

Article

Sharing Economies' Initiatives in Municipal Authorities' Perspective: Research Evidence from Poland in the Context of Smart Cities' Development

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Abstract: The emergence and dynamic development of the sharing economy as a socio-economic phenomenon was triggered by the subprime crisis of 2007–2009 and the consequent need to rationalize the use of resources. Cities (especially those generally recognized as a Smart City) have become a natural environment for the sharing economy, due to the spatial accumulation of both potential users and available goods and services. Adopting the point of view that urban conditions are advantageous for the development of the SE, the authors of the article assess the scope of implementation of solutions typical for the sharing economy and the scale of support of municipal authorities for their implementation in 287 Polish cities. For this purpose, they use representative surveys carried out in January 2020. When analyzing the results, they consider the following aspects of a sharing economy: carpooling, coworking, co-housing, room sharing, couch surfing clothes swap/toy swap and crowdfunding. In their research, they also identify relationships between the degree of development of the sharing economy in Polish cities and their size (expressed as the number of inhabitants) and wealth (expressed as the level of budget revenues per capita), trying to answer the question asked in the title: how do cities use and support sharing economy initiatives? The research results indicate a low level of SE development in Polish cities and a low involvement of municipal authorities in supporting this development. Individual forms of SE function best in large cities that have successfully aspired to be smart for many years. In other administrative units, the obstacle to the development of the SE is probably the low availability and quality of free housing resources and the reluctance to share, resulting from reluctance in a centrally planned economy related to the non-market allocation of goods and services and the associated strong attachment to private property.

Keywords: sharing economy; smart cities; Polish cities; public management; municipal economics



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1. Introduction

In the last decade, interest in a sharing economy has increased rapidly, mainly as a result of seeking new methods to improve the efficiency of the use of goods and services and the need for rational and economical use of existing resources, as shown by the results of research carried out by the authors of [1–4]. The research by M. Ahsan [5] shows that the sharing economy develops exceptionally quickly in developed countries. In principle, the idea of sharing and re-use allows many users to maximize the benefits associated with a given good or service [6,7]. This is due to the distribution of expenditures and costs of acquiring a given good or service among the largest number of consumers while minimizing the duration of intervals when that good or service is not used or in other words, is inactive. Many contemporary researchers also emphasize the positive impact of the sharing economy on sustainable development, in particular saving resources, reducing waste and environmental pollution [8–12].

Despite the unquestionable benefits resulting from the essentially noble idea of a sharing economy, we nevertheless must add that it can be developed only where there

is a real possibility of separating goods and services that are not fully developed. The individual needs of the owners of these goods must also be met at a sufficient level to make them willing to share goods and services with other users. Thus, we can conclude that the sharing economy in its current form results from a certain redundancy and it is difficult to imagine its full and effective use in the conditions when the basic existential needs (nutrition, housing, mobility, tourism, entertainment) have not been met. This is more so because SE development usually requires access to modern technologies, primarily including the Internet, but also appropriate technical infrastructure [13–20]. It is worth adding, however, that a high degree of digitization has a positive effect on the economy and the development of society [21]. For these reasons, development of the SE seems to be the most intense in well-developed or dynamically developing economies. Less developed or economically backward economies unarguably have less evidence, fewer descriptions and poorer research confirming its wide use [22–25].

The essence of the sharing economy defined in such a way makes human clusters characterized by similar individual and/or collective needs become natural places of its functioning and development. They can exist in a virtual or real socio-economic environment. Such clusters are undoubtedly urban communities located in a spatially and geographically separated area and having their own mini economic system [26–33]. Furthermore, given that sharing requires the existence of a defined and quite significant resource of goods and services and sufficient basic satisfaction of life needs, one can easily assume that smart cities are perfect places to implement and develop the sharing economy [34–37], equally fashionable and widely described in the last twenty years in international references and the sharing economy itself. As results from the research conducted so far [38–41], the development of the sharing economy in urban space can be successfully supported by city authorities that not only care about sharing initiatives, but also about their institutional and legal framework, which fosters the growth of trust in this business model. This is especially important in emerging and developing economies, where there are frequent legal abuses (in the field of labor law and economic freedom) in connection with the implementation of various forms of SE [42].

It is worth adding that contemporary researchers and authors emphasize the need to undertake empirical research in the field of the sharing economy and the Smart City, because most of the considerations on this subject are theoretical, based on a model or only referred to case studies. Rojanakit et al. [43] in the conclusions of an extensive and multifaceted literature review, also state that a better diagnosis of SE requires regional research, including in particular those carried out in emerging and developing economies. These authors also suggest undertaking analyses in the institutional and organizational areas, because the literature studies conducted so far have focused on the identification of socio-cultural determinants of the SE.

In relation to:

- little empirical research on the sharing economy,
- the necessity of analyzing the SE in emerging and developing economies, which is revealed in the literature,
- the need to analyze the institutional and organizational context of the sharing economy development,
- the authors of this article decided to cover the topic of the sharing economies' initiatives in a municipal authorities' perspective.

Bearing in mind the essence of the sharing economy and the conditions favorable for its development (cities well developed in terms of civilization and economics), the authors of the article attempt to assess the degree of use of the sharing economy and support its development in Polish cities, many of which currently aspire to be in the elite group of entities known as Smart City. Surveys in this area are representative and cover 287 out of 938 Polish cities. The originality of the research undertaken in this article results from the following circumstances:

- identifying the directions and problems of the development of the sharing economy in the urban environment,
- few holistic empirical studies relating to the use of the sharing economy in practice, in particular in developing or emerging economies,
- subjective scope related to a large representative research sample that allows one to study the interest and scale of implementation of various forms of the sharing economy in the national perspective, which provides important conclusions and practical observations,
- highlighting the need for institutional and organizational support of cities (regions or countries) for the sharing economy, provided both to develop a business model favoring sustainable consumption and production, and to prevent abuse related to the lack of clear legal and organizational regulations for this form of business activity,
- assessing the support of municipal authorities in the development of the sharing economy in Poland.

In the further parts of the article, the authors carry out literature studies in two key areas for the research. The first concerns the idea and development of a sharing economy. The second refers to aspects related to the implementation and use of solutions for the sharing economy in cities, with particular emphasis on the distinguishing properties of these cities. Literature studies carried out in this way are used to formulate premises for undertaking research and to define research problems and hypotheses. Finally, the authors formulate conclusions and outline research limitations and directions for further analyses.

2. Literature Studies

2.1. *The Idea and Features of the Sharing Economy*

Literature studies were conducted on the basis of searches in the database of Science Direct and MDPI journals. The key words were sharing economy and Smart City as the leading research topics.

As already mentioned, the sharing economy appeared in the literature on the subject and in economic practice at the end of the first decade of the 21st century as a response to the deep economic crisis. So far, no clear definition has been developed to describe this phenomenon but in all the approaches analyzed [44–49] readers can find several key phrases by which it is defined. The most common among them are: collaborative economy, collaborative consumption, access economy, platform economy and community-based economy [50]. In the sharing economy, the value of transactions is co-created by providers and consumers. In addition to the traditional benefits of concluding transactions, it is usually accompanied by better recognition of users' expectations with the use of data marketing, including sentiment analysis and direct online assessment of the quality of products and services [51]. Thus, as the quality of mutual relations increases, the level of mutual trust and the willingness to co-create values also increase [52].

The creation of direct relationships among participants of the sharing economy develops with the participation of three main stakeholders, i.e., service providers, transaction platform providers and consumers [53]. Initially, relations among these participants took place in the C2C (consumer to consumer) model and were characteristic of the so-called sharing economy 1.0. Currently, B2C (business to consumer) models typical of 2.0 economics are becoming increasingly common, where sharing no longer includes only existing resources [54,55], but also new ones created in response to specific market demand (e.g., bicycles or electric city cars) [56].

Other stakeholders are also involved in the functioning of this new socio-economic system, out of which the most common are: competitors, supplier partners, various levels of governmental organizations and a community that does not directly participate in the sharing economy but feels its influence [57,58]. In research and literature studies, the authors' attention most often focuses on direct participants of the sharing economy. Far less attention is given to other stakeholders, which may contribute to the idealistic perception of

this phenomenon and excessive focus on its advantages, analyzed mainly in the context of economic and social benefits implemented by the three main links of the sharing economy.

Thus, Airbnb platforms are most often cited as flagship case studies of the sharing economy [59–66], as well as Uber and their followers operating in the accommodation and transport sector [67]. The dominance of the SE in these sectors is due to the incomplete use of temporary living space and means of transport, most often in prosperity economies where they can be made available to other users. In light of the above, it is in the service sector where the SE develops most dynamically. It is much less common in the industry [68,69]. Research shows that the most important barriers to the industrial development of the SE are: lack of trust, lack of willingness to cooperate with all stakeholders, lack of a platform for sharing industrial resources and high risk [70].

A literature review combined with a case study analysis allows selecting the basic characteristics of the sharing economy, such as:

- perceiving it as a socio-economic system that includes (1) specific participants, (2) specific communication and exchange channels and (3) socially established relationships among participants in this system and its environment [71];
- focusing on maximizing the usability and economic and ecological efficiency of the use of goods and services;
- emotional branding of relationships among system participants (operating in the B2C or C2C system) resulting from direct contact [72];
- constant volatility resulting from the constant clash of economic and social goals;
- high adaptability to changing economic and technological conditions;
- no separate legal regulations allowing full use of the principles of *laissez-faire*.

SE supporters emphasize that its use contributes to more sustainable consumption and production and thus helps to improve economic, social and ecological efficiency [73,74]. SE opponents cite evidence of SE side effects in the form of encouraging increased consumption, increased environmental pollution (e.g., as a result of increased demand for transport services met by the use of private cars) and distorting the local and regional economic balance (e.g., rising prices for tourist properties) due to increased demand for accommodation [75–80]. Research also draws attention to the lack of many traditional transaction costs for direct SE stakeholders, which may violate the rights and economic freedoms of other market participants [81]. It seems that the controversy swirling around the existence and development of the SE results primarily from the lack of legal and economic regulations covering new business models created as part of the SE [82,83]. On the one hand, this leads to the unrestrained market expansion of the creators of these models, and on the other, it contributes to the dissatisfaction of traditional market participants who are forced to comply with local, regional and national laws. The absence of actions for the legal ordering of the SE may therefore lead to intensification of conflicts and the growth of socio-economic pathologies [84].

Municipal authorities should definitely participate in the institutionalization of the sharing economy and co-create the legal framework necessary for its functioning [85–88]. This approach is mainly used in the US and a significant number of researchers consider them more effective [89,90] than centralizing regulations at national or community levels. Nevertheless, the degree of their commitment to promoting and institutional support for the SE in many regions is in practice very low [91].

Although cities do not have a direct impact on the development of the sharing economy, they can play an important role in the development of this business model. This is indicated, *inter alia*, by the results of the studies by Sánchez-Vergara et al. [92] carried out in Barcelona, considered to be one of the best functioning Smart Cities in the world. The results of their analyses show that city authorities can: (1) promote the SE as a bottom-up initiative, but one in which residents participate, (2) constitute the idea of sharing as an opportunity for the city's future and (3) build trust towards city administration and present it as an agent responsible for changes in the city.

2.2. Sharing Economy in a Smart City

A Smart City (SC), like the SE concept, is a new, unstructured phenomenon and does not have a uniform definition and practical interpretation [93–98]. Authors and stakeholders usually define them in the context of individual considerations and needs. Most often, the descriptions and characteristics of an SC include a reference to information and communication technologies as distinguishing features of the most modern urban infrastructure [99–102]. In connection with the above, a Smart City is certainly creative and innovative, but to become and remain such, it must be enterprising and economically efficient and successful [103–106].

Meanwhile, the aspect of the relationship among Smart Cities and the business and economy in SC definitions and analyses is relatively rare. However, it cannot be ignored, considering the capital and cost intensity of smart urban infrastructure. Giffinger et al. [102], when describing an SC, state that it must be a thriving entity in six key areas (smart: economy, people, governance, mobility, environment and living), including in the sphere of urban economy. Lombardi et al. [103] also emphasize that the smart economy is one of the key SC clusters.

By analyzing the properties of Smart Cities, one can further refine the determinants of the smart urban economy, which include such activities as:

- new thinking paradigms [107,108],
- sophisticated e-services [109],
- effective leverage of resources and assets [110].

Given the above observations, Smart Cities are becoming a natural place to develop a sharing economy that: (1) was created on the basis of a new socio-economic paradigm, (2) uses the latest information and communication technologies to share resources and (3) to increase their efficiency. The necessity of collaboration between various city stakeholders and the sharing of goods and services is treated by many researchers as a driving factor and a necessary condition for the development of a Smart City [111,112].

The authors and researchers emphasize that the implementation of smart urban solutions primarily contributes to [113]:

- facilitating economic development [114–116];
- increasing the efficiency of public services [117–119];
- improving the quality of life [120–122];
- empowering residents [123,124];
- providing socio-environmental sustainability.

Research also shows that in less developed countries, the creation of Smart Cities has a positive impact on the national economy, providing increased employment, foreign investment and increased availability and use of the cutting-edge technologies [125].

Despite these unquestionable advantages, the concept of Smart Cities, like the SE, has many critics who primarily raise the problem of excessive digitization and the unethical use of data and information on residents [126]. The existence and development of Smart Cities also carries a risk of side effects, such as increased economic and social stratification [127–129]. Such a possibility is indicated by the research conducted by Desdemoustier et al. [130] in 113 Belgian cities which shows that in small and medium-sized units the idea of the Smart City is not fully understood and is very often perceived as exclusive, reserved for large and technologically advanced cities. An undoubted challenge is also the management of Big Data, including, in particular, maintaining the privacy and security of residents' personal data [131,132].

In Smart Cities, service forms of the sharing economy are most common, with the most popular being the sharing of transport and housing resources in the C2C and B2C models. Smart urban space also uses the sharing of financial resources, workspaces and everyday objects. Table 1 shows a synthesized overview of these forms, subsequently used in the research part.

Table 1. Review of Forms of Sharing Economy Used in Cities.

Type of Shared Resources	Sharing Form	Nature of the Sharing Form
Housing Resources	room sharing	accessibility of rooms available to short-term visitors [133]
	co-housing	shared use of certain living spaces (e.g., laundry room, parking, recreation area, playground, etc.) [134]
	couch surfing	free-of-charge use of accommodation all over the world as part of the hospitality exchange [135]
Transport Resources	carpooling	using passenger cars as part of a public transport system [136,137]
Workspace	coworking	sharing a common space for work, usually office [138]
Objects of Daily Use	toy swap	exchange of toys allowing their multiple use [139]
	clothes swap	exchange of clothes allowing their multiple use
Financial Resources	crowdfunding	joint financing of unusual ventures through online fundraising [140]

Source: own work.

3. Materials and Methods

The review of the literature contains several key premises justifying the need to take up the subject described in this article. Among them, there are only few studies regarding:

- SC economies, in particular those relating to Eastern Europe [141–143],
- the role of indirect stakeholders of the SE, including primarily city authorities in the institutionalization of the sharing economy [144,145],
- the use of SEs in cities and SE support by city authorities involving large research trials.

Given the above circumstances, the main purpose of the research is to evaluate (1) the scope of implementation of solutions typical of the sharing economy and (2) the scale of support of municipal authorities for their implementation in 287 Polish cities. As part of this research, the authors seek answers to the following research questions:

- What SE forms are the most common in Polish cities?
- Do and how do the city authorities in Poland support the use of the SE?
- What part of Polish cities can be considered smart in the context of using and supporting the SE?

Surveys allowing us to achieve the main goal and answer the research problems were carried out on a randomly selected representative sample of 287 out of 938 Polish cities assuming a confidence level of 0.95, a maximum error of 5% and a fraction of 0.5. The sample selection was representative in terms of geographic location, so the sample was stratified in proportion to the number of cities in each of the 16 Polish provinces. Figure 1 shows the number of cities studied in each of the 16 Polish provinces.

The survey questionnaire contained 12 questions about the SE. Questions 1 to 5 concerned the scale of municipal support for SE initiatives. Three of them were of a general nature and referred to subsequent levels of possible involvement of a given city, i.e.,

- Level 1: using incentives (organizational or financial) for initiators of SE projects,
- Level 2: institutional separation of a unit/position in the city administration that supports SE projects,
- Level 3: city self-involvement, i.e., initiating SE projects.

The next two questions were of a specific nature and concerned those SE projects in which the city can easily join, namely:

- (1) sharing workspace
- (2) and participation in social or cultural crowdfunding.

These projects were also selected because of the possible financial and image benefits that may lead to the city's direct participation in the event of their promotion and use, which in turn may constitute an additional incentive to undertake them.

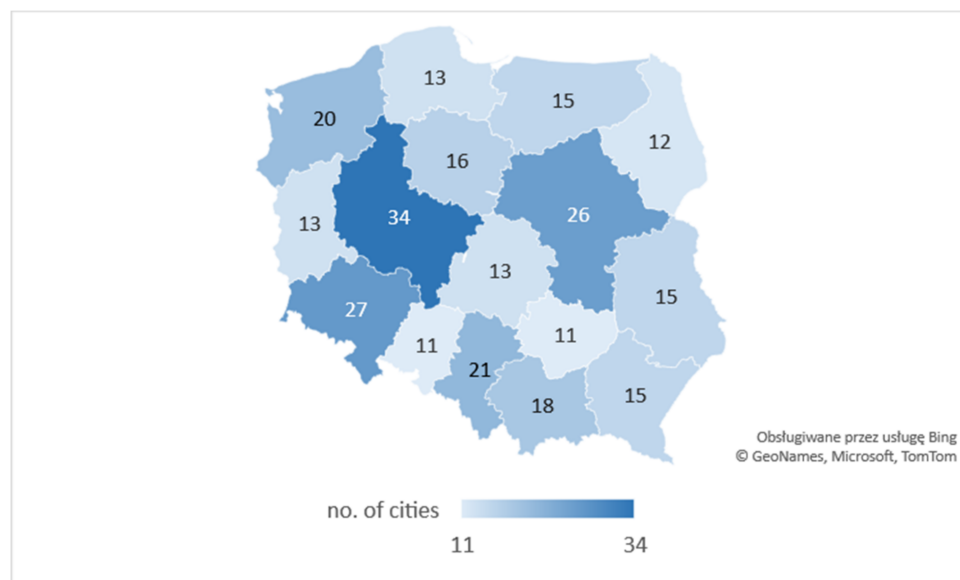


Figure 1. Number of cities studied in individual provinces: representative stratified selection. Source: own elaboration.

Questions 6 to 12 concerned individual forms of the SE and the scope of their occurrence in the analyzed city. An overview of the SE forms shown in Table 1 was used in the formulation process.

The survey was supplemented by city representatives responsible for creating and implementing urban strategies. Respondents evaluated individual aspects of the SE with a five-point Likert scale, formulated as follows:

1. very poor
2. poor
3. average
4. good
5. very good.

All survey questions are shown in Table 2.

Questions included in the survey were answered by the heads of departments responsible for the design, implementation and monitoring of municipal development strategies and they personally filled in the questionnaire. The research was carried out by a specialized agency selected through a tender. In the tender procedure, apart from the optimal price, experience in cooperation with local government administration in the field of public opinion research was required. The content of the questionnaire was prepared by the authors of the article. The formal side of the study was dealt with by the above-mentioned agency. The research method was Computer-Assisted Web Interview (CAWI). In addition, all respondents had the possibility of ongoing contact with the authors of the questionnaire while answering (several cities used this option).

As part of the questionnaire, the authors explained the concept of the SE as a business model in which the exchange of goods and services takes place through cooperation platforms, creating a generally available market for their temporary use, most often provided by private individuals. The forms that the SE can take are also indicated, with a single sentence explanation of what characterizes each form.

Table 2. List of survey questions (How do you rate ...?).

No.	Question	Rated Area
1.	Use of municipal (organizational/financial) incentives for entities dealing with sharing economy	Assessment of the scale of city support for SE initiatives
2.	A person/unit managing sharing economy operations in the municipal office	
3.	The scope of sharing economy initiatives undertaken by the city (sharing, co-creation, co-buying, co-financing, etc.)	
4.	City authorities supporting the creation of coworking spaces	Assessment of the direct support of the city for SE initiatives
5.	Involvement of city authorities in crowdfunding initiatives	
6.	City room sharing ratio (renting room for residents for short periods/stays of visitors)	Assessment of sharing housing resources
7.	City co-housing ratio (combination of independent flats in a common space, e.g., kitchen, laundry room)	
8.	City couch surfing ratio (the use of platforms offering free accommodation for visitors from the country and the world)	
9.	City carpooling ratio (car sharing, e.g., BlaBlaCar, Uber, Wolneauto.pl)	Assessment of sharing transport resources
10.	The presence of a coworking space in the city (the possibility of individual or joint work on rented space, usually office space, used mainly in the context of freelance professions)	Assessment of coworking spaces
11.	City clothes swap or toy swap activity ratio (cashless exchange of clothes or toys)	Assessment of sharing everyday items
12.	Crowdfunding ratio (social fundraising for a specific purpose)	Assessment of co-financing

Source: own work.

Besides assessing the use of the SE in Polish cities and assessing the involvement of city authorities in supporting SE initiatives, the research formulated three hypotheses regarding SE determinants. Assuming that sharing economics is a typical phenomenon for large and well-developed cities (which results from the considerations presented in the literature), the first two suppositions were formulated as follows:

Hypothesis 1 (H1). *The extent of municipal support for SE depends on the size of the city.*

Hypothesis 2 (H2). *The extent of municipal support for SE depends on the wealth of the city.*

The size of the city was quantified by the number of inhabitants and its wealth by the per capita income.

In addition, the decision was made whether the scope of municipal authorities' involvement in the development of the SE affects the scale of SE use. Thus, the third hypothesis was formulated as follows:

Hypothesis 3 (H3). *The use of individual SE forms depends on the scale of municipal authorities' involvement in SE initiatives.*

In this case, the assessment covered the existence and strength of the relationship between the level of city involvement and the use of individual forms of the SE.

At this stage, the Spearman's rank correlation coefficient was used:

$$r_{xy} = 1 - \frac{6 \times \sum_{i=1}^n d_i^2}{n \times (n^2 - 1)} \quad (1)$$

where: $d_i = r_{1i} - r_{2i}$, r_{1i} —the rank of the i -th object in the first order, r_{2i} —the rank of the i -th object in the second order, n —number of objects examined.

When testing the following hypotheses:

$$H_0 : r_{xy} = 0 \text{ parameters are independent} \quad (2)$$

$$H_1 : r_{xy} \neq 0 \text{ parameters are not independent} \quad (3)$$

at the level of significance $\alpha = 0.05$.

When testing the above hypotheses, it was assumed that the random variable has a standardized normal distribution of $N(0,1)$. When comparing its value (u) with the critical value, u_α , H_0 was rejected when:

$$|u| \geq u_\alpha \quad (4)$$

or it was assumed that there were no grounds for rejection of H_0 when:

$$|u| < u_\alpha \quad (5)$$

4. Results

4.1. Assessment of the City Involvement in SE Initiatives

In the first stage of research, the involvement of cities in implementing and supporting SE projects was assessed. Synthesized results are presented in Table 3 and the distributions of answers to individual questions are presented in Figures 2–6.

Table 3. Average Assessment of the City Involvement in Initiating and Supporting SE Initiatives.

No.	Question	Average Rating
1.	Use of municipal (organizational/financial) incentives for entities dealing with sharing economy	2.41
2.	A person/unit managing sharing economy operations in the municipal office	2.15
3.	The scope of sharing economy initiatives undertaken by the city (sharing, co-creation, co-buying, co-financing, etc.)	2.60
4.	City authorities supporting the creation of coworking spaces	2.47
5.	Involvement of city authorities in crowdfunding initiatives	2.47

Source: own work.

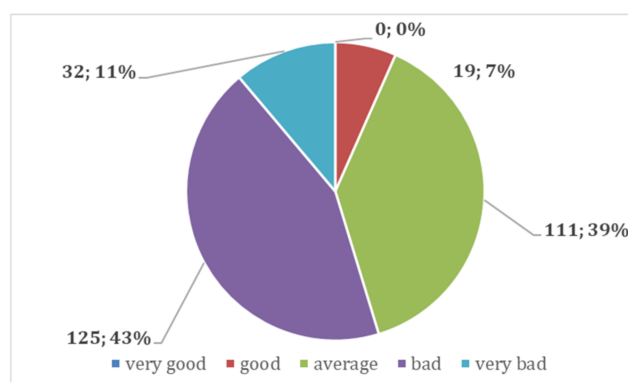


Figure 2. Use of municipal (organizational/financial) incentives for entities dealing with the sharing economy. Source: own elaboration based on the results of questionnaire surveys.

The data in Table 3 show that the level of involvement of Polish cities in SE initiatives is estimated at slightly over two on a five-point scale, i.e., very bad, bad or average.

City representatives are the least likely to declare that a unit dealing with the SE is separated in the structures of city administration. Slightly more frequently, they use incentives for entities dealing with the SE. Despite the low ratings for individual forms of SE implementation, they rate the overall level of their involvement in supporting SE

development slightly higher. It can therefore be assumed that the city authorities are primarily limited to recording and coordinating SE projects and remain passive observers rather than active stakeholders.

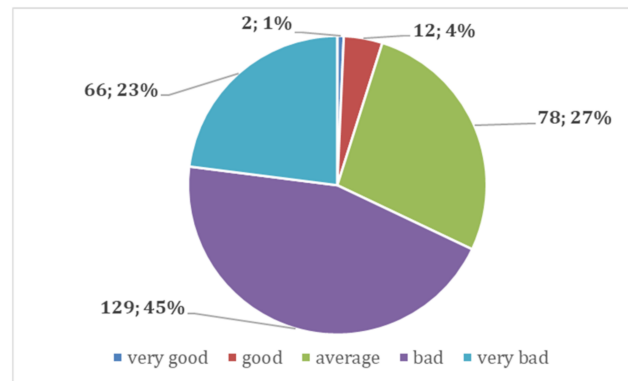


Figure 3. A person/unit managing sharing economy operations in the municipal office. Source: own elaboration based on the results of questionnaire surveys.

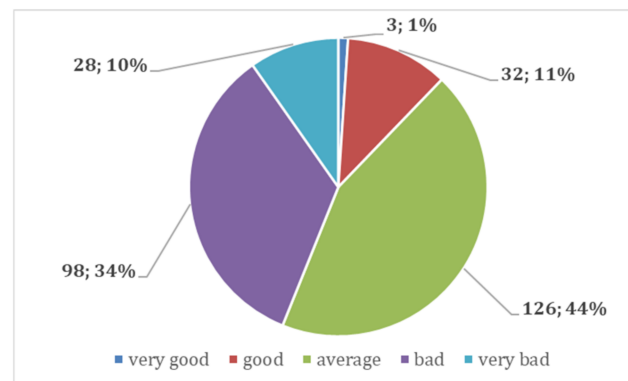


Figure 4. The scope of sharing economy initiatives undertaken by the city (sharing, co-creation, co-buying, co-financing, etc.). Source: own elaboration based on the results of questionnaire surveys.

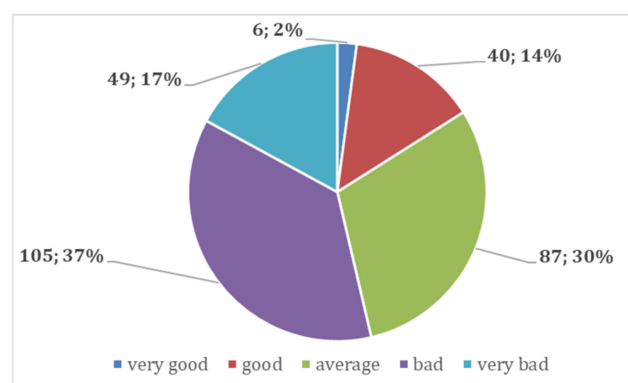


Figure 5. City authorities supporting the creation of coworking spaces. Source: own elaboration based on the results of questionnaire surveys.

In terms of details, it should be stated that the level of incentives for undertaking SE initiatives is assessed by most cities as bad and very bad (Figure 2). Moreover, none of the 287 entities rated this level as very good, and only 19 cities believe it is good.

The assessment by cities of the functioning of the person/unit dealing with SE in the city is even worse (Figure 3). In this respect, 68% of cities give themselves a 1 or 2 rating, which most likely means that such a unit or a person is not present in the city administration

structures. Only in two surveyed entities the activities of such units are rated as very good and in 12, good. At the same time, we should add that these 14 cities are entities that are most often mentioned in international rankings as smart or are actively involved in smart activities to find themselves in said ranking. Nevertheless, they constitute a very small percentage of the sample studied.

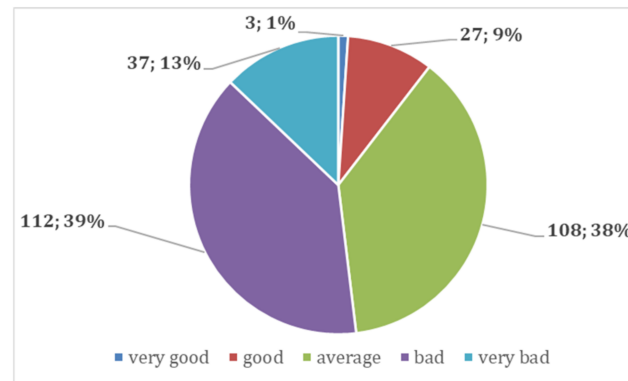


Figure 6. Involvement of city authorities in crowdfunding initiatives. Source: own elaboration based on the results of questionnaire surveys.

Despite the low assessment of organizational and financial support for SE initiatives, as many as 58% of respondents consider the scope of sharing economy initiatives undertaken by the city as at least average (grades three, four and five—Figure 4). Such an assessment may result from declarations regarding involvement in the organization of coworking space and crowdfunding initiatives (Figures 5 and 6). In both areas, the average rating of cities is 2.47, and therefore is higher than the rating regarding organizational and financial support for SEs (questions 1–3).

In total, 46% of the cities surveyed evaluate their support for the creation of coworking spaces as very good, good or average (Figure 5). In the case of crowdfunding, 48% of respondents assign themselves such assessments (Figure 6). This confirms the relative ease of cities joining such initiatives. When it comes to coworking, cities have a lot of office space at their disposal, which can be a shared resource. In turn, crowdfunding can be a form of relief for the city budget and alternative financing of urban social, cultural or sports initiatives.

4.2. Assessment of the Scope of Using SE Forms in Polish Cities

In the second stage of research, the assessment included individual forms of the SE. The results of the analysis are presented in Table 4.

According to the data in Table 4, room sharing, crowdfunding, coworking and car-pooling are the most common initiatives in Polish cities. These are quite traditional forms of sharing housing, financial, transport and workspace resources. Nevertheless, the assessment of their use is low and ranges from 2 to 3. The following refers to the scale of use of individual forms of the SE in the cities analyzed.

Thus, room sharing is rated the highest among forms of sharing housing resources. Indeed, 18% of Polish cities assess the use of this form of SE as very good and good, and 43% as average (Figure 7). The provision of free-of-charge rooms is therefore considered an attractive form of additional use of free residential space.

However, forms of sharing housing resources such as co-housing (Figure 8) and couch surfing (Figure 9) are definitely worse. Only 35% of cities surveyed declare an average and above average level of use of platforms offering free-of-charge accommodation for visitors from the country and the world. For co-housing, this percentage is even lower (29%). The reason for the low level of couch surfing use may be the poor attractiveness in terms of tourism of the cities studied or the lack of commitment of city authorities to improve this attractiveness. The low use of co-housing may be related to the perception associating the

joint use of economic space with a low standard of living (economic necessity of sharing) and customs typical of the centrally planned economy in the assumption of an idea-oriented community.

Table 4. Average Rating of the Scope of Using SE Forms in Polish Cities.

No.	Specification	Note
1.	City room sharing ratio (renting room for residents for short periods/stays of visitors)	2.71
2.	City co-housing ratio (combination of independent flats in a common space, e.g., kitchen, laundry room)	2.01
3.	City couch surfing ratio (the use of platforms offering free accommodation for visitors from the country and the world)	2.24
4.	City carpooling ratio (car sharing, e.g., BlaBlaCar, Uber, Wolneauto.pl)	2.50
5.	The presence of a coworking space in the city (the possibility of individual or joint work on rented space, usually office space, used mainly in the context of freelance professions)	2.54
6.	City clothes swap or toy swap activity ratio (cashless exchange of clothes or toys)	2.53
7.	Crowdfunding ratio (social fundraising for a specific purpose)	2.62

Source: own elaboration based on the results of questionnaire surveys.

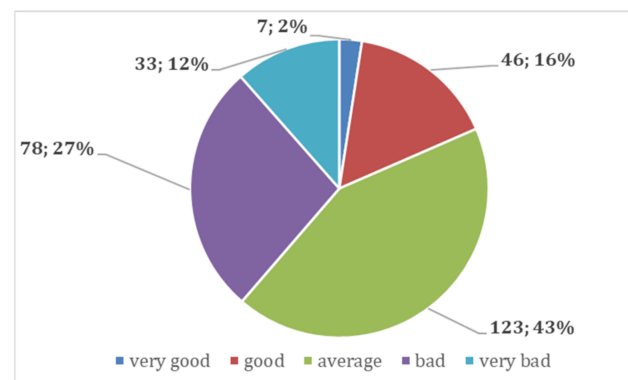


Figure 7. City room sharing ratio (renting room for residents for short periods/stays of visitors). Source: own elaboration based on the results of questionnaire surveys.

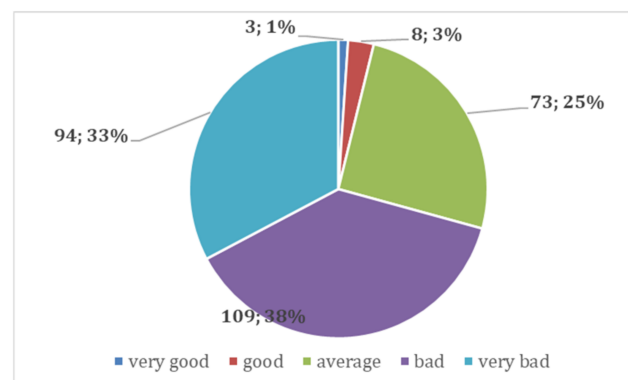


Figure 8. City co-housing ratio (combination of independent flats in a common space, e.g., kitchen, laundry room). Source: own elaboration based on the results of questionnaire surveys.

The transformation of the socio-economic system in Poland has undoubtedly led to a strong attachment to private property and a departure from collective thinking, which generally hinders the implementation of the principles and forms of the sharing economy. An

additional reason for the low interest in sharing housing resources is their low availability. Many families in Poland do not own their apartments and do not have excess living space.

Slightly more popular forms of the SE include sharing transport resources (Figure 10) and workspace (Figure 11), which result from their greater availability and less violation of privacy during sharing. In total, 45% of the cities surveyed evaluate the use of carpooling as average, good and very good. In the case of coworking, this percentage is slightly higher and equals 47%.

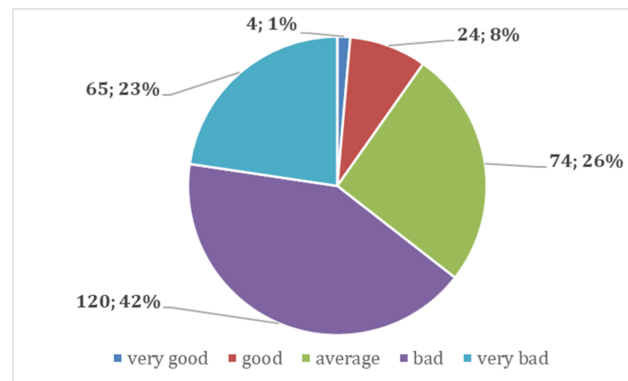


Figure 9. City couch surfing ratio (the use of platforms offering free accommodation for visitors from the country and the world). Source: own elaboration based on the results of questionnaire surveys.

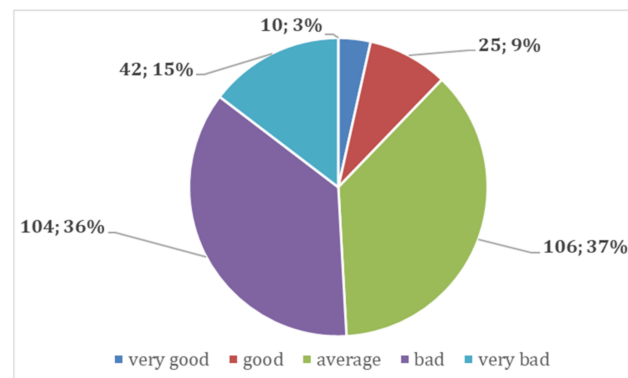


Figure 10. City carpooling ratio (car sharing, e.g., <https://www.blablacar.pl>; <https://www.uber.com/pl/pl>, accessed on 31 January 2022). Source: own elaboration based on the results of questionnaire surveys.

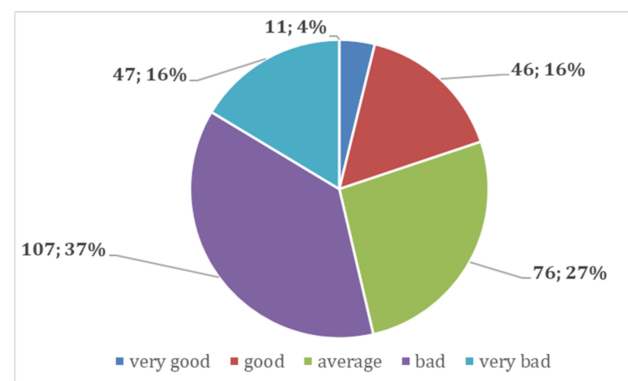


Figure 11. The presence of a coworking space in the city (the possibility of individual or joint work on rented space, usually office space, used mainly in the context of freelance professions). Source: own elaboration based on the results of questionnaire surveys.

Sharing everyday objects, such as clothes and toys is acceptable and widely used in Polish cities (Figure 12). Almost half of the cities assess their presence at 3 and more. Both accessibility and a variety of toys or clothes can be an incentive for sharing. This form of SE also perfectly fits into the postulate of greening life and is relatively easy to implement.

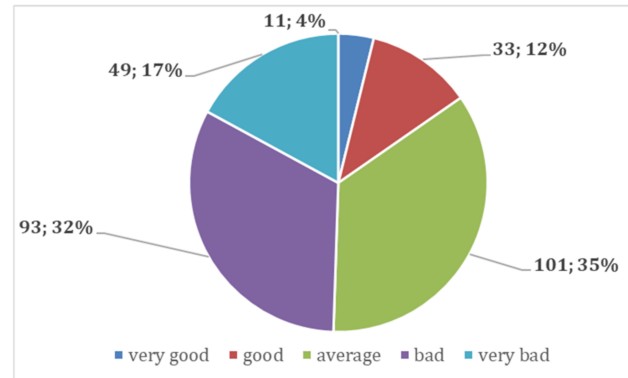


Figure 12. City clothes swap or toy swap activity ratio (cashless exchange of clothes or toys). Source: own elaboration based on the results of questionnaire surveys.

Polish cities also rate the use of crowdfunding initiatives quite well (Figure 13). As much as 57% assess the presence of this form of SE in the city at 3 and more. Most likely, this is due to the affordability and trouble-free nature of this form of sharing and its equal acceptance by both cities and residents. It is also important to support noble and innovative ventures through crowdfunding, which allows donors to behave in a useful and ethical manner.

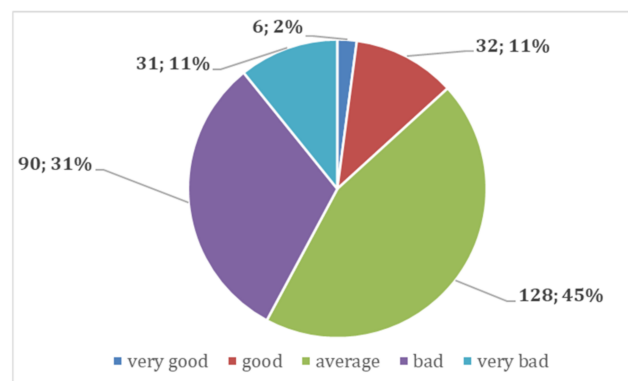


Figure 13. Crowdfunding ratio (social fundraising for a specific purpose). Source: own elaboration based on the results of questionnaire surveys.

4.3. Determinants of the Development of SE in Cities

In the last stage of the research, the relationships between parameters describing the city (number of inhabitants; per capita income) and the scope of support for the sharing economy by municipal authorities were identified. The results of measuring these relationships for three questions regarding the level of city involvement in supporting SE initiatives are presented in Table 5.

Statistically significant correlations of average strength and positive direction were found between the city's SE level of involvement and the number of inhabitants, which means that in larger cities organizational and financial support and the involvement of municipal authorities in SE projects are higher than in smaller cities. This confirms the H1 hypothesis (the extent of municipal support for SE depends on the size of the city).

Table 5. Spearman’s Rank Correlation Coefficients: Dependence of SE Support on the Size and Wealth of the City.

Question	Per Capita Income	Population
Use of municipal (organizational/financial) incentives for entities dealing with sharing economy	0.1063	0.4072 *
A person/unit managing sharing economy operations in the municipal office	0.0937	0.2827 *
The scope of sharing economy initiatives undertaken by the city (sharing, co-creation, co-buying, co-financing, etc.)	0.1651 *	0.3394 *

*—statistically significant correlation at $\alpha = 0.05$; Source: own elaboration based on the results of questionnaire surveys.

The results in Table 5 allow us only to confirm the H2 hypothesis in a very limited extent (the extent of municipal support for SE depends on the wealth of the city). Statistically significant, but very weak dependence on per capita income occurred only in the scope of SE initiatives undertaken by the city.

Table 6 presents the results that allow the verifying of the last of the research hypotheses, regarding the relationship between the city’s involvement in SE initiatives (question 3) and the development of its individual forms. In the case of all resources shared in cities, such a relationship was found to have positive direction and average strength. Therefore, the H3 hypothesis was confirmed, which means that the use of individual SE forms depends on the scale of municipal authorities’ involvement in SE initiatives. However, this relationship is not strong, which indicates the indirect role of city authorities in creating development conditions for the SE. At the same time, it also emphasizes the active participation of the city as an SE stakeholder.

Table 6. Spearman’s Rank Correlation Coefficients: The Dependence of Development of Individual Forms of SE and the City’s Involvement in Undertaking SE Initiatives.

Question	Spearman’s Rank Correlation Coefficient
City room sharing ratio (renting room for residents for short periods/stays of visitors)	0.4107 *
City co-housing ratio (combination of independent flats in a common space, e.g., kitchen, laundry room)	0.3963 *
City couch surfing ratio (the use of platforms offering free accommodation for visitors from the country and the world)	0.5005 *
City carpooling ratio (car sharing, e.g., BlaBlaCar, Uber, Wolneauto.pl)	0.4778 *
The presence of a coworking space in the city (the possibility of individual or joint work on rented space, usually office space, used mainly in the context of freelance professions)	0.5004 *
City clothes swap or toy swap activity ratio (cashless exchange of clothes or toys)	0.5136 *
Crowdfunding ratio (social fundraising for a specific purpose)	0.5382 *

*—statistically significant correlation at $\alpha = 0.05$; Source: own elaboration based on the results of questionnaire surveys.

The strongest correlations between the city’s involvement and the presence of a given form of SE in the city were found in sharing financial resources and items of everyday use transferred for reuse. The weakest correlations referred to the sharing of housing resources, which results from the very limited possibilities of encouraging residents to make housing available by the city and the aforementioned limited space.

5. Discussion

The research carried out in the article was aimed at diagnosing the state of SE initiatives in Polish cities in general and in relation to their individual forms. Such an assessment in relation to a representative sample of Polish cities has not been carried out so far. Therefore, these studies are important from two points of view: (1) they allow us to determine the distance of Polish cities to cities in developing countries and (2) draw attention to the role of city authorities in supporting initiatives in the field of SE, which are characteristic not only for smart cities, but also, and perhaps mainly for sustainable cities.

While referring successively to the research questions posed in the article, it should be stated that in Polish cities the use of the sharing economy is at a fairly low level. Room sharing, crowdfunding and carpooling are rated highest. Nevertheless, the average rating of these forms in the city does not exceed the average level (below 3). The popularity of other SE forms (co-housing, couch surfing, toy swap, clothes swap) is definitely lower (ratings from 2 to 2.55).

The city authorities' involvement in supporting the development of the SE is also low. Most cities do not encourage SE initiatives, do not support them organizationally and financially and do not undertake them on their own. The level of this involvement does not depend on the wealth of the city, which suggests that the potential development of the SE is possible and available to most Polish cities that would like to take up such a challenge. However, the involvement depends on the size of the city, which also indicates that large cities are better acquainted with the concept of SE and are interested in its implementation, thus following international urban development trends.

Such a weak SE development in Polish cities probably results from several general economic circumstances described in the introduction, some of which are:

- low availability of housing resources preventing their free sharing,
- low knowledge and awareness of SE ideas, forms and platforms,
- lack of universal access to the Internet and ICT infrastructure,
- lack of institutional and legal regulations for individual forms of SE.

We should add, however, that in former centrally planned economies, the idea of sharing resources can be distorted and associated with poor availability of goods and services, and thus the forced necessity of sharing them. Residents of Polish cities may also be discouraged from the idea of the SE due to many years of non-market rules for the allocation of goods and services, which may result in distrust of unknown, new forms of economic exchange. Such a perception of the SE may cause reluctance to implement and use it and additionally hinder the development of the concept.

The literature also emphasizes that the necessary condition for the development of the SE and co-creation of values in cities is the mutual trust of direct and indirect stakeholders. In Poland, the general level of trust is relatively low, which is not conducive to the popularity of individual forms of the SE. As a result, the lack of a stable emotional foundation may result in perceiving the SE as a high-risk venture and further impede the acceptance and implementation of this concept.

The lack of trust resulting in a general reluctance to anything new is partly due to the relatively short, only 30-year-old free market traditions and the lack of legal and institutional regulations for the principles of functioning of the SE in the national and municipal economy. The latter reason is also characteristic of other regions of the world in which the SE develops, which was emphasized in the literature studies cited at the beginning [22–25,141].

Lack of trust and the related lack of legal regulations for the sharing economy are typical barriers to the development of this business model. As is the results from the research conducted so far, they are particularly acute for emerging and developing economies, which is also indirectly confirmed by the observations of the authors of the article. In such a situation, the role of city authorities in building trust and creating conditions for collaboration between all city stakeholders should be emphasized [112,113,130]. This is a necessary condition not only for the development of SE, but also for the creation of

fully smart and sustainable cities, which is confirmed, among others, by the examples of Barcelona and Vienna.

The authors of the article are aware that cities, including those studied, do not have a direct impact on the development of SE in urban space, because it is a bottom-up initiative. Nevertheless, literature and practice emphasize their role in the following aspects [92]:

- (1) in the field of creating institutional and legal frameworks for the development of business models represented by the SE (in Poland it is particularly visible with the example of car sharing, which almost always takes place with the participation of city authorities, promotion of pro-ecological solutions, cooperation with modern business or identification of exchange places),
- (2) in the context of promotion and education on sustainable consumption and resource saving,
- (3) in the field of providing external urban space and premises for initiatives in the field of SE (co-working; clothes swap; toy swap),
- (4) in terms of cooperation with enterprises regarding the organization and promotion of exchange platforms, it is also an opportunity to strengthen the image of the city as an entity acting for sustainable development.

For the mentioned reasons, both the influence and involvement of municipalities in SE initiatives can bring benefits in terms of regulating sharing initiatives and the city's involvement in promoting sustainable consumption and production.

6. Conclusions

The development of SE initiatives in the surveyed Polish cities is low, as is the interest of municipal authorities in this business model. In light of the above, few Polish cities can be considered smart against the level of advancement in implementing and supporting the sharing economy. In the presented list of 287 entities, the best in this respect are very large and large cities, which have been listed in international Smart Cities comparisons for years. This confirms the research and observations cited in the introduction, which show that sharing economy solutions are developing best in the environment of large, economically and civilizationally developed cities [42]. It should also be presumed that this is where the idea of the SE will continue to develop, regardless of the geographical location of the country.

Given the results presented and the new questions and doubts arising thereunder, we should focus future research on identifying the benefits and barriers to the development of the SE. At the same time, they should be analyzed from the perspective of various stakeholders using both qualitative tools and statistical data to objectify observations. Considering the popularity of individual forms of the SE in well-developed Smart Cities in the world, further expansion of this socio-economic system can be expected justifying the need for in-depth research in this area.

Research results presented in the article concern cities in emerging and developing economies with short free market traditions, which may pose a certain limitation and narrow the group of respondents to representatives of the city authorities. Nevertheless, in the authors' opinion, these studies allow us to better understand the functioning of SEs in emerging economies and look at SEs from the perspective of indirect stakeholders, which is a significant contribution to the development of economics and urban management.

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