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DIGITAL SOLIDARITY THROUGH SPATIAL DATA – AN EU AND AFRICAN PERSPECTIVE

Abstract: This paper discusses the role of spatial data in digital solidarity projects, which refers to a novel use of digital technologies by individuals and NGOs to support each other and collaborate, especially during crises. With ongoing challenges that might be recognised as one polycentric structural global crisis, digital solidarity has become increasingly important. Empowered by digital transformation, spatial data may play a vital role in these efforts. The paper examines the concept of digital solidarity in broad and narrow understanding, provides the EU and African examples of digital solidarity projects utilising spatial data and analyses the potential of the EU Data Spaces and African frameworks in supporting spatial data-driven digital solidarity projects.

Keywords: spatial data, digital solidarity, Africa, EU

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Introduction

Digital solidarity refers to the idea that individuals, communities and organisations are able to come together in the digital realm to support each other, especially during times of crisis (Roberts & Bosch, 2023). It is understandable, therefore, that this concept has gained prominence in the face of the varied crises of the past two decades. These include the 2007-2008 financial system crisis, which turned into a global economic crisis (Duignan, Financial Crisis of 2007–2008), the progressing climate crisis (United Nations Industrial Development Organization, 2024), the demographic crises (Eberstadt, 2023), the public health crises most vividly experienced through the COVID-19 pandemic (United Nations Development Programme, 2022), and geopolitical tensions that have transformed into major regional armed conflicts with international consequences (Afonso et al., 2024). It demonstrates that the world order is in a polycentric crisis.

Another feature of the last decades is also the proliferation of the use of digital technologies, including the internet and mobile devices, in every area of life, a process referred to in the literature as digital transformation (Szpor & Hajduk, 2024). One of the consequences is the increase in the number and variety of non-spatial and personal data available and the ability to transmit them instantly, with dispersed locations simultaneously. Digital solidarity, a concept discussed by, *inter alia*, F. Stadler (Stalder, 2013), can be understood as a bottom-up response of societies to the risks of the multiple crises, which, by individual projects using the achievements of digital transformation, reduces the negative consequences of these crises. Spatial data may play a vital role in digital solidarity projects. In this paper, according to the legal definition in EU law, spatial data is understood as ‘any data with a direct or indirect reference to a specific location or geographical area’ (Article 3(2) of the Directive 2007/2/EC of the European Parliament and of the Council of 14 March 2007 establishing an Infrastructure for Spatial Information in the European Community (INSPIRE)).

Against this background, the aim of this paper is to analyse the use of spatial data for projects that can be characterised as examples of digital solidarity from a European Union (EU) and African perspective. The first section discusses the concepts of digital solidarity. Next, the paper showcases African and EU examples of digital solidarity projects utilising spatial data. The third section examines whether the EU Data Spaces project can further enable the use of spatial data for the EU digital solidarity projects. Finally, the paper explores the framework enhancing the development of digital solidarity projects based on spatial data in Africa.

Materials and methods

The paper has been prepared using a legal dogmatic method, considering EU and African legal acts and policy documents, case law, and academic literature. This paper goes beyond a purely conceptual approach and examines examples of projects in the EU and Africa that may be quantified as digital solidarity projects using spatial data. As the regulatory framework for spatial data and its use is extensive and the scope of this paper is limited, earlier (before EU Data Spaces) legislation relating to access to categories of

public sector data has been taken out of the analysis (including the Directive (EU) 2019/1024 of the European Parliament and of the Council of 20 June 2019 on open data and the re-use of public sector information (recast); OJ L172/56).

Results and discussion

The notion of digital solidarity

This section analyses the concept of digital solidarity, including its context from EU and African perspectives. According to the Merriam-Webster Online Dictionary, ‘solidarity’ can be defined as ‘unity (as of a group or class) that produces or is based on a community of interests, objectives, and standards’ (Merriam-Webster, Solidarity). It might be argued that the dictionary definition of ‘solidarity’ – by using the word ‘unity’ as a part of its *definiens* – refers to the state of remaining in a (pursuit for) harmony (Merriam-Webster, Unity), which seems to require previous anchoring in a common purpose or common values (Dąbrowski, 2023). However, the understanding of solidarity is changing within public discourse; depending on the context, it is used for various purposes, including political ones, in the context of digital sovereignty (Sterman, 2024). The notion of solidarity remains well entrenched in African communities and manifested through a sense of communal living and concern for others (Ogunyemi et al., 2022). It is associated with the African philosophy of ‘Ubuntu’, which emphasises a person’s interconnectedness with others, reciprocity and the use of personal power to commit to the common good of all, favouring a collective approach (Dignum, 2023).

The concept of “solidarity” is recognised in the context of digital transformation as ‘digital solidarity’, accompanied by related concepts like ‘data solidarity’, ‘data sharing’, ‘data altruism’, and ‘data justice’ (Prainsack et al., 2022). The concept of digital solidarity was discussed in Felix Stalder’s 2013 extended essay, “Digital Solidarity,” and subsequently became part of the academic and public discourse; according to Google Scholar, the term “digital solidarity” has been used in 932 academic publications from 2013 to 2024 (Google Scholar, 2024). In turn, in the EU official documents, the European Data Protection Supervisor (EDPS) has made digital solidarity one of the reference points for its 2020-2024 strategy, understanding it broadly as a process of ‘making data work for all people across Europe’s borders, especially for the most vulnerable’, emphasising a need for regaining social trust by changing business models based on digital surveillance and increasing the use of privacy-enhancing technologies (EDPS, 2020).

In turn, the AU Digital Transformation Strategy underscores the importance of cooperation among African countries and regional and international institutions in ensuring a “digital transformation for everyone, everywhere across Africa.” (African Union, The Digital Transformation Strategy for Africa). The AU Data Policy mandates that African Union Member States cooperate in exchanging data. It further emphasises an inclusive and equitable system that offers opportunities and benefits to all Africans. In so doing, it seeks to redress national and global inequalities by being responsive to the voices of those marginalised by technological developments. Recognising that international data standard may not be sufficient for the region’s needs because of the language challenges;

the AU Data Policy recommends that international data standards be set with specific reflections on contextual factors impacting the African continent.

For Stadler, the Internet has catalysed new forms of social life, transitioning from an individualistic approach to collective, bottom-up sharing practices (Stalder, 2013). They are facilitated by digital technologies that provide an accessible and essentially charge-free infrastructure for distributed, asynchronous communication, allowing building trust between potential participants in joint projects by introducing the possibility of verifying past behaviour and accountability (Stalder, 2013). Stadler distinguishes four forms of digital solidarity: commons, assemblies, swarms and weak networks. Commons result from structured, long-standing efforts to establish forms of management of shared physical or digital resources (Stalder, 2013; Stadler, 2014). Assemblies are often in-person gatherings without a clear hierarchical structure aiming at decision-making based on consensus (Stalder, 2013; Stadler, 2014). Swarms are spontaneous, self-organising collective entities, while weak networks comprise groups formed through widespread but informal and superficial relations (Stalder, 2013; Stadler, 2014). Stadler recognises the last form as the most pervasive new form pertinent to social media platforms (Stalder, 2013).

The term “digital solidarity” is not widespread in EU official documents, as it was only used four times in preparatory documents between 2006 and 2007, according to the EU legal documents EUR-LEX database (as of 14 October 2024). However, as will be analysed in the section on the EU Data Commons below, a broad and narrow understanding of digital solidarity is vital to recent EU legislator initiatives. The concept of solidarity has an important role in EU primary law, although it has not been explored too robustly in the context of digital regulation (Prainsack et al., 2022). This is beginning to change, though, after the COVID-19 pandemic crisis. For example, the term ‘cyber solidarity’ is used more frequently in EU documents according to EUR-LEX; it has been used first in 2021 and 33 times since (as of 14 October 2024). This increase in the use of the term is primarily the result of work on a proposed EU regulation called the Cyber Solidarity Act (Proposal for a Regulation of the European Parliament and of the Council laying down measures to strengthen solidarity and capacities in the Union to detect, prepare for and respond to cybersecurity threats and incidents, COM/2023/209 final). It aims to improve preparedness, detection, and response to cybersecurity incidents in the EU. Both the timing (post-pandemic) and the area (cybersecurity) seem not coincidental. It might be recognised as a response to growing geopolitical and health threats that have a unifying force on the EU’s actions, as per Recital 5 to the Cyber Solidarity Act Proposal (version of the proposal by the European Commission). One of this project’s key elements is strengthening cooperation between Member States, mainly by enhancing and better structuring the cooperation infrastructure in detecting, preparing and responding to cybersecurity threats. This act is in the final stages of the EU legislative process. The term ‘solidarity’ appears 40 times in this proposal, including on its own, not just in the phrase ‘cyber solidarity’. The term ‘cyber solidarity’ seems narrower than digital solidarity, as the former focuses solely on cybersecurity, which, in such a meaning, might be recognised as only one component of digital solidarity.

The understanding of digital solidarity can, therefore, differ. It is possible to distinguish at least two meanings. One is broader, often presented in juxtaposition with the concept of digital sovereignty as ultimately complementary but distinct. In this broader framing, digital solidarity is manifested by the attention (of policymakers and lawmakers) to the need for attention to individuals, especially the vulnerable, and the need to rebuild eroded trust. On the other hand, in a narrower sense (Stadler, 2013), digital solidarity refers to the pursuit of harmony by individuals and non-commercial entities through bottom-up initiatives carried out through digital technologies. For example, they might be directed at enhancing or protecting a common good through data commons. In this meaning, collaborating means transcending individuality towards a community and common goals. In such an understanding, digital solidarity emphasises the strength of cooperation and mutual support. The widespread use of digital technologies, such as mobile devices, is a key enabler for implementing it.

Digital solidary projects involving spatial data in Africa and in the EU

The growth of technology and digital space allows the recognition of patterns that were invisible before through a virtual environment where people can communicate, collaborate and interact with each other. The following section discusses projects using spatial data in Africa that may qualify as digital solidarity projects. It presents digital solidarity projects that can be classified according to this concept's broad understanding (juxtaposed with digital sovereignty) or narrow understanding (as an emanation of sharing practices).

The Ushahidi platform is a notable digital solidarity project for election monitoring through crowdsourcing first-hand spatial reports (via SMS and the web), which in turn are geolocated, timestamped, verified and published, thus providing critical information to electorates on the ground as well as global observers (USHAHIDI, Fostering Democratic Participation: The Impact of Ushahidi in Electoral Monitoring). Apart from Kenya, where the platform was first deployed after the 2007 Kenyan election, other African countries such as Zambia, Guinea, and Somalia have also deployed it to aid their election monitoring. It was also used to track possible voter intimidation and violence in the 2016 US election (BBC, 2016).

The Pulse Lab Kampala deployed in Uganda is another digital solidarity project based on spatial data. The platform detects and analyses what people say on the radio (on crucial topics) in several parts of the country. It translates the voices into texts for its accessibility. It has been used to gauge the level of sentiments by local communities against refugees in Uganda. As rightly noted by Microsoft, this project “aids in the strategic planning and implementation of various programs aimed at easing tensions and fostering better integration between refugees and host communities” (Microsoft, AI in Africa: Meeting the Opportunity).

The Mapping Malaria Risk in Africa (MARA) project maps malaria risk areas using *in situ* data together with spatial modelling to predict the geographic distribution, seasonality, and endemicity of the disease (Vidza, 2020). The project, which was first conducted by the South Africa Medical Research Council from 1996-1999, was initiated

as a collaboration between African research institutes to assemble a repository of available published and unpublished data on the prevalence of malaria infection, dominant malaria vector species, entomological inoculation rates and case-incidence (Snow & Noor, 2015). Other related projects in this regard include the Malaria Atlas Project (MAP) and the Information for Malaria Project (INFORM). The MAP aims to develop and use global endemicity maps that will provide a baseline to facilitate the estimation of populations at risk of malaria and more credible predictions of disease burden (Hay & Snow, 2006). The utility of MAP's predictions for Sokoto State in Nigeria was confirmed by scholars in a study of the prevalence of malaria and its transmission intensity in that area (Nakakana et al, 2020). Like MARA and MAP, the INFORM project aims to build layers of spatially contextualised epidemiological data from available sources (Snow & Noor, 2015).

Finally, the MNP project aims to provide science-based information on regional management policy and practice through field studies, remote sensing and other spatial data technology (Archibald et al., 2018). The network has integrated a remote-sensing approach to fire detection and mapping using the MODIS sensor onboard NASA's Terra satellite. It has been recently used for spatial fire management analysis in African countries such as Zimbabwe, Botswana, Zambia, Angola and Malawi (Kamoto et al., 2022).

Digital solidarity projects with similar characteristics can be identified across the EU. Two of them are characterised below. The first example is the grassroots project 'Digital Village Twin 2030' in the village of Etteln, Germany, which has been underway for more than nine years (Etteln, 2023). Thanks to volunteers' work, the project's initial part was focused on enhancing the local internet infrastructure through a fibre connection for previously excluded houses (European Data Sharing Champions, 2024). Subsequently, following a collectively developed strategy, additional projects were initiated. Among others, free e-car and e-cargo bike booking services are introduced, which foster mobility for residents via a mobile app. The village implements further initiatives (Etteln, 2023), such as "digital tree irrigation", involving a controlled irrigation system that considers the land's irrigation status, weather forecasts, and a flood warning system. The village also plans to digitally map the village using drones. The aim is to aggregate the data collected, e.g., how much rainfall there is in each location, which can achieve synergy with an irrigation system, strengthen the flood warning system and provide long-term weather forecast data. These projects are carried out with robust local community involvement and are funded primarily with public grants (Etteln, 2023).

Another example is related to the federated Gaia-X infrastructure (Gaia-X, About Gaia-X), which is expected to support building the technical foundations for EU Data Spaces (Gaia-X, Vertical Ecosystems). The EU-funded (Space4Cities) Space4Cities project aims to gather various datasets, including spatial data, on cities. These datasets include information from satellites and publicly available sources, including via Gaia-X infrastructure (Gaia-X, 2021). The project will then analyse this data as a whole, using tools for collecting and analysing big data. The goal is to enhance city functionality, including transportation, emergency management, and environmental aspects, by providing timely tools for comprehensive city management based on knowledge

(SPACE4Cities – Demystifying space technologies for cities, communities and regions, 2022). This project, piloted in selected cities, is designed to be replicable in other cities. This project will run from 2024 to 2027. This is not a typically bottom-up digital solidarity problem. However, it is focused on a common good, i.e., the urban space, which requires the non-commercial (at least at this stage of the project) use of spatial data to improve its functionality for local communities (Space4Cities; Gaia-X, 2021). Hence, this project can be qualified as a digital solidarity project in a broad sense (Gaia-X, Use Cases: Geoinformation). It cannot be excluded that at a later stage of this project, it will be possible for individuals to contribute their input data on an ongoing basis to improve the functionality of the implemented solutions.

The above is only a selective overview of examples of projects using spatial data that may qualify as digital solidarity projects. This classification is justified from the perspective of their objectives. These projects go beyond a commercial purpose to serve a non-economic interest focused on the community (the broad meaning of digital solidarity) or are, by their nature, bottom-up collaborative projects (in the narrow sense).

EU Data Spaces as an enabler for spatial data for the EU digital solidarity

The ambitious project of EU Data Spaces corresponds to the idea of data commons, as characterised by F. Stadler. The concept of data commons gained prominence after the 2008 financial crisis (Prainsack et al., 2022). However, the literature assesses this upsurge as having failed due to the commercialisation of some of the projects and the possibility of the most significant market players benefiting correspondingly more from access to open data (referred to as the ‘Matthew Effect’) (Prainsack et al., 2022).

For a European strategy for data (2020), data (personal and non-personal) sharing among actors and sectors is essential, as evidenced by the fact that the term ‘sharing’ is mentioned as many as 51 times in the document explaining this policy (*i.e.*, Communication from the Commission to the European Parliament, the Council, the European Economic and Social Committee and the Committee of the Regions, ‘A European Strategy for Data’, COM/2020/66 final). It is directed at increasing competitiveness and sovereignty, while digital solidarity is not explicitly mentioned in the document. It is envisaged that this will be achieved by creating ‘Common European Data Spaces’. The EU Data Spaces aim to establish ‘data and governance infrastructures and frameworks to facilitate data pooling and sharing’ to create ‘interoperable data spaces in strategic sectors’ to overcome barriers to data sharing, preserving the EU data protection law (European Commission, 2023). EU Data Spaces are currently planned in the following 14 sectors: agriculture, cultural heritage, energy, finance, Green Deal, health, industry, language, media, mobility, public administrations, European Open Science Cloud, skills, and tourism (European Commission, 2024).

The two horizontal legal acts, in the form of a regulation, that set the framework for the EU Data Spaces are the Data Governance Act (‘DGA’; Regulation (EU) 2022/868 of the European Parliament and of the Council of 30 May 2022 on European Data Governance and amending Regulation (EU) 2018/1724) and the Data Act (Regulation (EU) 2023/2854 of the European Parliament and of the Council of 13 December 2023 on

harmonised rules on fair access to and use of data and amending Regulation (EU) 2017/2394 and Directive (EU) 2020/1828).

The DGA regulates the reusing of protected data held by the public sector, data intermediation services, and data altruism (EUR-LEX, 2022). As an example of data intermediation services, data cooperatives are indicated and defined as ‘an organisational structure constituted by data subjects, one-person undertakings or SMEs who are members of that structure, having as its main objectives to support its members in the exercise of their rights with respect to certain data’ (Article 2(15) of DGA). They may be a suitable organisational form for digital solidarity projects involving spatial data (in the narrow sense), similar to this one in Etteln, Germany (analysed above). In turn, the Data Act aims to increase the availability and sharing of data (personal and non-personal), mainly obtained from Internet of Things (‘IoT’) devices (connected products). The Data Act introduces more robust (than DGA) data-sharing obligations and enhances data portability and interoperability obligations, e.g., for holders of such data, including manufacturers of such IoT devices (EUR-LEX, 2024). This can particularly help to access spatial data held on mobile devices. Regarding further legislative developments, it may be expected that a separate EU legal act will be adopted for each of the sectors covered by EU Data Spaces, such as in the case of the health sector (Proposal for a Regulation of the European Parliament and of the Council on the European Health Data Space; COM/2022/197 final).

The EU Data Spaces project aims to boost EU competitiveness and sovereignty. While the project does not explicitly focus on strengthening digital solidarity within the EU, it has the potential to support such initiatives, including those involving spatial data. By breaking down data silos, enabling access to commercial data and enhancing interoperability, EU Data Spaces create the technical and legal framework for data sharing. This could facilitate bottom-up participation from individuals and non-governmental organisations (European Commission, Data Spaces, Digital Strategy). Spatial data is relevant for almost every data space, but no separate spatial data space exists. Some stakeholders criticise this, noting the risk of fragmentation (Gaia-X, 2024). On the other hand, however, from a conceptual point of view, it can be argued that the premise of EU Data Spaces is to address data silos from a sectoral perspective and that spatial data, as such, is not a separate sector but rather a key component of particular sectors. This is because the ability to position an object in space is critical for effective monitoring, collection, contextualisation and further analysis of remaining types of data (Martin et al., 2021); for example, with regard to the Green Deal Space – for environmental monitoring (Kotsev, et al., 2021); or smart farming projects (e.g., soil scanning and measuring local precipitation) in the agricultural data space (Martin et al., 2021, table ‘D2 - Proposed case studies and use cases’).

Spatial data is a unique category of data in the context of the EU Data Spaces project also because, for more than a decade, there has been a legal framework in the EU creating an infrastructure for collecting and sharing spatial data, Directive 2007/2/EC of the European Parliament and of the Council of 14 March 2007 establishing an Infrastructure for Spatial Information in the European Community (INSPIRE) (INSPIRE Directive).

It creates a European Union Spatial Data Infrastructure to facilitate the sharing of spatial data by the public sector and to improve cross-border policymaking in support of environmental policies; this infrastructure is based on the infrastructures of Member States and encompasses more than thirty data themes relevant to the environment (Recitals (10)-(12) and Article 1 of the INSPIRE Directive; INSPIRE Knowledge Base, Overview).

Against this background, a question arises about the relation between the technical and legal framework created by the INSPIRE Directive and the EU Data Spaces project. The framework created under the INSPIRE Directive may be used to develop EU Data Spaces (European Commission, 2024), especially for Green Deal Data Space environmental projects (INSPIRE Knowledge Base, INSPIRE Evolution). During its mandatory review by the Commission, the INSPIRE Directive has been acknowledged as a vital step in creating coordinated spatial data sharing in the EU as well as it has been found to be aligned with the regulatory framework, serving as a key legal act for launching Green Deal Data Space; it is subject, however, to remarks on its full effectiveness, including that the technical requirements are too detailed (European Commission, 2022). The INSPIRE Geoportal, a centralised access point to spatial data already harvested under the INSPIRE Directive, can indeed serve as a starting point for using such data for the EU Data Spaces projects (INSPIRE Geoportal, Home).

The scope of this paper limits the analysis of the EU Data Spaces project. The EU is pursuing multifaceted initiatives for this project, and it may be expected to be a key component of von der Leyen's second term in the European Commission. The aim of the EU Data Spaces is to strengthen the sharing of data to enhance the EU's competitiveness. However, it also presents an opportunity to strengthen the usage of spatial data for digital solidarity projects. It is to be expected that the relationship between digital solidarity projects based on spatial data and EU Data Spaces will be reciprocal; EU Data Spaces will provide the infrastructure and data for these projects (although this is not their primary purpose), while these projects, especially from a bottom-up perspective, may contribute to the popularity and greater use of EU Data Spaces.

The introduction of EU Data Spaces takes place in an environment where the usage of spatial data is fragmented from both legal and technical perspectives. Therefore, it would benefit from a unified approach under the EU Data Spaces project. Spatial data will play a critical role in most EU Data Spaces as they provide location-based context to other collected data. However, a separate spatial data space has not been introduced. Given this, particular attention should be paid to introducing robust cooperation instruments between stakeholders and ensuring interoperability of spatial datasets within EU Data Spaces.

Framework enhancing the development of digital solidarity projects based on spatial data in Africa

This section explores the framework for advancing digital solidarity projects based on spatial data in Africa. The analysis primarily focuses on an international level, considering some African national legislation.

The African Union Agenda 2063 provides a blueprint framework for the development of digital solidarity projects within the context of spatial data in Africa. Article 74 of the Agenda 2063 recognises that ‘solidarity’ is one of the critical enablers of Africa’s transformation (African Union, Agenda 2063: The Africa We Want). Technology is also a recurring theme in the agenda and an indispensable tool for digital solidarity. Article 25 of the Agenda 2063 envisions that, by 2063, the ‘necessary infrastructure’ will be in place to support Africa’s accelerated integration and growth, technological transformation, trade and development. ‘Necessary infrastructure’ in this connection includes spatial data infrastructure (SDI). Without SDI, achieving the core vision of the Agenda 2063 on sustainable development and an integrated, prosperous and peaceful Africa driven by its citizens will be challenging (Nkwae & Nichols, 2002).

In a report on the role of spatial data in the realisation of the Africa Agenda 2063, the United Nations Economic Commission for Africa recognised the vital role of spatial data in supporting effective and evidence-based decision-making to address sustainable development issues in Africa and that access to up-to-date, definitive, and reliable geospatial data allows decision-makers to see where resources, infrastructure, and people are located and their conditions (United Nations Economic Commission for Africa, 2019). African countries face the task of creating an enabling environment for obtaining reliable geospatial data in planning and monitoring the implementation of the Sustainable Development Goals and the Agenda 2063 goals. The African Union’s Digital Transformation Strategy for Africa (2020–2030) is also an important initiative that aims to harness digital technologies and innovation to transform African societies and economies, promote Africa’s integration, and break the digital divide. The AU identifies ‘solidarity’ as a key principle driving this strategy (African Union, The Digital Transformation Strategy for Africa). This initiative can pave the way for digital solidarity projects in spatial data sharing in Africa within the context of AU’s vision for an integrated and inclusive digital society and economy in Africa that improves the quality of life of Africa’s citizens and strengthens the existing economic sector.

In turn, the African Data Policy Framework 2022 recommends that AU members should cooperatively enable data to flow on the continent while safeguarding human rights and data protection, upholding security and ensuring equitable sharing of the benefits. In line with this framework, African governments are to ensure that data are widely available within appropriate safeguards for both commercial and non-commercial use. These safeguards include the principles of data accuracy, accountability, privacy, lawfulness and confidentiality as regards the collection, processing and use of personal or sensitive data (Babalola, 2023). The African Union Convention on Cyber Security and Personal Data Protection, which codifies these principles, does not define ‘data’ or ‘spatial data.’ But it defines ‘personal data’ as any information relating to an identified or identifiable natural person by which the person can be identified, directly or indirectly, in particular by reference to an identification number or to one or more factors specific to physical, physiological, mental, economic, cultural or social identity (Article 1 of the African Union Convention on Cyber Security and Personal Data Protection, also known as the Malabo Convention, was drafted in 2011, adopted in 2014 and entered into force on

8 June 2023 after Mauritiana’s ratification). The Nigerian Data Protection Act follows this definition but extends the scope to include an individual’s location data (cf. section 65 of the Nigerian Data Act). ‘Sensitive data’ means all personal data relating to religious, philosophical, political and trade-union opinions and activities, as well as to sex life or race, health, social measures, legal proceedings and penal or administrative sanctions (Article 1 of the Malabo Convention). Data protection principles are also applicable to spatial data. In an era where smartphones and other personal devices can estimate and share people’s location, there may be unintended consequences of their individual location data becoming public without their knowledge or consent. This could expose them to malevolent actors. For example, in the case of *Portland Paints & Products* (2019 2 NWLR Pt. 1657 541), the Nigerian Court of Appeal held that snapping and publishing a photograph of the respondent’s personal home without his consent amounted to a breach of his privacy. Agreeing with the respondent’s agitation that the publication could expose him and his family to security attacks, the court held that it could be most disconcerting and embarrassing to find one’s private space in the public domain without one’s consent or permission.

The African Union Artificial Intelligence Strategy 2024 recognises that spatial data frameworks that promote spatial data may also be important to accelerate data availability for training AI algorithms (African Union, 2024). It thus recommends that African countries should develop data policies and strategies that facilitate access and sharing of non-personal data for AI within the context of the AU Data Policy Framework (African Union, 2024). The main challenges in implementing spatial data infrastructure in Africa remain financial constraints and the difficulty of galvanising interest among decision-makers and policymakers (Makanga & Smit, 2010).

The African framework for enhancing digital solidarity projects based on spatial data can be assessed as developing rapidly but not well-structured. It includes various types of documents of a policy-making nature and documents to which some legal effect can be attributed. The lack of a structured approach to regulating the use of spatial data at the level of international organisations such as the African Union should not be considered a surprising phenomenon given, among other factors, the nature of lawmaking at the international level, with a strong reliance on soft instruments; the relative novelty of the issues being regulated; and the associated possible plurality of stances by different stakeholders.

Conclusions

The concept of digital solidarity can be understood in various ways, which is reflected in the classification of projects and legal frameworks related to this idea. The common goal among these different interpretations is to rebuild public trust that recent crises have strained. By making optimal use of spatial data, it is possible to enhance the quality of life and improve the safety and efficiency of communities. Through the lens of digital solidarity, the current crisis presents not only a risk but also an opportunity to establish grassroots forms of social cooperation using the advancements of digital transformation.

An examination of digital solidarity projects utilising spatial data from Africa and the EU demonstrates that such initiatives are feasible and can be successful.

However, the legal frameworks in the EU and Africa are still in the early stages of development. The policy and legislative steps already taken are considered promising, especially the experimental EU data spaces project. Collaborative uses of personal and non-personal spatial data require continued and increasing support from policymakers to encourage their bottom-up application. From a legal perspective, one of the main challenges is ensuring that such projects respect personal data protection frameworks, including the lawfulness and data minimisation principle. This issue will increase as the use of artificial intelligence in projects using spatial data becomes more widespread (Mortaheb & Jankowski, 2023; Choi, 2023). Protecting trade secrets and, broader, intellectual property rights can also be a challenge if commercial data is to be used for such projects.

Overcoming these two challenges to avoid making projects extremely difficult to implement and costly requires striking a delicate balance between the interests of the various stakeholders. Legislation might be needed to address this. The concept of digital solidarity, understood broadly, reminds legislators about the underlying goal, namely that digital sovereignty should not be an end by itself, even in a heightened technological competition environment. It requires including a human rights perspective, also through collective means such as digital solidarity projects, to maintain social trust.

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