model.

This research also has some limitations. While every effort has been made to provide a comprehensive analysis, there may be sectors that have not been adequately represented or have been missed out due to a lack of data. Taking into account national differences, it also highlights that the sharing economy may be specific to a particular region.

In future, the study could be extended by quantifying the impact of the sharing economy within each sector. What is more, the study could be extended by projecting trajectories for the development of the sharing economy in each sector, as well as highlighting potential challenges

and key inflection points and comparing EU-wide arrangements aimed to regulate the sharing economy in key economic sectors, with expert assessment.

Appendix

Survey questionnaire

Dear Expert,

The survey is being carried out to qualitatively investigate the development of the sharing economy in key economic sectors and to project realistic scenarios, exploring the prospects for the development of the sharing economy.

The sharing economy is defined as an economic model that empowers underutilized resources. The sharing economy is created through a direct or indirect exchange relationship, interacting through platforms based on the sharing economy. Exchange relationships usually involve the sharing of physical or virtual goods, services, time, and experiences.

The survey will take approximately 10 minutes to complete.

Thank you in advance for your time. If you have any questions, please contact ievcek@ktu.lt.

1. General information about the expert

1.1. How long you have been working?

1.	Less than 1 year	☐
2.	1–3 years	☐
3.	4–6 years	☐
4.	7–10 years	☐
5.	More than 10 years	☐

1.2. What is the size of your company/organization?

1.	Micro-enterprise (1 - 9 people)	☐
2.	Small (10–49 people)	☐
3.	Medium (50–249 people)	☐
4.	Large (>250 people)	☐
5.	Very large (>500 people)	☐

1.3. What economic sector do you work in?

1.	Primary sector (mining, agriculture, fishing, extraction, forestry)	☐
2.	Secondary sector (construction, manufacturing, food industry, processing, crafts)	☐
3.	Tertiary sector (media, retail, health care)	☐
4	Fourth sector (media, finance, services, real estate, robotics)	☐
5.	Fifth sector (research, knowledge)	☐

1.4. What is your educational background?

1.	Primary/Unfinished secondary	☐
2.	Secondary/special secondary	☐
3.	Professional	☐
4.	Unfinished higher education	☐
5.	Higher education (bachelor's degree or equivalent)	☐
6.	Higher education (master's degree or equivalent)	☐
7.	Higher education (doctoral degree)	☐
8.	Other (please specify)	☐

1.5. What is your current position?

1.	Head of organization/Director	☐
2.	Head of department or project	☐
3.	Specialist/analyst	☐
4.	Researcher/research assistant	☐
5.	Consultant	☐
6.	Other (please specify)	☐

2. Expert assessment

2.1. What is your assessment of the current state of the sharing economy in the primary sector (agriculture, fishing, mining and forestry)?

1.	Early stage (the sharing economy is in its infancy in this sector, not many activities or services yet)	☐
2.	Developing (the sharing economy in this sector is growing, new services are emerging, but not yet dominant)	☐
3.	Mature (the sharing economy is the main business model in this sector, many services and activities are organized through sharing economy platforms)	☐
4.	Highly developed (the sharing economy is dominant in this sector, most services and activities are organized through sharing economy platforms and traditional business models are on the periphery)	☐
5.	I do not have expertize/I do not know	☐
6.	Other (please specify)	☐

2.2. What challenges does the sharing economy face in the secondary sector (construction, manufacturing, food industry, processing, crafts)?

1.	Regulatory gaps	☐
2.	Lack of technology application	☐
3.	Consumer mistrust	☐
4.	All of the above	☐
5.	I do not have expertize/I do not know	☐
6.	Other (please specify)	☐

2.3. Do you think that the sharing economy has a strong potential to transform the tertiary sector (tourism, retail, healthcare)?

1.	Yes, great potential (I think the sharing economy has the potential to revolutionize the provision and use of many traditional services in the tertiary sector)	☐
2.	Yes, but only in certain areas (I think the sharing economy has the potential to change the provision and use of some, but not all, traditional services in the tertiary sector)	☐
3.	No, low potential (I think the sharing economy can only replace a small part of the traditional services of the tertiary sector, and only to a minimal degree)	☐
4.	No, no potential at all (I believe that the sharing economy has no impact on the provision of traditional tertiary services)	☐
5.	I do not have expertize/I do not know	☐
6.	Other (please specify)	☐

2.4. How do you see the development of the sharing economy in the fourth sector (media, finance, services, real estate, robotics)?

1.	Early stage (the sharing economy is in its infancy in this sector, not many activities or services yet)	☐
2.	Developing (the sharing economy in this sector is growing, new services are emerging, but not yet dominant)	☐
3.	Mature (the sharing economy is the main business model in this sector, many services and activities are organized through sharing economy platforms)	☐
4.	Highly developed (the sharing economy is dominant in this sector, most services and activities are organized through sharing economy platforms and traditional business models are on the periphery)	☐
5.	I do not have expertize/I do not know	☐
6.	Other (please specify)	☐

2.5. Do you think that sharing economy models can be effectively integrated into the fifth sector (research, knowledge)?

1.	Yes, high potential (the sharing economy has the potential to radically change this sector)	☐
2.	Yes, but only in certain areas	☐
3.	No, low potential (the sharing economy can only have a limited impact on this sector)	☐
4.	No, no potential at all (the sharing economy has no impact on this sector)	☐
5.	I do not have expertize/I do not know	☐
6.	Other (please specify)	☐

2.6. What impact would regulation have on the development of the sharing economy in key economic sectors?

1.	Very influential (regulation is a key factor in the development of the sharing economy)	☐
2.	Some influence (regulation has an impact but is not the only important factor)	☐
3.	Little influence (regulation has only a minimal impact on the development of the sharing economy)	☐
4.	No influence (regulation has no influence on the development of the sharing economy)	☐

2.7. How do you see the role of technology in promoting the development of the sharing economy in different sectors?

1.	Very influential (technologies is a key factor in the development of the sharing economy)	☐
2.	Some influence (technologies has an impact but is not the only important factor)	☐
3.	Little influence (technologies has only a minimal impact on the development of the sharing economy)	☐
4.	No influence (technologies has no influence on the development of the sharing economy)	☐

2.8. How are changing consumer behavior and values driving the development of the sharing economy in key economic sectors?

1.	Very influential (changes in consumer behavior and values is a key factor in the development of the sharing economy)	☐
2.	Some influence (changes in consumer behavior and values has an impact but is not the only important factor)	☐
3.	Little influence (changes in consumer behavior and values has only a minimal impact on the development of the sharing economy)	☐
4.	No influence (changes in consumer behavior and values has no influence on the development of the sharing economy)	☐

2.9. How do you assess the development of the sharing economy in different sectors? (please rate each sector separately using a scale from 1 to 5)

(5 – highly developed: the sharing economy is a leader in the sector and is used by almost all organizations. Models and strategies are at the highest level and are recognized as best practice; 4 – highly developed: the sharing economy is an integral part of the sector and is used by most organizations. The sharing economy is well developed and used effectively; 3 – mature: the sharing economy is widely used in the sector, but there is still room for improvement and development; 2 – evolving: the sharing economy is clearly visible in the sector, but there are still significant barriers or difficulties preventing its development; 1 – early stage: the sharing economy is still in its early stages of emergence. The application of the sharing economy model is at an experimental stage and is not widely used).

1.	Primary sector (mining, agriculture, fishing, extraction, forestry)	1☐	2☐	3☐	4☐	5☐
2.	Secondary sector (construction, manufacturing, food industry, processing, crafts)	1☐	2☐	3☐	4☐	5☐
3.	Tertiary sector (media, retail, health care)	1☐	2☐	3☐	4☐	5☐
4.	Fourth sector (media, finance, services, real estate, robotics)	1☐	2☐	3☐	4☐	5☐
5.	Fifth sector (research, knowledge)	1☐	2☐	3☐	4☐	5☐

2.10. How do you see the development of the sharing economy in different sectors over the next 5 years compared to the current situation?
(please rate each sector separately using a scale of 1 to 5)

(5 – Significant decline: the sharing economy is expected to decline significantly in the sector over the next 5 years, with major changes in models and strategies, and with a significant decrease in the use of the sharing economy; 4 – Slow decline: the sharing economy is expected to decline slightly in the sector over the next 5 years, with the abandonment of some models and strategies, and with a moderate decrease; 3 – Stable: The sharing economy in the sector is expected to remain similar to its current level over the next 5 years, with small changes in models and strategies and stable activity; 2 – Moderate growth: The sharing economy in the sector is expected to grow slightly over the next 5 years, with some expansion and improvement, but not as fast or as broadly as in the high growth scenario; 1 – High growth: The sharing economy is expected to grow significantly over the next 5 years, with obvious and rapid expansion in a variety of areas).

1.	Primary sector (mining, agriculture, fishing, extraction, forestry)	1☐	2☐	3☐	4☐	5☐
2.	Secondary sector (construction, manufacturing, food industry, processing, crafts)	1☐	2☐	3☐	4☐	5☐
3.	Tertiary sector (media, retail, health care)	1☐	2☐	3☐	4☐	5☐
4.	Fourth sector (media, finance, services, real estate, robotics)	1☐	2☐	3☐	4☐	5☐
5.	Fifth sector (research, knowledge)	1☐	2☐	3☐	4☐	5☐

2.11. Rank the main economic sectors according to the development of the sharing economy in them (from 1 to 5).

(5 – sharing economy very widespread; 4 – sharing economy widespread; 3 – sharing economy moderately widespread; 2 – sharing economy little widespread; 1 – sharing economy very little widespread. No uniform is allowed to be given twice).

1.	Primary sector (mining, agriculture, fishing, extraction, forestry)	1 ☐	2 ☐	3 ☐	4 ☐	5 ☐
2.	Secondary sector (construction, manufacturing, food industry, processing, crafts)	1 ☐	2 ☐	3 ☐	4 ☐	5 ☐
3.	Tertiary sector (media, retail, health care)	1 ☐	2 ☐	3 ☐	4 ☐	5 ☐
4.	Fourth sector (media, finance, services, real estate, robotics)	1 ☐	2 ☐	3 ☐	4 ☐	5 ☐
5.	Fifth sector (research, knowledge)	1 ☐	2 ☐	3 ☐	4 ☐	5 ☐

2.12. Do you have the influence to integrate sharing economy models/strategies in your work?

1.	Yes	☐
2.	No	☐

2.13. Do you use models based on the sharing economy in your work?

1.	Yes	☐
2.	No	☐

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