Eastern Europe and Central Asia
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Key points

- Initial enthusiasm for open data in Eastern Europe and Central Asia was rooted in the transparency and anti-corruption agenda, but, over time, there has been a shift in the narrative to focus on how open data may support efficiency gains, competitiveness, and innovation in the private sector.
- The majority of open data portals in the region are run by governments. Some governments, notably Ukraine, Georgia, and Moldova, have published vast amounts of data online.
- Notable success stories from the region include ProZorro, the open contracting data initiative created in Ukraine, and access to medicinal data initiatives in Serbia.
- The region has also seen civic technology organisations engage in substantial capacity-building efforts for data journalists, and, in Kosovo* and Georgia, networks of young women have been established, counterbalancing male domination of the civil technology sector. There are opportunities to build on these trends in future.

Note *: All references to Kosovo are in the context of United Nations (UN) Security Council Resolution 1244.

Introduction

The region of Eastern Europe and Central Asia has had a tumultuous recent history. Through the 1990s, the region underwent a transition from state-socialism with the formation of a number of breakaway republics. Countries and territories have had to develop or evolve new institutional, political, and economic systems to improve economic performance, while also confronting concerns about high levels of government corruption. Today, the majority of countries and territories in the region are considered middle-income with the Western Balkans and Eastern Partnership countries and territories, in particular, receiving significant domestic and
international investments over the last two decades and enjoying relatively high levels of digital government capacity. However, a number of countries and territories in the region are also still being described as authoritarian states. The region has long been at a global crossroads – at the intersection of diverse cultures, trade routes and relationships, political systems, and geopolitical influences.

Significant diversity in the degree of civil and political freedom, stages of development, and levels of economic transition, should partially explain the different degrees of uptake of open data across the region, and can help inform critical reflection about the different ways to secure further progress in the future. This context is also important to understanding how organisations have driven progress to date on open data, as well as the influence of transparency and economic development arguments for open data in the region. Although progress on open data to date has fallen short of realising all the social and economic potential that some had promised, a survey of the region reveals a picture of genuine innovation, increased focus, and strengthened regional networks.

This chapter will explore the various influences on open data in the region, providing a snapshot of distinctive features of open data in Eastern Europe and Central Asia to form a basis for a subsequent look at priority areas for development and growth of open data activities in future.

State of open data

Early movers: Enabling environments and evolving practice

Moldova was among the first lower-income countries to develop a government-led open data initiative, launching a programme in 2011 with backing from the World Bank. The project was developed as a component of wider e-government reforms and was aligned with the European Union (EU) Digital Agenda focus on the “use of ICT as an enabler with the potential to maximise business development, communication, freedom of expression, innovation and economic growth”. Although civil society groups in the region were active in creating independent data portals around the start of the last decade, it was not until a number of years later that other governments caught up by launching official data portals. It appears, however, that the first-mover advantage was limited, as Ukraine, for example, only launched a national open data portal in 2015, but now has arguably one of the most developed open data ecosystems and highest number of datasets online. In Serbia, there has also been a significant increase in open data activities since 2017, both at the central and local level, suggesting open data adoption can take place at varied speeds.

Today, 53 open data portals that provide information in machine-readable formats have been identified in the Eastern Europe and Central Asia region, of which 18 are run by civic actors. The list is by no means exhaustive and only covers supply-side initiatives, but it does provide an indication of the growth of open data in the region, as well as the approach taken by a number of governments now hosting distinct statistics, open data, and geodata portals. The volume of data on portals has also grown with Kazakhstan and Uzbekistan, for example, having created dynamic
portals hosting 5,000 and 2,000 datasets, respectively, across a range of sectors. It is equally notable that a number of other countries and territories in the region are yet to substantively advance their engagement with open data. Kyrgyzstan, Tajikistan, Belarus, and Bosnia and Herzegovina all appear near the bottom of the 2017 Open Data Barometer rankings. Open Data Readiness Assessments (ODRA) that took place in Kyrgyzstan and Tajikistan between 2014 and 2015 highlight some of the barriers that initiatives there may face, including competing political priorities and uncertainty about how changing international relationships might affect future open data policies and donor financing.

High-level political leadership on open data has been evident in a number of countries. In Ukraine, the national adoption of the International Open Data Charter (IODC) in 2016, as well as Charter adoption at the subnational level in five cities, has acted as a public demonstration of government commitment. In Serbia, Ana Brnabic, the Prime Minister, expressly came out to support the open data movement and even personally launched the open data portal for the government in 2017, drawing on narratives of both transparency and public sector efficiency. In Kosovo, the IODC was endorsed through a Prime Ministerial declaration, although formal institutional structures to move open data forward are yet to follow.

Civil society has also played a pivotal role in the regional development of open data, although patterns of engagement vary between distinct clusters of activity in the Western Balkans and the Black Sea. For example, Western Balkans civil society engagement with open data benefits from stronger cross-country collaboration and more sustained activity with the Action SEE (South-East Europe) networks bringing together six regional organisations working on the intersection of transparency and technology. Action SEE has attracted backing from other organisations, including the National Endowment for Democracy in the United States (US) and the United Kingdom (UK) Westminster Foundation for Democracy. One of the flagship products of Action SEE is the Openness Index, looking at over 640 institutions and providing over 25,000 indicators, including an assessment of open data publications. The index, implemented with a network of country partner organisations and with financial support from the EU, is distinct from many other open data measurements in that it covers all branches of government, including the core executive, line ministries, parliament, local government, and the courts and prosecutors. Although only published once so far in 2017 (and so lacking longitudinal data to help track progress), data from the Index has been used to support country and institution-level advocacy on open data and to publish civil society-created roadmaps for action on government openness across government.

Over the last decade, there have also been a number of key meeting points for civil society and for connecting civil society with other stakeholders. The POINT conference, for example, organised by Zasto Ne in Sarajevo, Bosnia and Herzegovina, is now in its seventh year and provides an annual gathering looking at the role of new technologies in political accountability. As a community-driven event, it has regularly addressed issues related to open data. The Personal Democracy Forum for Central and Eastern Europe, an annual one-day event in Gdansk, Poland, which brings together civic actors in the intersection of media, technology, and civil society, is also now heading into its seventh year. The Regional School for Public Administration (RESPA) has also provided a notable forum for discussions on open data. Although civil society open...
data networks specific to the Black Sea region are less developed, Ministry of Data,\textsuperscript{19} a regional open data challenge that brought together the regional civic tech community to stimulate the release of relevant datasets in 2016 and 2017 in the Western Balkans, also subsequently took place in the Black Sea region in 2018.

Across the whole region, the Open Data for Development (OD4D) network hub for Open Data in Eastern Europe and Central Asia (ODECA),\textsuperscript{20} formed in 2015 and hosted by the United Nations Development Programme (UNDP) Istanbul Regional Hub, has provided convening and knowledge management support for overall efforts on open data. This has included work on liberating datasets, strengthening leadership among government actors, investing in data journalism, and creating platforms for collaboration between governments and members of the civic technology community.

Government support, civil society engagement, regional networking, and support from external funders and partners have all provided an enabling environment for open data. But has this led to substantive progress? By 2018, the majority of open data portals in this region are run by governments, and, with a few exceptions, the majority of national governments have some sort of open data activity underway. Some governments, notably Ukraine, Georgia, and Moldova, have published vast amounts of data online. Others, like Serbia, have taken a more phased approach in the development of their open data initiatives, which has included setting up horizontal structures and community development along with investments in government capacities. Twelve of the government open data portals available are focused on national statistics, which is especially important for the measurement of the Sustainable Development Goals. One of the reasons for this focus on national statistics may be the higher quality of statistical data as opposed to other data collected by governments. On non-statistics focused portals, budget data is the most commonly provided type of data, although other types of data considered relevant for anti-corruption\textsuperscript{21} are not frequently available in open formats. The bulk of published data is that which can either be easily put into simple spreadsheets (like budget data or education statistics) or data that is already compiled for international financial institutions.\textsuperscript{22} This suggests the focus is still on providing the easy-to-publish datasets, rather than identifying and meeting the demand for other meaningful data.

Overall, the state of open data in the region is diverse. Initial progress and investments in open data have brought quick wins, and some “low-hanging fruit” projects have taken shape. The majority of countries and territories in the region have, to some extent, created institutional infrastructures to deliver on open data, including portals, working groups, and policy commitments. However, enforcement has often been lagging. Portals are not frequently updated, and, without a consistent supply of support to open data communities, it has been challenging at times to maintain the commitment of the civic tech community to continue engaging with the topic. This, coupled with the perception that the impact of open data is lagging, especially as it pertains to social and economic development as well as business innovation, presents a growing threat to future development of general and broad-reaching open data ecosystems. It is in this light that renewed efforts to roll out open data at the city level and in particular sectors, such as procurement, are gaining momentum. However, to understand this fully, we need to go back and look at how the framing of open data has evolved in the region over the last decade.
E-government, open government, and economic agendas

At the start of the decade, civil society and donor enthusiasm around open data was primarily linked to the transparency and anti-corruption agenda. Governments, on the other hand, initially regarded open data as a component of e-government. A study by RESPA on the period from 2013 to 2015 describes how the emphasis among governments in the Western Balkans shifted from e-government to open government, providing a period of tighter alignment between civil society and state agendas for open data and giving new impetus to projects involving both government and civil society. The development of a policy link between open data and open government was further reinforced through the Open Government Partnership (OGP) and is evident in the fact that the majority of OGP member countries in the region have also included open data commitments in their National Action Plans. However, the link between e-government and open government has not gone away. For example, open data was promoted as a component of the Kyrgyzstan National e-Governance programme adopted in 2014 and e-government programmes across a number of countries and territories have continued to be the key vehicle for advancing open data reforms.

Debates on open data have also been influenced by the EU. The path toward EU integration, or commitments to strengthening relationships with the EU among Eastern Partnership and Western Balkans subregions, has helped to frame early initiatives. This has also exposed the region to shifts in the open data discourse in Europe. Most recently, the Digital Agenda for the Western Balkans, announced by the European Commission in June 2018 in partnership with Albania, Bosnia and Herzegovina, Kosovo, Montenegro, and the Republic of North Macedonia and Serbia, has been seen as a new opportunity to leverage the EU connection to promote open data in the region. However, the Digital Agenda approach arguably reflects more of a focus on the economic growth aspects of open data than on open government.

The emphasis on the economic value of open data, more prominent in recent years, is shaped by changing geopolitical influences and increasing disillusionment with transition processes, especially in terms of the economic gains delivered so far. Government discourse right across the region has begun to explore how open data and related frameworks can be used to deliver concrete results, including improved competitiveness and private sector innovation, alongside continued improvements to government efficiency. Fortunately, with the development of sector-specific open data initiatives, such as open contracting and work on open data in health providing a template, the focus on economic growth is not based on the naive assumption that the release of government datasets will lead automatically to innovation. Instead, the early outline of a more holistic approach with a focus on particular sectors and a range of models of support for entrepreneurial activity is evident. However, the extent to which work on economic growth-related uses of open data will compete with, or displace, resources and support for open data for open government is yet to be seen.

Open data in use: Focus and facilitation

Although the general mood among governments and funders may be one of uncertainty about whether open data is showing a return on investment, there are a growing number of open data
use cases across the region that demonstrate both the potential and the quantifiable impact of open data. One of the most widely discussed\textsuperscript{27,28} has been Ukraine’s ProZorro platform (see box below),\textsuperscript{29} which has made use of the Open Contracting Data Standard (OCDS)\textsuperscript{30} and an improved e-Auction methodology\textsuperscript{31} to create a more automated and transparent procurement system for the country, leading to claims of over USD 55 million in savings for government during the pilot phase alone.\textsuperscript{32} Results for Development research costed the ProZorro project in 2017,\textsuperscript{33} suggesting that, from inception in 2014 up until 2017, the work cost at least € 4.69 million with much of this accounted for by salaried labour and the substantial in-kind contribution of volunteers. This funding was split between three phases: set-up (26%), implementation (12%), and ongoing operation (62%), offering some indication of the kind of investment profile that might be needed to help scale open data use cases into operation.

ProZorro: Technology, business, and governance\textsuperscript{34}

The ProZorro website describes the project as “a hybrid electronic open source government e-procurement system created as the result of a partnership between business, government and the civil society”. Initiated in 2014 by a volunteer team, the project quickly built relationships with government and committed to an approach based on open standards, open source, and open data, such that the full data underlying any procurement can be accessed by anyone through an open application programming interface (API).

Understanding the importance of business buy-in to the project, its design supports a commercial ecosystem of intermediaries, allowing third-party electronic procurement marketplaces to provide a front-end onto the central ProZorro system. Getting this right has required substantial work on governance and the technical architecture.

Responsibility for running ProZorro was transferred to a state-owned enterprise in December 2015, although with co-founder, Transparency International Ukraine, maintaining a role through the creation of DoZorro, a procurement monitoring platform, combining business feedback with data from the ProZorro platform to provide scrutiny of procurement processes.

Much like the narrow procurement focus of ProZorro, many of the other civil society platforms working with open data in the region are sector specific, although with many acting more as demonstrators rather than as full-scale platforms. A major thematic focus of these projects remains on open and transparent public finance, perhaps reflecting transition concerns about problems in public financial management, though we are also witnessing the advent of a new generation of tools that respond more to the local issues and challenges that citizens face. One such example comes from Skopje, one of the most polluted cities in Europe, where citizens are using crowdsourced data combined with data from official sources to create visualisations and to empower citizens to make better data-driven decisions. AirCare app, which is the app to measure the air quality with non-verified hourly data from Serbia and the Republic of North Macedonia, has attracted more than 100 000 users, helping them to understand the level of toxicity in the air.
and providing relative information to support comparisons between days.\textsuperscript{35} Open Data Kosovo’s mapping of illegal rubbish dumps also ties in with this emerging environmental theme.\textsuperscript{36}

Looking across the region, it does appear that the majority of uses of open data originate from within the civic sector rather than government with the caveat that when the public sector uses open data internally, it is not easy to detect. In general, civic users of open data can be divided into three main groups: (1) advocacy organisations and the media, (2) civic tech incubators, and (3) academia. For organisations in the first category, who are focused on specific social issues rather than on data, their direct use of open data remains limited without the facilitation of either civic tech organisations or external funders, including multilaterals. This appears to be as a result of both the high cost of procuring data analytics capacity and the limited existing capabilities of advocacy organisations to use data and digital tools. There are, however, some promising signs of media organisations building their data capacity with investigative platforms, such as KRIK in Serbia building data components into investigations and reporting.\textsuperscript{37}

Over recent years, we have seen a mix of models used to bring together advocacy organisations with civic technology expertise in order to increase use of open data. The 2018 Open Data Hackathon in Serbia, supported by UNDP and the World Bank, used open data as a golden thread to link technologists and advocacy organisations to address issues from road safety to openness in procurement.\textsuperscript{38} The hackathon model has become well established in a number of countries and territories, acting as a time-limited meeting point between different stakeholders to explore data and identify potential applications. On the other hand, existing civic tech organisations, such as Open Data Kosovo,\textsuperscript{39} ForSet in Georgia (see box below), and SocialBoost in Ukraine,\textsuperscript{40} have expanded their roles and responsibilities to focus on capacity building for data journalists and to build communities around open data, effectively becoming a new generation of civic tech incubators for open data ideas.

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**Georgia: ForSet\textsuperscript{41}**

ForSet was established in June 2017 in Tbilisi, Georgia with a mission of transforming data into narratives that resonate with the average citizen in Georgia. To date, the organisation has worked on four strands of work:

- **Data storytelling**\textsuperscript{42} – developing stories based on data that can be shared using digital communication tools, working with the United Nations Population Fund, UNDP, and other external partners to use their data to build interesting narratives.
- **Education** – running programmes for journalists and civil society activists, researchers, government representatives, and students both from Georgia and the wider region.
- **Technology development** – using open source tools to parse and present data, including election data taken from scanned documents and political party budget data.
- **Community building** – providing outreach to municipalities to bring them into the open data movement and facilitating networking events.
Collaboration with academics has been particularly strong as a means of encouraging open data engagement and use in the Central Asia subregion. In Uzbekistan, for example, hackathons promoting the reuse of open data often involve collaboration with the universities in Tashkent. As of July 2018, a running poll on the open data portal of the Government of Uzbekistan shows that 23% of users draw on the data for the purpose of research (e.g. writing articles, degree programmes, and scientific works) as opposed to 14% who use data from the portal in order to create web applications. It is notable, however, that across the open data field, very little evaluation has taken place of the impact of increased open data accessibility on academic knowledge production and the consequent benefits this may have for government and business.

Although as explored above, governments across the region have recently shifted their emphasis to look at how private sector innovation might unlock value from open data, we find relatively little evidence of active support to facilitate this. The global Open Data Impact Map, which captures cases of entrepreneurial open data reuse, is noticeably sparse in providing examples from the region, although there are some promising cases emerging around particular datasets as documented for Serbia in the box below. While the scarcity of examples of private sector open data use cases may in part reflect a gap in systematic evidence gathering, it likely also reflects an underlying reality that, when the supply of relevant and reliable open data remains limited, businesses have not found it worth their while to engage with the open data agenda. When the gaps in official data sources cannot be filled by crowdsourced or self-generated datasets, private sector actors lack the incentives or cultural orientation needed for them to adopt business strategies based on open data.

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**Serbia: Improving access to medicines**

In Serbia, the national Open Data Initiative is in its early stages, but 24 line ministries are already publishing their data in machine-readable formats. One example is the Agency for Medicines and Medical Devices.

Within two weeks of publishing their data on market-admissible medicines, a Slovenian company released an app allowing users to check the availability of a medicine or alternatives on the Serbian market. Another Serbian pharmaceutical company used the data to speed up internal processes, eliminating the need to exchange paper-based information with the agency.

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**Investment in open data**

External funding has been crucial to the development of open data in the region, where a diversity of funders offering a mix of small-scale and larger programmatic funding has appeared to be beneficial to the creation of an open data ecosystem.

In Western Balkans and Eastern Partnership countries and territories, for example, the investment in government-led open data has come hand-in-hand with investments in open data and the civic tech community, which has allowed for a smaller and more diverse subset of actors...
to continue working with open data in thematic areas. Civil society organisations (CSOs) in the region have been able to use both bilateral funding, including support from the UK, US, and UN organisations, alongside support from international foundations, including the National Democratic Institute, Richard Mott Foundation, and the Rockefeller Brothers Fund. Notably, most funders have a regional agenda and support projects where open data is one element of the effort rather than the primary objective of the project. In Central Asian countries, where large amounts of data have been published by governments, civil society engagement is less developed and there is a need for more investment particularly around engagement methods and the prioritisation of datasets in order to better realise the value of open data for society.

International donor investment has been a key driver in programmes that support evidence-based decision-making and focus on open data as a tool for transparency and anti-corruption. Much of this catalytic support has been provided by the World Bank and UNDP to conduct early ODRAs for open data, as well as to support data infrastructures (World Bank) in Moldova, Kosovo, and the Republic of North Macedonia. The Millennium Challenge Corporation (MCC) in Kosovo recently launched a group of funders who are supporting open data, in particular, through a “Dig Data” campaign to mine environmental data. The director of MCC noted that the reason that they decided to reinvigorate the open data movement in Kosovo was that they see substantial potential, through work on open data, to raise awareness around specific issues and to support the government in designing policies that are evidence-based. In Ukraine, the Transparency and Accountability in Public Administration and Services (TAPAS) project, funded by the United States Agency for International Development (USAID) and UK Aid, has been one of the key forms of support for the open data movement in the country. TAPAS has supported a challenge series, leadership networks, and a country-level open data barometer. In Serbia, the UK Good Governance Fund, the World Bank, the Swedish International Development Agency, and UNDP have joined forces on a “360 degree approach to open data”, supporting the government to improve infrastructure, create co-creation spaces, and promote the reuse of data through collaborations with tech incubators, such as Startit, and the civil society sector.

Other actors, such as international financial institutions, have also found routes to support sectoral open data initiatives. The European Bank for Reconstruction and Development (EBRD), for example, supports the implementation of the OCDS in the countries around the Black Sea. According to Eliza Niewiadomska, Senior Policy Officer at EBRD, the use of open data in public spending and procurement is contributing to freedom of enterprise and market access to the economy, as well as affecting the local markets. In Georgia, for example, Niewiadomska describes how better open data related to procurement can assist individuals in setting up and operating small businesses, noting that similar trends are visible in other countries like Moldova and Tunisia.
The Transparency and Accountability in Public Administration and Services (TAPAS) project, funded for five years by the Eurasia Foundation with backing from the UK’s Department for International Development and USAID, aims to support Ukrainian citizens and the Government of Ukraine in reducing or eliminating corruption in key public administration functions and services. Eurasia Foundation describes how “Ukraine’s Revolution of Dignity transformed the executive and legislative branches of government in 2014. Since then, the Government of Ukraine has prioritised increasing public sector transparency and accountability through eGovernance reforms, including eProcurement, Open Data, and eServices.”

eProcurement, Open Data, and eServices form the three components of the TAPAS programme. It seeks to support all central ministries and at least 35 municipalities with populations greater than 100,000 to publish open data regularly and to organise a series of seminars and workshops for open data managers, establishing a more reliable supply of open data and unlocking the full economic potential of open data for the country.

Looking ahead: Areas for growth

What does the future hold for open data work in Eastern Europe and Central Asia? The development and impact of open data in this region have unfolded incrementally and have been difficult to capture. According to the Open Data Barometer, while the readiness of governments in the region is high for opening data, implementation is often seen as lagging behind and evidence of impact is almost non-existent. This feeds into a common feeling that the full breadth of transformative political, social, and economic results expected or anticipated at the advent of the open data movement has not materialised. However, digging deeper into the trends in the region indicates that international measurements of the impact of open data do not adequately capture the tangible examples which are, in fact, affecting people’s lives on a day-to-day basis and have led to improved efficiencies in government. Given the capacity built over the last decade and the groundwork laid, there are real opportunities to move beyond the hype to embed open data approaches in public problem solving.

However, to get there, several challenges will need to be overcome, such as addressing data supply and government capacity, creating an inclusive community of data use, and improving collaboration with the private sector.

First, the production of high-quality open data remains an issue. The administrative data generated by government institutions continues, to a large extent, to be collected on a paper basis. Not only does this create inefficiencies in the system, but it also limits the potential for collaboration and complex problem-solving between different departments and the potential for engagement with businesses and civil society. With the advent of artificial intelligence, where the ability to deliver on high-tech solutions is contingent upon access to good quality data, weaknesses in data production become ever more important to address.
Second, in spite of high-level commitments to open data, the capacity of institutions to proactively publish relevant data also remains limited. While general technical capacity in the region is strong, governments are strained to supply the human and financial resources needed to capitalise on the potential of open data. The reasons for this are structural and institutional. IT departments are underpaid compared to market salaries, and making sure that data is fit to publish is not envisioned as a core task for civil servants. Additional capacities have not been put in place to support the political and open government commitments around open data. The majority of governments do not have internal protocols in place for open data, in stark contrast to the way in which other policy areas, including, for example, freedom of information legislation has been implemented. Engagement processes have also not been put in place to support two-way dialogues with communities of interest and citizens to identify the most relevant datasets and support the reuse of data. Addressing these gaps needs action by individual governments, support for governments to share best-fit practices from regional institutions, and external work to track the pace of reforms in order to support monitoring, learning, and adaptation.

Third, the open data movement in the region needs to be more inclusive. Open data activity has generally favoured issues and development activities in urban environments, while it has been less effective in enabling broad usage and engaging people. Civic tech communities have been structured around urban centres and many of the applications based on open data have been focused on governance-related issues, catering to a subset of interest groups. Furthermore, women continue to be underrepresented in the open data sector. Broad networks of young women in Kosovo and Georgia, in particular, have counterbalanced, at least partially, the male domination of technology sectors, including of civic tech, providing a model for others to follow. However, inclusion of women in the design and development of tools to address different issues is key in ensuring that gender dimensions are integrated across solutions, rather than limited to areas that are typically considered to be women’s issues, such as gender-based violence and harassment.

Lastly, collaboration with, and open data use by, the private sector is still very limited. This is due primarily to three factors: insufficient government capacity to engage, limited donor strategies, and a lack of clear business models for open data engagement. Nevertheless, a study for Ukraine has quantified the economic impact of open data, directly and indirectly, at USD 700 million up to April 2018 with the potential to reach USD 1.4 billion by 2025, demonstrating the importance of improving private sector strategies. The evidence base regarding interventions that can successfully engage the private sector is less developed than it should be. However, with the proliferation of use cases based on open contracting, more evidence on the related economic benefits should become available, providing potential routes to engaging more businesses with the wider open data agenda. Critical research will be needed to understand the transferability of impacts from one sector to another (e.g. from procurement to transport or medicine).
Conclusion

Open data has entered the repertoire of civil society and governments in Eastern Europe and Central Asia at an interesting point in time. Newer CSOs have embraced the strategic use of open data, responding to funders and global movements, but are also looking to link open data to pressing local issues. Governments, if not fast to adapt, have at least recognised that open data should be part of future strategies. Fully embedding the principles, values, and skills needed to make the most of open data will be the task of the next decade.

Further reading


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Endnotes

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