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CROWDSOURCING AND DIGITIZATION AS A TOOL FOR CREATING SUSTAINABLE DEVELOPMENT – A CASE STUDY OF PUBLIC ADMINISTRATION

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ABSTRACT: Goal: Building stable infrastructure and promoting innovation is the ninth goal of sustainable development. It is implemented, among others, by increasing access to information and communication technologies and providing affordable and universal access to the Internet. The aim of the article is to assess the current level of access to broadband Internet and the possibility of its faster dissemination using a crowdsourcing platform, a new solution used by public administration in Poland. The platform involves the public and shows public administration's experience in using it to ensure wide public access to broadband Internet, which translates into the implementation of sustainable development goals thanks to the digitisation of socio-economic processes. Research method: The study used a comparative analysis of indicators in the area of information and communication technologies collected by the Central Statistical Office and a case study of the use of a crowdsourcing (internet) platform called SIDUSIS (Information System on Access to Fixed Broadband Internet Services) to optimise the implementation of investments in the development of broadband Internet in Poland. The analysis of the implementation effects and the indication of the impact of digitalisation on sustainable development goals allowed us to indicate the validity of using the concept of crowdsourcing and crowdsourcing platforms not only in the activities of enterprises but also in the activities of public administration in Poland. Conclusions: The analysis of literature and quantitative data allowed us to indicate that the development of access to broadband Internet is one of the factors accelerating the implementation of sustainable development goals and to indicate the effective use of the idea of crowdsourcing to modernise infrastructure. Originality/value/implications/recommendations: So far, the idea of crowdsourcing, as well as crowdsourcing platforms, has been used mainly in the enterprise sector and in public administration to promote the idea of citizen budgets. The experience gained has shown that it is justified to involve society in increasing the availability of broadband Internet. This does not require large investment outlays and allows decision-makers to quickly identify problems with this accessibility and optimise work in this area.

KEYWORDS: broadband internet, crowdsourcing, digitisation, sustainable development, public administration

Introduction

Modern economies and societies are facing sustainability challenges, such as climate change, social inequality, and the need to conserve natural resources. In response to these challenges, the prominence of the concept of sustainable development is growing (Saifulina et al., 2020; Fryczynska et al., 2022). A United Nations resolution called Agenda 2030, which is a world development strategy, treats the concept of sustainable development as a concept "for the benefit of the people implemented by the people." The realisation of this concept is based on the pursuit of the 17 Sustainable Development Goals (SDGs). It would not be possible without digitisation/digital transformation (digital transformation) of the processes and tasks included in these goals (Bocean & Vărzaru, 2023). Accelerating digital transformation becomes essential to accelerate the realisation of the SDGs (United Nations, 2021). It does, however, require investing in inclusive and accessible digital infrastructure to significantly increase connectivity for all (United Nations, 2023).

One of the tasks contributing to achieving Sustainable Development Goal 9 is to increase access to broadband Internet. The task seems to be more effective when performed in connection with crowdsourcing, i.e. using the knowledge, ideas and experience of virtual communities (crowd) to solve problems and create innovations by the organisation's employees (Howe, 2006). So far, the idea of crowdsourcing, as well as crowdsourcing platforms, has been used mainly in the business sector (Krawiec, 2014), while in public administration, it has been used far less frequently, for example, to promote the idea of civic budgets. However, this participatory form represents a whole new dimension in the relationship between governments and citizens, allowing residents to directly influence the direction of public spending and thus shape the future of their communities through improved living conditions. The involvement of society in generating and selecting ideas via digital platforms will enable better and more targeted diagnosis and satisfaction of needs, build relationships based on mutual trust and cooperation, and will also promote transparency and accountability in management. Local authorities can additionally reduce costs at the stage of initiating and developing projects, relieve their employees and transfer them to other tasks. Crowdsourcing in national budgets seems to be a good point of reference in the efficient and effective implementation of some sustainable development goals and tasks.

The purpose of the article is to assess the increase in the availability of digital digitisation infrastructure measured by the availability of broadband Internet in Poland in the years 2015-2023 and to present and attempt a preliminary validation of the platform acronym SIDUSIS, a new public administration solution in Poland, based on the idea of crowdsourcing, intended to intensify work on increasing availability of this type of internet (Musiał, 2007).

In the literature, much attention is paid to the use of social media (such as Facebook, Instagram and Twitter) by local authorities to communicate with citizens and increase their involvement (Guillauie et al., 2024). The article shows the use of crowdsourcing ideas by public administration to accomplish the task of accelerating broadband Internet penetration under Sustainable Development Goal 9 in Poland. The experience of public administration in the use and effectiveness of the crowdsourcing platform to increase broadband availability through public involvement is presented (Howe, 2009). This technological tool does not require a very large investment in collecting information on so-called "white spaces" or vacant lots. It also allows for community participation in making targeted decisions on investments in this type of Internet and supporting community initiatives at the local level and consequently at the national level as well. As a result, the platform enables decision-makers to quickly identify broadband availability problems and optimise work in this area.

An overview of the literature

Sustainability is an increasingly important concept as societies recognise the finite nature of resources and the consequences of over-consumption and pollution (Church et al., 2022). It is defined as meeting the needs of the present without compromising the ability of future generations to meet their own needs while maintaining ecological processes, biodiversity and productivity (World Commission on Environment and Development, 1987; Terry, 2010; Lanzano, 2022). Sustainability encompasses environmental, economic and social dimensions and focuses on the responsible use, conser-

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vation and reuse of resources (Malhotra et al., 2013), so a change of direction for all is proving necessary as the search, formulation, testing and implementation of innovative solutions based on, among other things, interaction and co-management (Mendes et al., 2023) are needed to carry out the transformation process. Organisations are increasingly adopting sustainability practices to optimise social, environmental and economic goals at the same time, rather than treating them as trade-offs (Malhotra et al., 2013), using different solutions. Promoting sustainable practices and integrating good digital engagement practices can improve well-being (Correia, 2024). Digitalisation and ICT can enhance the economic, social and environmental security and development of regions. Digitalisation can stimulate innovation, attract investment, improve social services, enhance economic security and increase the competitiveness of regions (Kondratenko et al., 2022). Technology and innovation are the means to implement Agenda 2030 (Grabowski, 2022). In particular, digitisation has been identified as an important tool for implementing sustainable development (Adamczyk, 2023). Actions aimed at accelerating digital transformation can contribute to the progression of the goals and individual tasks of sustainable development. Digitisation is distinguished under the term of digitising, i.e. converting analogue data format to digital, or more broadly as digitalisation, encompassing the application of digital technologies in economic, social, and political processes (Śledziewska & Włoch, 2020), it is practically present in all areas of life, creates today's reality, hence the consideration of its possibilities in the implementation of the SDGs is natural, and its manner and direction of influence arouses the interest of researchers. Among others, Emilia Herman draws attention to the concept of digital entrepreneurship (Digital Europe, 2015; Nambisan, 2017) as the intersection of digital technologies and entrepreneurship and demonstrates the positive impact of digital entrepreneurship on achieving Sustainable Development Goals (Herman, 2022). Pasqualina Sacco et al., conducting a systematic review of the literature on the impact of digitisation on sustainable development, pointed out both its positive impacts, including through more efficient use of water, energy, or materials resources; lower CO2 emissions (largest ever $100 million crowdsourcing competition to reduce CO2 in the Earth's atmosphere on crowdsourcing platform X-Prize) by reducing energy consumption or travel in businesses and government institutions thanks to the ability to work and communicate remotely or get many things done online, optimising production and delivery times, improving access to various services, such as healthcare or education, as well as the negative ones, if only through the environmental impact of digital devices (Sacco et al., 2021). After all, the development of the digital economy depends largely on energy consumption, although looking even more broadly, digital technologies can make energy systems more connected and intelligent and their operation more efficient, reliable, and sustainable (IEA, 2017). Ionescu-Feleagă, Ionescu, and Stoica analysed the relationship between digitalisation and sustainability in European Union countries from 2019 to 2021. The results of the study showed a positive relationship between the DESI (Digital Economy and Society Index) and SDG Index during the analysed period, with a decreasing effect from 2019 to 2021 (Ionescu-Feleagă et al., 2023). Alina Grynia's analysis of the DESI index values for EU countries in 2017 and 2022 showed that EU countries, despite their growing digital potential, vary quite widely in the level of digitisation. The digital deficit is found in the overall level of digitisation, as well as in the individual areas assessed by the DESI – human capital, connectivity, digital technology integration, and digital public services. The author also points out disparities in the achievement of the Sustainable Development Goals by individual EU countries and notes that the countries that lead the way in achieving the SDGs (Finland, Sweden, and Denmark) are also the best digitally advanced (Grynia, 2023). Similar findings are presented by Teresa Pakulska, who examined the relationship between the digitisation of EU countries and the level of sustainable development achieved by those countries. The study showed that a higher level of digitisation in EU countries goes hand in hand with a higher level of sustainability in these countries. In addition, the author analysed the level of digitisation and the three pillars of sustainability: social, economic, and environmental, showing the highest degree of correlation between the level of digitisation and the social pillar of sustainability, a slightly lower degree of correlation with the economic pillar, and a non-significant level of correlation between digitisation and the environmental pillar. On this basis, the author draws the conclusion that it is necessary to take measures to accelerate the implementation of digital tools in the environmental pillar, noting the danger of digital non-sustainability (Pakulska, 2023). Thus, digitisation can become a tool for achieving sustainability goals, influencing the reduction of energy demand or harmful emissions (GeSI, 2015). However, the production, operation, and disposal of digital devices, or the operation of the entire IT infrastructure,

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requires significant energy consumption (Belkhir & Elmeligi, 2018). It seems important, therefore, to prevent the energy intensity of ICTs so that their benefits outweigh their costs and so that the digitisation of economies is a factor that supports rather than hinders their sustainability.

Assessment of progress in achieving the SDGs at both the global and regional levels is made possible by a set of some 250 global indicators (SDG indicators) defined by the United Nations. Their values are calculated by international organisations, as a rule, on the basis of official data obtained from the statistical offices of individual countries. At national levels, due to the varying levels of implementation of individual areas, as well as the specific difficulties that occur, instead of global indicators, countries can use their own sets of indicators that allow monitoring of problem areas. This solution is being used by many countries, including Poland, which has linked these indicators to national priorities in achieving the SDGs. For Sustainable Development Goal No. 9, selected specific tasks, selected indicators for global goals, and Polish national priorities are presented in Table 1 (GUS, 2024).

Table 1. Selected sustainable development tasks and selected global and national indicators for measuring the achievement of Sustainable Development Goal 9

Goal No.	Sustainable Development Goal	Selected specific tasks	Selected indicators for global goals	Selected indicators for national priorities
9	Build sustainable infrastructure that is resilient to the effects of disasters, promote a sustainable, inclusive model of economic development, and foster innovation.	Support technological development, research, and innovation in developing countries by, among other things, providing conditions for the development of policies that foster industrial diversification and add value to goods and commodities. Significantly increase access to information and communication technologies by 2020, and strive to ensure universal, affordable access to the Internet in the least developed countries.	9.5.1 Gross domestic R&D expenditures in relation to GDP 9.c.1 Percentage of population covered by cell phone network by technology	9.2.a Percentage of households with Internet access of at least 100 Mbps

Source: authors' work based on GUS (2024).

In the European Union, a set of about 100 sustainable development indicators is used for quantitative comparison and performance analysis. This set differs from the set of global indicators, as it is linked to EU policies that address the level of development, potential, and challenges facing EU member states. The set is based primarily on the resources of the European Statistical System, and the indicators monitoring the EU's SDG priorities are used, among other things, in Eurostat's annual reports on the EU's progress towards the goals of the 2030 Agenda and in national reports under the European Semester procedure, which coordinates socio-economic and budgetary policies in the EU (GUS, 2024).

The latest, seventh report, published in May 2023 by the Statistical Office of the European Union, mentions adapting Europe to the digital age and notes that this is one of the Commission's six priorities for 2019-2024. Regions without high-speed Internet connections face severe negative consequences both socially and economically, and the goal is to make the digital transformation beneficial for people and businesses while also contributing to the goal of a climate-neutral Europe by 2050 (Eurostat, 2023). The report "Implementation of the Sustainable Development Goals 2023" published on the website of the Ministry of Development and Technology states that "Poland is making gradual progress in digital transformation" (Ministerstwo Rozwoju i Technologii, 2023). This is also confirmed by the fact that according to the Digital Economy and Digital Society Index (DESI 2022) ranking, Poland is in 24th place among the 27 EU countries with a score of 40.5, against an EU average of 52.3. It is, therefore, necessary not only to develop the telecommunications infrastructure but also to accelerate activities in such areas as improving digital skills, ICT (data communications) specialists in education and the labour market, the adoption of digital technologies by businesses, and public e-services (Ministerstwo Rozwoju i Technologii, 2023).

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Research methods

The purpose of the survey was to diagnose the level of achievement of Sustainable Development Goal 9, i.e. access to broadband Internet in Poland in 2015-2023.

The study was carried out based on a desk data analysis, which consisted of collecting information from the literature on the subject, databases (CSO), and web portals. Using available sources, such as public statistics and several studies on the survey, quantitative data was analysed for one of the national indicators for measuring the degree of achievement of the goals and objectives of sustainable development, i.e., the percentage of households using Internet access of at least 100 Mbps in 2015-223.

In terms of quantitative data, descriptive statistics techniques were used to formulate a consistent picture of reality. Statistical analysis was carried out using IBM SPSS Statistics 21 software. In the analysis of quantitative data, assumptions were made that are consistent with current standards in social science methodology, i.e. a significance level of 0.95 and a standard error of 3%. Mainly those statistical operations were used to illustrate measures of central tendency. Still, in the case of some variables, it was decided to analyse the regression and verify the relationship between the occurrence of two variables. Qualitative data from source materials such as reports, studies, and articles complemented and allowed for a deeper understanding of the issues under study. Their analysis was based on the search for premises for critical rationalism, i.e. verification of the assumptions made and conclusions drawn from empirical data. Findings authored by other researchers were juxtaposed with conclusions emerging from empirical material to confirm or refute them. As a result, the information obtained made it possible to formulate some conclusions about the subject of the study.

Results of the research

Given the purpose of this article, the focus is on diagnosing the level of achievement of Sustainable Development Goal 9, i.e. ensuring universal access to electronically accessible content and services. With this in mind, it should be emphasised that universal access means that the overwhelming majority of citizens and businesses have the technical capacity to use such content and services (computer, cable TV, digital TV, UMTS telephony, and R-LAN networks were listed among the means of access). In practice, this means universal, secure, and broadband access to the Internet, which since 2009 has also been possible via digital mobile telephony.

Table 2. Features of the different generations of digital mobile telephony

Generation	Throughput	Delay	Number of devices per km^2	Standard	Year of a standard introduction
2G	0,3 Mb/s	100-150 ms	1000	GPSR/EDGE	1991
3G	7-42 Mb/s	50 ms	10 000	UMTS/HSPA/HSPA+	2004
4G	400 Mb/s	20-30 ms	100 000	LTE/LTE+/LTE Advanced	2009
5G	1Gb/s	5-10 ms	1 000 000	IMT-2020 (5G)	2020

Source: authors' work based on UKE President's Reports on the State of the Telecommunications Market for 2005-2021.

According to the European Commission's report, titled Digital Decade Policy Programme: Fiber-optic networks, which are key to providing gigabit connectivity and enabling cutting-edge technologies such as artificial intelligence, cloud computing, and the Internet of Things, reach only 64 percent of households. High-quality 5G networks currently reach only 50 percent (based on 5G-dedicated bands) of EU territory, and their capacity is still insufficient to provide advanced 5G services (few 5G SA networks) (European Commission, 2024).

To delve deeper into the information on broadband availability in Poland, statistics from the Central Statistical Office were used. They provide valuable insights into the digitisation/computerisation

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process, as well as the increase in broadband availability, making us function in an increasingly computerised world. Figure 1 shows the dynamics of Internet availability in Polish households from 2015 to 2023 by connection type.

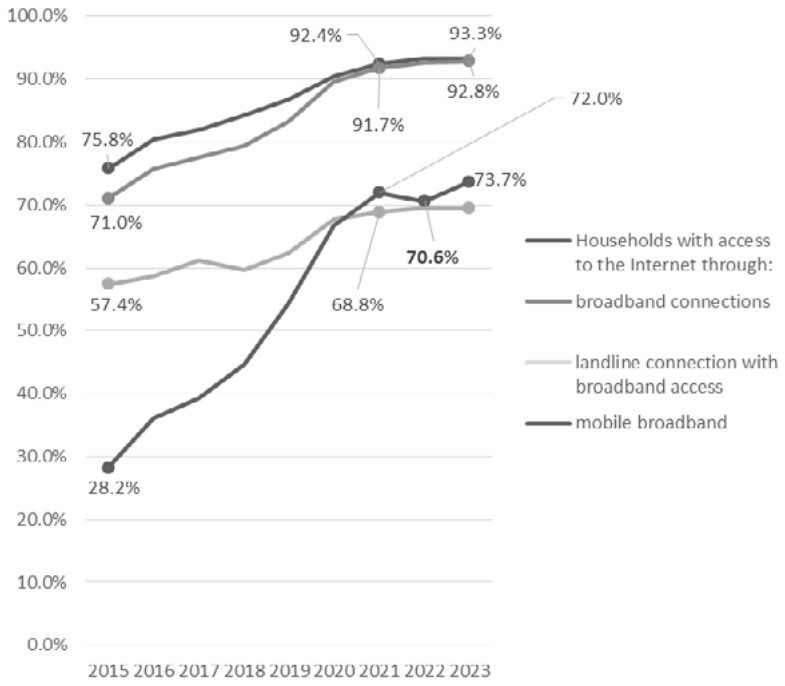

Figure 1. Types of Internet connections

Source: authors' work based on GUS (2024).

When analysing household Internet accessibility, it should be noted that in 2015, the level was 75.8%, while in 2023, it increased to 93.3%. Taking into account the types of Internet connections, it can be noted that broadband connections oscillated at a similar level as household Internet accessibility (year 2015 – 71%; year 2023 – 92.8%). It should be noted here that a broadband Internet connection is a type of connection that enables high-speed data transfer, often through various technologies such as DSL, cable, fibre, satellite, or LTE/5G. So, it is an optimal technological solution that can be used to transfer data, allowing more information to be transmitted at the same time. However, turning our attention to fixed-line broadband and mobile broadband, we can see significant differences in their levels between 2015 and 2019. In 2015, mobile broadband access was 28.2%, while fixed-line broadband access oscillated at 57.4%. Only since 2020 has the access of these lines been at a similar level. The increase in the availability of the aforementioned lines may have been caused by the SARS-CoV-2 virus, which contributed to the increased number of people working and studying remotely.

Considering the type of Internet connections in 2015, the largest number of households with Internet access via broadband connections was in Eastern Poland, i.e. 73.4%, followed by Western Poland (71.5%) and Central Poland (69.8%) (GUS, 2024). However, in 2023, the situation is reversed. The largest number of households with Internet access via broadband connections was in Central Poland, at 93.6%, followed by Western Poland (92.0%) and Eastern Poland (91.6%). The level of fixed lines with broadband access was similarly distributed. Analysing mobile broadband, it can be seen that Eastern Poland is the clear leader, i.e. 75.6%, followed by Western Poland (74.8%) and Central Poland (72.4%) (GUS, 2024).

The data clearly shows that the penetration of high-speed Internet in the EU – relative to fibre-optic connections or other networks offering similar speeds – has improved significantly over the past few years. In 2016, only 25.2 percent of EU households used such connectivity; by 2021, the share was 70.2 percent. The EU forecasts that if high-speed Internet development continues at this pace,

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the EU will reach 100 percent coverage well before 2030. It is also worth noting that connectivity has also improved in rural areas. Between 2016 and 2021, the share of rural households with a fixed high-speed internet connection increased from 7.7% to 37.1% across the EU (Eurostat, 2023). In contrast, according to the Office of Electronic Communications, in 2022 in Poland, the share of households within range of Internet access with speeds of at least 100 Mbps in the total number of households was 44.2% (GUS, 2024) well below the EU average in 2021.

SIDUSIS platform as a solution based on the idea of crowdsourcing as a response to the need to increase access to broadband Internet

Information and communication technologies in the digital age are constantly transforming our daily lives, which creates more and more opportunities for innovative forms of involving local communities in decision-making processes (Pajor, 2022), but also improving the quality of life in accordance with the concept of sustainable development. Recognising the need to intensify work on increasing access to broadband Internet, it was decided, on the basis of crowdsourcing, to engage the public to help with this task.

The development of modern technologies and widespread access to the Internet have significantly contributed to the growing popularity of crowdsourcing. It involves a variety of initiatives, such as sharing knowledge or working together on projects. Most often, these activities take place through dedicated crowdsourcing platforms, which were created specifically for this type of collaboration (Dawson & Bynghall, 2011). The project of an Internet platform with the acronym SIDUSIS (Stationary Broadband Internet Service Access Information System) was implemented by the Ministry of Digitization in Warsaw. The SIDUSIS Internet platform was launched on December 1, 2022, and is available to users at www.internet.gov.pl. In practice, apply the concept of crowdsourcing, i.e. general knowledge (in this sense meaning specific locations) in the scope of identified gaps in the broad scope of the Internet, which should, by assumption, include the development of ICT infrastructure in a specific area, and consequently, the use of the definition of quality and quality services. Crowdsourcing platforms can operate in different models. In the case of the SIDUSIS platform, we are dealing with an external platform through an intermediary created by gov.pl to enable collaboration between companies and the crowd community. Here, gov.pl acts as an intermediary that defines the processes and tasks performed on the platform, making it available to external users (Sobczak & Groß, 2010).

In such a model, we distinguish three key roles:

- Crowdsourcer – an organisation using crowdsourcing, a method of collecting ideas, knowledge or work from a wide, often anonymous group of people,
- Intermediary – the initiator of the platform, who manages its functioning and rules of operation,
- Crowdsourcees – the crowd, i.e. undefined providers who undertake the assigned tasks, share their knowledge or participate in the process in other ways.

This structure enables the effective use of the crowd's potential, supporting the achievement of both business and social goals (Hoßfeld et al., 2012).

It should be emphasised that until the platform was created, there was no public system that, as a database, presented (updated continuously) information about address points that are in broadband coverage. As a result, citizens did not have up-to-date access to information on whether or not they could benefit from the built broadband networks (in the absence of them).

The main goal of the system running on the SIDUSIS platform is to provide citizens with access to real, up-to-date data on the coverage of possible fixed broadband services, i.e. whether broadband services are available for a given address point (house, building, etc.). The system is also a tool for local governments that do not have information on whether selected services are possible in a given location and what are the plans for network development in their region. The system is also a source of knowledge for telecommunications operators, who will thus acquire information on where to plan investments according to demand and where it is possible to use already existing infrastructure.

The system also provides information on the names of service providers and contacts to their representatives for the indicated location. In addition, the system provides information on the so-called "vacancies", i.e. places where there is no demand for the provision of broadband Internet

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services. The SIDUSIS platform has the character of a free public database, which aggregates information on the type of Internet access service located in a specific area. SIDUSIS is also powered by consumers/residents, who have the opportunity to report their demand for fixed broadband Internet services. This provides both the regulator (the Office of Electronic Communications) and broadband Internet service providers with valuable feedback (for operators) on the potential for providing services, and the so-called "white spaces" are information in terms of potential investments that could result in the provision of such services.

The systematic collection of data is crucial for informing citizens about the progress of ongoing projects they are waiting for. On the one hand, they will know whether to wait for the launch of fixed-line services or opt for mobile services. On the other hand, such planning of the choices made by citizens should result in increased saturation of the telecommunications networks built. This is the first such extensive central database of broadband opportunities.

The first update of the data took place on January 9, 2023, for those with more than 50,000 address points in coverage and on January 10, 2023, for those with less than 50,000 address points in coverage. To date (i.e., as of 06/06/2024), the website with the system has been viewed 32,472,159 times.

Discussion/Limitation and future research

Technologies alone are insufficient to achieve the SDGs, so it seems essential to involve communities in decision-making processes and use technology in an inclusive and ethical manner. In this case, crowdsourcing is a modern approach that replaces traditional methods of finding solutions (Rzeczkowski, 2015). Integrating modern technologies with community engagement can lay the foundation for creating a more sustainable and equitable future, according to the UN guidelines. The functionality of the SIDUSIS platform thus illustrates how the concept of crowdsourcing can be practically used to directly influence decisions affecting local communities. It is thus a practical application of the crowdsourcing concept in the area of ICT infrastructure management for increasing broadband access.

The SIDUSIS platform creates opportunities for changes in the inventory of telecommunications infrastructure and services by the President of the Office of Electronic Communications. So far, this is a very detailed process, covering in an almost exhaustive way information on the parameters of existing broadband networks and services provided in the telecommunications market. Due to the heavy reporting burden on obligated entities, this process is not carried out more often than once a year, which is far from sufficient from the point of view of those seeking information on services available at any address point. The functionality of the SIDUSIS platform and, above all, the frequency with which information is updated, therefore, enables citizens to receive, within a single point of contact, reliable and up-to-date information about fixed broadband Internet access services available at a given location, as well as services planned to be provided as part of commercial or publicly funded investments.

For the minister in charge of informatisation, the SIDUSIS platform is an extremely valuable tool for analysing the growth of households covered by broadband coverage (even on a weekly basis and for a selected administrative area), as well as for reporting demand for such services. This is crucial for the minister's efforts to create the country's telecommunications policy and to achieve the broadband targets indicated in the National Broadband Plan. On the basis of these analyses, interventions will also be possible under the Broadband Fund, which is administered by the minister responsible for informatisation.

Conclusions

Despite technological progress, the European Commission Report points to significant challenges related to increasing the availability of broadband and 5G networks in the European Union. Fibre-optic networks, key to the development of technologies such as artificial intelligence, cloud computing, and the Internet of Things (IoT), are available to only 64% of households in the EU. 5G networks, used

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especially for advanced mobile services, also cover only 50% of the EU territory and their efficiency is insufficient. The coverage of fiber-optic and 5G networks in the EU, including Poland, remains insufficient, which inhibits the development of modern and advanced technologies and digital services. Statistical data from the Central Statistical Office show that the availability of broadband internet in households in Poland has increased significantly from 71% in 2015 to 92.8% in 2023, but regional disparities in access to modern technologies require further analysis. The increase can be partly attributed to the COVID-19 pandemic, which increased the demand for remote work and study in 2020 in particular. As a result of the modernisation of access to mobile broadband connections in 2020, it was equal to the level of access to fixed broadband connections. However, this growth slowed down significantly in the years 2021-2023, among others, due to incomplete up-to-date information on the availability of broadband networks.

The gap in improving the accessibility of this information on broadband infrastructure is filled by the SIDUSIS platform, which has been operating since December 2022. It is a public system presenting up-to-date information on the availability of broadband networks at the address point level based on reports from users involved in providing information on so-called white spots and vacancies. This is of key importance to communities, local governments, and telecommunications operators. Thanks to the collected data, operators can plan investments more effectively, and local governments can manage infrastructure development more effectively.

Despite the almost two-year period of operation of the platform, certain regularities can be noted at the country level. Firstly, statistical data show that despite the platform's operation, there has been no increase in the availability of broadband in general and fixed-line broadband. The reasons can be attributed to the rather lengthy and labour-intensive procedure of initiating investments in this area and their profitability. Secondly, certain dependencies can be seen between mobile broadband connections and the operation of this platform because with the launch of the SIDUSIS platform in 2023, the share of mobile broadband internet increased by 3pp. compared to 2022. Investments in this type of internet are, above all, faster to implement and often less expensive.

In view of the above findings, it seems justified to undertake further research on the effectiveness of using data from the platform by various user groups, including citizens, local governments, and operators, as well as on the impact of SIDUSIS on operators' investment decisions and on the development and increase in the availability of broadband infrastructure in Poland.

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CROWDSORCING I CYFRYZACJA JAKO NARZĘDZIE KREOWANIA ZRÓWNOWAŻONEGO ROZWOJU – STUDIUM PRZYPADKU ADMINISTRACJI PUBLICZNEJ

STRESZCZENIE: Cel: Budowa stabilnej infrastruktury oraz promowanie innowacyjności jest celem dziewiątym zrównoważonego rozwoju. Jest on realizowany m.in. poprzez zwiększenie dostępu do technologii informacyjnych i komunikacyjnych oraz zapewnienie przystępnego i powszechnego dostępu do Internetu. Celem artykułu jest ocena dotychczasowego poziomu dostępności do szerokopasmowego Internetu oraz możliwości jego szybszego upowszechnienia przy wykorzystaniu platformy crowdsourcingowej, nowego rozwiązania stosowanego przez administrację publiczną w Polsce, angażującego społeczeństwo, wskazanie doświadczeń administracji publicznej w zakresie wykorzystania w celu zapewnienia szerokiego dostępu społeczeństwa do szerokopasmowego Internetu, co przekłada się na realizację celów zrównoważonego rozwoju dzięki cyfryzacji procesów społeczno-gospodarczych. Metoda badań: W badaniu wykorzystano porównawczą analizę wskaźników dotyczących obszaru technologii informacyjnych i komunikacyjnych, zbieranych przez GUS oraz studium przypadku wykorzystania platformy crowdsorcingowej (internetowej) o akronimie SIDUSIS (System Informacyjny o Dostępie do Usług Stacjonarnego Internetu Szerokopasmowego) do optymalizowania realizacji inwestycji w rozwój Internetu szerokopasmowego w Polsce. Analiza efektów realizacji oraz wskazanie wpływu cyfryzacji na cele zrównoważonego rozwoju pozwoliła wskazać zasadność wykorzystania koncepcji crowdsorcingu i platform crowdsorcingowych nie tylko w działalności przedsiębiorstw, ale także w działalności administracji publicznej w Polsce. Wnioski: Analiza literatury i danych ilościowych pozwoliła wskazać, że rozwój dostępu do szerokopasmowego Internetu jest jednym z czynników przyśpieszających realizację celów zrównoważonego rozwoju oraz wskazać skuteczne wykorzystanie idei crowdsorcingu do unowocześnienia infrastruktury. Oryginalność/wartość/implikacje/rekomendacje: Dotychczas ideę crowdsorcingu, jak również platform crowdsorcingowych wykorzystywano głównie w sektorze przedsiębiorstw oraz w administracji publicznej przy propagowaniu idei budżetów obywatelskich. Zdobyte doświadczenia pokazały, że jest zasadne angażowanie społeczeństwa w zwiększenie dostępności internetu szerokopasmowego. Nie wymaga to dużych nakładów inwestycyjnych, a decydentom umożliwia szybkie zidentyfikowanie problemów z tą dostępnością i optymalizację prac w tym zakresie.

SŁOWA KLUCZOWE: internet szerokopasmowy, zrównoważony rozwój, crowdsourcing, administracja publiczna, cyfryzacja

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