Anti-corruption and Social Impact of Open Data in the Road Construction, Renovation, Repairs, and Maintenance Industry of Ukraine

Analytical Report
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List of abbreviations

RCQ
The state enterprise Road Quality Control, which is subordinated to the State Road Agency and is commissioned by the State Road Agency to monitor the quality of road work as part of a specific public procurement process.

RS
Road Service, a regional division of the State Road Agency responsible for the development and proper maintenance of public roads of national importance, bridges, and engineering structures, and for creating conditions needed for uninterrupted and safe road traffic in the relevant region. Regional Road Services act as clients paying for road work. There are a total of 24 regional Road Services.

RSA
Regional state administration, a local executive government agency that exercises government powers in the territory of a relevant administrative and territorial unit—a region.

State Road Agency
The State Road Agency of Ukraine, a central executive agency tasked with implementing public policy in the road sector and managing the country’s roads.
Ukrainian law defines open data as “public information in a format that permits processing it automatically using electronic means, accessing it freely and free of charge, as well as subsequently using it”. Open data help monitor the performance of government agencies, improve public services, and create new tools and services. Dozens of products have been created with the use of open data: online services and analytical modules, applications and chat bots used by millions of people every month.

It is extremely important to measure the impact of open data, as they help assess the performance of the public authorities and provide a mechanism for tracking progress over time. A series of thematic studies focusing on the use of open data to solve social problems have been undertaken in Ukraine for the first time under the auspices of the Ministry of Digital Transformation.

This study assesses the impact of open data in the road construction, renovation, repairs, and maintenance industry of Ukraine. In particular, the study focuses on data published by the State Road Agency on the Open Data Portal as well as information published in the context of public procurement in the road sector.

Government agencies in Ukraine began opening data following the enactment of the decree of the Cabinet of Ministers of Ukraine dated October 21, 2015. The first open data in the field of road repairs and maintenance became available as the State Road Agency switched to the Prozorro e-procurement system in 2016.

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1 https://zakon.rada.gov.ua/laws/show/2939-17#Text
3 https://data.gov.ua/organization/derzhavne-ahentstvo-avtomobilnykh-dorih-ukrayiny?page=1
In this study, the authors examine at the value of open data in the road sector for business owners, the public, and government agencies. For example:

- Open data helps fight violations during competitive bidding. Public activists and journalists conduct anti-corruption investigations based on open data. For instance, initiatives on the part of BRDO, Our Money project, and the Antitrust League have caused the results of competitive bidding to be canceled due to public outcry over violations.

- Owing to access to information about the progress of repairs and actual spending on road construction and maintenance, the public can influence improvements in the way services are provided as well as check whether repairs have been actually completed and their quality. Such open data-powered services as CoST, the Anti-Corruption Repair Map, and others make this possible.

- Open data in the road repairs and maintenance sector is a new and valuable source of information for researchers. Owing to them, experts of the Eidos Political Studies and Analysis Center have analyzed the degree and effectiveness of budget spending on road construction. Such analysis can also help pass more effective decisions in the context of planning of future budget spending.

- Local government agencies rely on the CoST and Anti-Corruption Repair Map tools to select repair contractors more thoroughly.

Study authors collected user recommendations on how to improve access to data. They include improving the quality of data sets published on the Open Data Portal through unification and interoperability.
Methodology

There are two primary aspects of open data studies:\(^5\): quantitative and qualitative.

Quantitative approaches (indexes, ratings, etc.) serve to measure the progress of open data policy and compare results with those of other countries or benchmarks. This enables an objective assessment of the performance of countries. The issue of impact is secondary in such studies. They are normally undertaken on a global scale, and Ukraine is also examined within their scope\(^6\).

Qualitative approaches focus on studying the methods by which data is used and the impact of open data policy. Such studies cover case studies of effects achieved, typologies of effects, and factors contributing to the success of open data projects. A drawback of these approaches is that they make it difficult to demonstrate progress over time.

In Ukraine, a series of thematic studies are underway. For the first time they are being undertaken under the auspices of the Ministry of Digital Transformation of Ukraine and with the backing of the USAID/UK aid project, Transparency and Accountability in Public Administration and Services (TAPAS). They are based on international experience, specifically as it pertains to the methodology of the Open Data Impact project. It involves analyzing specific case studies of open data usage through direct communication with process owners.

This study focuses on practices of open data usage in the road sector with the objective of eliciting the impact of open data has on the life of communities, businesses, and government performance. The primary sources of information are direct interviews with people who handle open data in the road sector as well as government documents and information appearing in the mass media.

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\(^5\) [https://www.stateofopendata.od4d.net/chapters/issues/measurement.html](https://www.stateofopendata.od4d.net/chapters/issues/measurement.html)

\(^6\) [https://opendatabarometer.org/4thedition/detail-country/?_year=2016&indicator=ODB&detail=UKR](https://opendatabarometer.org/4thedition/detail-country/?_year=2016&indicator=ODB&detail=UKR)
In June 2020, the study authors conducted 15 in-depth remote interviews with the key respondents focusing on these topics. They include developers of open data-based services, users of open data and/or apps based on open data, representatives of the government and research organizations.

The respondents discussed their activities, experience using open data in the road sector, and challenges faced by them, and issued recommendations on ways to improve the available data.

The study does not encompass all of the services that use procurement data, particularly in the road sector. For example, the report does not cover the Clarity Project\textsuperscript{7} and Dozorro\textsuperscript{8}.

\textsuperscript{7} https://clarity-project.info/
\textsuperscript{8} https://dozorro.org/tools
Relevant authorities and their powers

The State Road Agency of Ukraine (hereinafter “the State Road Agency”) is a central executive authority tasked with implementing public policy in the road sector and managing the country’s roads. It is coordinated by the Cabinet of Ministers of Ukraine through the Minister of Infrastructure of Ukraine. Up to 2018, the State Road Agency managed the entire network of public roads through its regional divisions—regional road services. The overall length of roads in Ukraine is 169,600 kilometers. Of these: roads of national importance are 52,000 km long; roads of local importance are 117,600 km long.

In 2016, the State Road Agency along with the regional road services subordinated to it jointed the Prozorro public procurement system pursuant to the Law of Ukraine On Public Procurement dated February 18, 2016. Since then, all information about procurement through competitive bidding processes to select contractors for road repairs and maintenance has been available to the public.

In 2016, three laws were passed as part of the road sector decentralization reform:

- On amendments to the Law of Ukraine On Sources of Funding for the Road Sector of Ukraine regarding improvements to the road sector funding mechanism.
- On amendments to the Budget Code of Ukraine regarding improvements to the mechanism of funding for the road sector.
- On amendments to select laws of Ukraine regarding the reform of the public roads management system.

9 https://zakon.rada.gov.ua/laws/show/439-2014-%D0%BF
10 https://mtu.gov.ua/content/tehnichniy-stan-avtomobilnih-dorig-avtomobilnih-dorig-zagalnogo-vikoristannya.html
The State Road Fund was established pursuant to these laws. It is a targeted fund within the dedicated fund of the State Budget of Ukraine, which accumulates funds for construction, renovation, repairs, and maintenance of roads of national and local importance. The road network has also been decentralized, with some of the roads resubordinated to local government agencies. While the State Road Agency previously managed the entire network of roads in Ukraine, now some 50,000 kilometers of roads of local importance have been transferred to balance sheets of regional state administrations.

The Fund actually began its operations in 2018 when UAH 47 billion was allocated for development of the road infrastructure, which was a record amount at the time. The government plans to allocated close to UAH 113 billion for road construction, repairs, and maintenance in 2020. Of this: UAH 85 billion is earmarked for roads of national importance; UAH 22 billion is a grant-in-aid for local budgets for road projects. A further UAH 4.4 billion is expected to come from international financial institutions, UAH 0.7 billion—as part of implementation of state road programs, and UAH 0.5 billion—as part of Zaporizhia Bridge renovation.

11 https://zakon.rada.gov.ua/laws/show/1762-19#Text
13 https://biz.liga.net/all/transport/interview/glava-ukravtodora-kakie-dorogi-stroyat-dlya-zelenskogo-i-pochemu-v-smete-est-strannye-tsifry
Status of access to open data in the road construction, renovation, repairs, and maintenance industry

As of 2013, there was effectively no open data in the road industry in Ukraine.

The issue of data opening came to the fore in 2014 with the enactment of an addition to the Law of Ukraine On Access to Public Information, which introduced the concept of open data. In 2015, the Cabinet of Ministers of Ukraine passed Decree No. 835 On Approval of the Regulation on Data Sets to Be Published in Open Data Format14, which includes a list of data sets that must be opened. The 2018 version of the decree for the first time included a list of mandatory data sets that the State Road Agency must publish15.

The Law On Public Procurement was passed in 2016, under which all government clients are obligated to use the Prozorro e-procurement system. Since then, information about procurement through competitive bidding processes to select contractors for road repairs and maintenance has been available to the public in open data format.

So far data in the road construction and maintenance industry comes from two key sources: the Prozorro procurement system and the State Open Data Portal. Prozorro reflects all procurements by the State Road Agency and its regional divisions (Road Services).

Under Decree No. 835, the State Road Agency must publish 14 unique data sets\textsuperscript{16}. All data sets are published on the data owner’s page on the State Open Data Portal\textsuperscript{17}. However, the data sets come with a host of problems and flaws: some of them are not updated regularly; the data sets are not unified and cannot be processed automatically. Data sets are differently structured. Different data types are used as part of the same attribute. Attribute names are not recorded using the Latin script.

The State Road Agency is also creating tools based on data at its disposal. One of them is the Interactive Map of the State Road Agency\textsuperscript{18}, its key objective being to provide up-to-date and reliable information about the situation in the Ukrainian road sector.

Map features include:

- Monitoring of compliance with the road construction and repairs program.
- Open communication: users can receive objective and up-to-date information about the condition of roads they intend to use.
- Petition module: a map feature that lets users report existing problems that interfere with comfortable road traffic to the State Road Agency.

One of the major challenges is the lack of access to data used by the interactive map. In particular, there is no information from road services about the current status of repairs. Information about petitions and complaints collected by the tool is not published.

Apart from the State Road Agency, local government agencies must also provide data on road repairs\textsuperscript{19}. According to Decree No. 835, they are required to provide the following information for purposes of publication on the Open Data Portal: the exact values of the kilometrage of the road stretch repaired (between kilometer posts), the road width and length, the length of the road stretch, the thickness of the top course of the road, materials, types of work performed, cost of work, warranty period, and contractors.

\textsuperscript{16} https://zakon.rada.gov.ua/laws/show/835-2015-п#Text
\textsuperscript{17} https://data.gov.ua/organization/derzhave-ahentstvo-avtomobilnykh-dorih-ukrayiny
\textsuperscript{18} https://map.ukravtodor.org/
\textsuperscript{19} https://zakon.rada.gov.ua/laws/show/835-2015-п#Text
However, the quality of open data provided by local government agencies poses a host of problems. Such data is also published on the State Open Data Portal, but this information is unsystematic, often fragmented, and not unified among different data owners.

The situation is further complicated by the fact that such data on the State Open Data Portal is accessed through specific data owners (municipal, regional, district councils), which makes it difficult to search, compare, and analyze such data.

The situation with regional data owners (regional state administrations) joining the CoST initiative is somewhat better. They use the Transparent Infrastructure portal to publish data on construction, renovation, major and routine medium repairs projects, as well as routine minor repairs and maintenance projects involving roads of local importance, which are commissioned by regional state administrations. So far 10 regional state administrations have joined the project.

Following the interviews, the study authors have identified a number of flaws and challenges associated with the lack or incompleteness of data, such as the lack of road construction permits, information about the results of work quality monitoring, the lack of an integrated project ID in the Prozorro system (this results in the inability to keep track of all procurements relating to the same infrastructure project), and information about the current progress of implementation of contracts reflected in Prozorro.
Open data usage scenarios

6.1 Combating corruption in procurement

⚠️ Problem

Despite the openness of information about procurement in the road sector, there is a host of potential risks of corruption during competitive bidding, such as artificially overstated costs of services and lack of competition. Law enforcement agencies estimated in 2019 that the corruption component factored into the cost of road repairs and maintenance accounts for about 10-15% of the total cost\(^\text{20}\). In money terms, this could be as much as UAH 10-15 billion (considering that close to UAH 100 billion in funding has been earmarked for this industry in Ukraine for 2020)\(^\text{21}\).

😢 Those affected

Government, businesses, taxpayers.

✅ How open data helps resolve the problem

Open data of the Prozorro system about public procurement has been used to create tools for anti-corruption investigations. It allows running due diligence checks on contractors and reviewing their pricing policy as part of specific competitive bidding processes.

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The biggest focus of our attention is on road contracts in recent years, since the amount of funds allocated by the state for road repairs has increased. In other words, we are following the trail of budget funds because we realize that the more funds there are, the greater the opportunities and desire to steal something.

Yuriy Nikolov,  
Editor of the Our Money project

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22 The Antitrust League is an independent communications platform that unites antitrust and procurement experts. It is a joint educational project of the Competition and Consumer Protection Council NGO and Our Money NGO.

23 https://bi.prozorro.org
24 https://dozorro.org/tools
25 clarity-project.info
26 Spending.gov.ua
Analysis findings revealed that in 2019 ten companies won roughly one-half of all competitive bidding processes totaling UAH 42 billion. This accounts for 48% of the total cost of contracts. They also explored ties among all market operators and exposed a joint structure of ownership of a number of companies.

In their investigation titled “A Cartel Under the Roof of the State Road Agency”\(^27\), the authors point out that a number of contractors do not adhere to the competitive terms when bidding and do not lower the cost of their services during auctions. They detected a regional distribution of operations of the key companies, which prompted the assumption that a regional monopoly over road repairs exists. According to World Bank data, collusion by market operators during procurement can raise the cost of construction by 40%\(^28\). This is amply illustrated by examples of Ukrainian procurements: when there are 2 or 3 competitors, the price decreases by 9% on average, whereas 4 or 5 competitors can produce savings of 21% for the state budget.

Our analysis revealed that several pairs of clients exist on the market. Our experts have already lodged a complaint against them with the Antimonopoly Committee. All of them were exposed specifically with the help of analytical tools powered by open data. We analyzed the behavior during competitive bidding, studied contracts and meetings held by clients, as well as identified their savings achieved through competitive bidding on a case-by-case basis.

Yuriy Nikolov,  
Editor of the Our Money project

\(^27\) [http://nashigroshi.org/2020/03/02/kartel-pid-dakhom-ukravtodoru/](http://nashigroshi.org/2020/03/02/kartel-pid-dakhom-ukravtodoru/)

\(^28\) [https://info.publicintelligence.net/WorldBank-RoadFraud.pdf](https://info.publicintelligence.net/WorldBank-RoadFraud.pdf)
Based on information obtained in this way, representatives of the Antitrust League, the Anti-Corruption Center, and Bigus-info filed a number of queries with the State Audit Service in connection with various road construction tenders in order to verify whether the procurement procedure had been complied with\textsuperscript{29}.

After analyzing a number of procurements, the Antimonopoly Committee conducted in-depth monitoring\textsuperscript{30} and has already announced the cancellation of bidding outcomes for a number of bidders. For example, the amount in question in Zaporizhia Region is UAH 12 billion\textsuperscript{31}.

**BRDO monitoring of road construction and repair costs**

The Better Regulation Delivery Office\textsuperscript{32}, an independent expert analysis center, is committed to improving the business environment and establishing a public dialog between businesses and the government.

In 2019, the BRDO launched the Road Construction and Repair Costs Monitoring Portal\textsuperscript{33} with a view to ensuring the transparency of the road construction process. The portal lets users analyze data on the effectiveness of spending of funds allocated by the State Road Fund in 2018. A feature of this tool is that it combines information about procurement of road work with treasury payouts from the Single Portal on the Spending of Public Funds\textsuperscript{34}.

The BRDO monitoring portal provides access to information about:

- The progress of road construction broken down by regions and roads of national and local importance.
- Funds allocated for road traffic safety.
- Tenders for road construction and repairs that have been announced and conducted in the regions.
- Funds actually spent by project owners.

\textsuperscript{29} [https://www.epravda.com.ua/news/2020/04/29/659961/]
\textsuperscript{30} [https://ua-news.liga.net/economics/news/amku-virishiv-pereviriti-tender-na-budivnistro-mosta-za-12-mld-grn-v-zaporizhhji]
\textsuperscript{31} [http://nashigroshi.org/2020/06/19/dasu-vymahaie-skasuvaty-rezul-taty-torchiv-ukravtodoru-na-12-mil-iardiv-provedenykh-z-porushenniamy/]
\textsuperscript{32} [https://brdo.com.ua/]
\textsuperscript{33} [http://www.roads.brdo.com.ua/]
\textsuperscript{34} [spending.gov.ua]
Some 40,000 unique users have visited the portal since March 2019. The primary users are active Ukrainian citizens with an interest in the road sector and NGO operating in the road industry.

BRDO analysts reviewed the level of competition in procurement of services involving road construction and repairs in the regions. It has transpired that the share of the biggest contractor exceeds 50% in 6 regions, while the three biggest contractors account for more than 50% of all contracts awarded in 17 regions. Competition is present in just two regions, i.e. the average number of bidders exceeding 3 and the collective market share of the biggest contractors below 50%.

The BRDO also conducted a separate study focusing on road construction in Ternopil Region. It has transpired that clients held 423 pre-threshold procurement processes (below the UAH 200,000 threshold) worth a total of UAH 64.5 million. Roads were divided up into 40-meter consecutive stretches, which BRDO experts consider to be a sign of corruption. A subsidiary of Ternopil Oblavtodor was declared the winning bidder in all tenders.

This case provoked a major outcry among government representatives and the mass media. Specific procurements were investigated for their legality, resulting in the termination of contracts for road work. This prevented UAH 3.9 million in potential losses for the budget.

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35 Study titled “From the Gas Station to Potholes in the Road. Who is Responsible?”

State Road Agency representatives insist that the road sector experienced fundamental changes during 2017 and in early 2018 owing to large-scale repairs and an increase in funding for this industry. In order to assess the situation, the Eidos Political Studies and Analysis Center studied procurements by 37 local municipal road companies during this period. These organizations report to city halls of regional centers and handle road work: repairs and maintenance of city streets and roads. Eidos experts analyzed the operations of these companies and evaluated the prospects of improvements in the condition of Ukrainian roads owing to more funding.

The study helped reveal and calculate the average percentage of savings as part of pre-threshold and post-threshold procurements. The greatest savings were achieved in pre-threshold procurements at 8.74% vs. savings of 6.99% in post-threshold procurements.

The authors also pointed out indirect methods for obtaining budgeting funding by municipal companies, when procurement can be conducted bypassing the Prozorro system. This approach poses a potential risk of corruption. Other risks include the use of non-price criteria during procurement and discriminatory requirements set forth in tender documents that limit competition during competitive bidding.

In other words, more funding does not necessarily guarantee improvements in the condition of roads in Ukrainian cities. In practice, municipal road companies have a host of tools that allow them to spend funds contrary to the purpose intended or in a manner that is not effective enough. The authors also stress the importance of the role of the State Audit Service must monitor procurements and oversee road work, which is effectively not happening.
Impact of open data on the effectiveness of anti-corruption investigations and studies

Investigations and studies enabled by open data are an effective anti-corruption tool. Their findings helped cancel a series of competitive procurements conducted with violations. They helped save budget funds during tenders that were repeated by increasing the level of competition and the standard of the tender process as well as due to compensation paid by the violators\(^\text{39}\).

Anti-corruption investigations and studies also help improve governance through additional monitoring of the performance of the relevant government authorities.

Media coverage of the problem favorably influences the level of public awareness about corruption in the road sector and applies public pressure to the authorities, which also contributes to their accountability.

\(^{39}\) [https://www.epravda.com.ua/news/2020/06/18/661986/]
Promoting equal access to tenders for all market operators through optimization of procurement procedures

Problem

Public procurement laws are being constantly amended and revised and, according to expert estimates\(^\text{40}\), it is moving towards greater transparency and accountability. However, there is a series of potential risks that keep specific players off the market or create an uneven playing field for different market operators. This is also true of the road construction, renovation, repairs, and maintenance industry.

Those affected

Government agencies acting as clients in the road sector, businesses.

How open data helps resolve the problem

Owing to the public outcry and discussions in the expert community they generate, investigations and studies enabled by open data act as additional tools of public influence on the format of procurement procedures in the road sector.

Open data usage examples

Analysis of recommendations for regional road services

While analyzing Prozorro documentation in 2017, CoST\(^{41}\) experts came across State Road Agency letter with recommendations for regional road services (road repairs and construction project owners in the regions) on how to apply eligibility criteria during procurement. In particular, the recommendations contained a requirement whereby the bidder must have experience performing similar work within the past five years in Ukraine or EU member states. CoST believe that such requirements are discriminatory and restrict operators from accessing the market. This contravened not just Ukrainian laws but also the agreement on Ukraine’s accession to the WTO, as it would render foreign companies from Turkey, Azerbaijan, Belarus, etc. from participating in road sector tenders. CoST jointly with public sector partners publicly broached the issue of discriminatory recommendations given in this letter. The relevant materials were submitted to the Monitoring Committee of the Ministry of Infrastructure of Ukraine. They took cognizance of the criticism and requested the State Road Agency to revise the recommendations. Following a number of public discussions with the State Road Agency, the recommendations were revised and published in their new version with the discriminatory requirement removed\(^{42}\).

Discussion of methodological recommendations of the State Road Agency

During an investigation conducted by Our Money project and the Antitrust League, which analyzed data on more than 1,000 tenders in 2019 conducted by organizational units of the State Road Agency and local regional state administrations\(^{43}\), journalists had their attention drawn to the new methodological recommendations devised by the State Road Agency on how to prepare tender documentation for road work procurement. According to expert estimates of Transparency International\(^{44}\), these recommendations contain a series of requirements that may contribute to cartelization of this sector and be discriminatory against potential bidders.

The issue of these methodological recommendations received broad coverage in the Ukrainian mass media\(^{45}\). This resulted in a discussion between State Road Agency representatives and the expert community regarding revisions to the discriminatory recommendations. This ultimately resulted in a proposal that the methodology\(^{46}\) must reflect the requirements of the amended Law On Public Procurement regarding the nondiscrimination of bidders in procurement processes. A working group drafted a trade-off version of the recommendations, which were approved by an order of the Ministry of Economic Development, Trade, and Agriculture of Ukraine.

\(^{41}\) https://costukraine.org/en/

\(^{42}\) https://www.facebook.com/costukr/posts/501228940261403

\(^{43}\) http://nashigroshi.org/2020/03/02/kartel-pid-dakhom-ukravtodoru/

\(^{44}\) https://ti-ukraine.org/blogs/metodychni-rekomendatsiyi-ukravtodoru-vchymo-dyskryminuvaty/


\(^{46}\) https://www.epravda.com.ua/columns/2020/04/27/659840/
Impact of open data on the effectiveness of optimization of procurement processes and creation of a level playing field for all market operators

Analysis of information about procurements and investigations enabled by open data help bring to the fore a number of problem issues in public procurement, such as market cartelization or lack of competition, and discriminatory requirements for bidders.

This has set off a discussion between representatives of the authorities and the expert community on ways to improve the existing procedures. Such steps help increase the level of competition, which also has a favorable effect on the quality of services in the road sector and more effective spending of public funds.

The BRDO investigation of road construction procurements in Ternopil Region (see scenario 1) indirectly resulted in the enactment of a new version of the Law On Public Procurement. Among other things, it has reduced the pre-threshold amount from UAH 200,000 to UAH 50,000, which significantly complicates any potential corrupt schemes, thereby minimizing risks and boosting competition.
Fighting the problem of poor quality work performed during road construction, renovation, or repairs

⚠️ Problem

According to surveys by public opinion companies, including Info Sapiens agency, the bad quality of roads is the biggest concern for residents of almost every population center or community. Despite record-breaking amounts of funding of the road sector in 2018-2020, 95% of roads in Ukraine are in a poor condition.

Quality road repairs and construction call for effective monitoring of work. According to expert estimates, the existence of a dedicated body within the State Road Agency—Road Quality Control (RQC)—does not contribute to effective monitoring of the quality of repairs, primarily because it is subordinated to the client, the State Road Agency. Moreover, the lack of proper monitoring and public access to monitoring findings may result in improper quality of work and embezzlement.

😭 Those affected

Government, businesses, public.

✅ How open data helps resolve the problem

Access to open data on the progress of infrastructure projects enables effective and independent monitoring of the quality of road work and spending of funds allocated by the state.

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47 For example, in a survey of the DOBRE program, residents of 24 united territorial communities in various regions most often ranked the problem of road construction and repairs as the top-priority issue for the community. See the presentation via the link (slide 60):
https://mviskarada.gov.ua/files/Soc_ekonomichniy_rozvitok/GFK_presentation_DOBRE.pdf?fbclid=IwAR3CQtEP0WII_it1UZm8FzY6Rc972xQV0v41LmZBcA5ZOG5E-0


49 https://www.ukrinform.ua/rubric-polytics/2793359-dorogi-za-5-rokyv-comu-ce-realno.html

50 https://cfts.org.ua/blogs/brend_yakosti_chi_dopomozhe_ukrani_nova_organizatsiya_kontrolyu_za_yakistyu_budivnistva_ta_remontu_dorg__267g__267
Open data usage examples

CoST Ukraine: road construction and repairs monitoring

CoST is an international initiative aimed at enhancing the transparency and accountability of construction projects funded at the expense of the state.

The Transparent Infrastructure analytical module[^51] is one of the products created by CoST Ukraine. It is based on open data and allows monitoring past tenders in the public road construction, renovation, repairs, and maintenance industry with just a few clicks.

The analytical module automatically imports data from the Prozorro procurement system: information about past tenders for road construction and maintenance services. This accounts for about 40% of all data at the core of the module. Other data is entered manually by regional data owners. So far the CoST project analyzes over 6,000 contracts worth more than UAH 163 billion for the period from August 1, 2016 until present.

In an average month, the portal gets 4,000 views from 1,000 unique visitors. Among them are NGO representatives who inspect the status and quality of repairs performed. Representatives of road services use the portal to run background checks on companies bidding on their contracts.

CoST Ukraine verifies information provided by regional road services as part of the “Repairs of Roads of National Importance” project. Coordinators check the quality of work performed and the extent to which the information published corresponds to the work actually performed. In 2019, the CoST team made eighth onsite visits to inspect 26 roads and 10 bridges and detected a number of defects (potholes, cracks, damaged protective coating, damaged supports, etc.). Based on inspection findings, CoST experts prepared eight petitions to the relevant authorities calling for the damage to be fixed.

[^51]: [https://portal.costukraine.org/graph.html](https://portal.costukraine.org/graph.html)
During the same period, over 100 Ukrainian citizens used the assistance of CoST Ukraine. Owing to their monitoring and inspections, close to 40 km of roads of local importance have been repaired, mostly in Kyiv and Zhytomyr Regions52.

One of the examples proving the effectiveness of monitoring are the repairs of a stretch of the R19 road (Fastiv, Obukhiv, Rzhyshchiv) in Obukhiv District of Kyiv Region53. In 2019, representatives of a local organization, Trypillia Land, joined CoST regional coordinator Olha Nos on a monitoring visit and, in collaboration with Obukhiv District Council Oleksiy Novokhatko, prepared a petition to the road owner calling for the defects to be rectified. As result, defects that posed a risk of accidents were fixed along the entire stretch of the road. The Road Service of Kyiv Region also put this road on the list of infrastructure facilities to be repaired in 2020.

It should be noted that such petitions had previously been ineffective because government officials often cited limited funding as a reason why repairs could not be performed. Owing to open data on road sector procurements and payments for work completed as well as their own expertise, CoST specialists help residents receive not just reliable information but also a high-quality road infrastructure.

Another case involves a petition by a local resident to the Kyiv Regional State Administration in 2019 regarding the poor quality of a road in Bohuslav District. CoST coordinators analyzed the procurement and found out that this road could be repaired under the maintenance contract that the Regional State Administration signed. CoST experts helped draft a petition to the relevant authorities and provided a description of the suggested repair technology to fix shallow potholes along the stretch of road in question. Quality road repairs in Bohuslav District were performed owing to the facts provided in support of the feasibility of this technology and budget savings54.

CoST Ukraine also analyzed contracts signed with 55 road repairs technical supervision engineers by using two engineers in Lviv and Khmelnytskyi Regions as an example. CoST experts studied the scope of work performed by these engineers and concluded that it would be impossible to perform this work up to quality standards. For example, in 2019 the Khmelnytskyi-based engineer supervised 110 infrastructure facilities at the same time, which the experts believe to be too much for a quality service.

The analysis findings first caught the attention of local journalists and eventually of the State Audit Service. Auditors inspected the municipal enterprise Tekhnahliad [“Technical Supervision”] where the above-mentioned engineer works and discovered the absence of documents proving the completion of specific technical supervision procedures: Tekhnahliad failed to present core sampling reports, logs, and construction materials laboratory test records.

In another case, CoST Ukraine detected signs of collusion in a tender for the award of a contract for services involving the monitoring of the condition of roads and the quality of road work. Only two companies were declared eligible to bid on a government contract worth more than UAH 72 million, whereas the supporting documents submitted by them fell short of tender documentation requirements; some of the documents were void because they were registered on a future date.

The story of a conflict of interest in the procurement of quality monitoring services also had a sequel as part of the Together Against Corruption initiative. Experts of CoST Ukraine and Together Against Corruption proposed to the State Road Agency a plan of anti-corruption measures designed to solve this problem. The State Road Agency supported this initiative. The corruption risk minimization action plan proposed by the experts and developed with the use of open data is pending approval.

55 A technical supervision engineer is a professional tasked with ensuring quality control of work performed by contractors. Chief duties of a technical supervision engineer typically include: checking the availability of documentation at the site, inspecting the scope and quality of road work, inspecting and assessing the results of work completed, verifying that the contractor has complied with instructions and improvement notices, etc.

56 https://costukraine.org/tehnichnyj-naglyad-bez-perervy-i-vyhidnyh/
58 https://www.facebook.com/costukr/posts/1089160711468220
59 https://www.facebook.com/RazomProtyKorupcii/photos/a.1627223290904234/2415553795404509/
The Anti-Corruption Repair Map[^60] is an interactive tool in the form of a map showing information about tenders in the field of routine repairs of infrastructure facilities. The project was initiated by the Anti-Corruption Headquarters, an NGO committed to exposing corrupt practices by government officials in order to hold them accountable. The map offers users a simple and convenient way to check the progress of repairs in any population center.

All information about tender procurements in the field of infrastructure repairs, particularly routine road repairs, is downloaded from the Prozorro system in real time. The algorithm automatically applies filters to tenders involving repairs, categorizes them by type of infrastructure facilities to be repaired (roads, housing, health care, social infrastructure establishments, etc.) and publishes them on a map.

According to expert estimates, the product enjoys the highest popularity in cities with over 1 million residents (Kyiv, Kharkiv, and Odesa). As of the end of 2019, the map was used by close to 30,000 unique users. This number has now risen to 50,000 according to estimates of Anti-Corruption Headquarters representatives.

Over the course of 2019, the project team received 560 complaints about unfinished or improperly performed repairs of social infrastructure establishments. Anti-Corruption Headquarters analysts prepared around 170 petitions to the authorities.

For example, road surface quality defects were fixed following a complaint from a native of Ivano-Frankivsk[^61]. The contractor expanded the roadway and left a specific road portion along the curb without an asphalt pavement, even though this work had been funded. The contractor was obligated to rectify the defects following a request from the project owner, City Hall of Ivano-Frankivsk. Potential embezzlement was thus avoided, which helped save UAH 419,000 in funding.

[^60]: https://map.shtab.net/
[^61]: https://www.facebook.com/karta.remontiv/posts/714640262624301
Another example of effective use of this tool is a petition from a regional coordinator of the Anti-Corruption Headquarters to City Hall of Shostka, requesting installation of traffic lights at a crossroads in the city with a high rate of car accidents. This procurement was monitored on the website of the Anti-Corruption Map of Repairs and went through without violations.

Another case involves poor-quality repairs of the Berehove-Yanosh road stretch in Zakarpattia, with cracks and subsidence recorded just three months after road renovation. The Anti-Corruption Headquarters team made a monitoring visit and drafted a petition to the project owner calling for the defects to be rectified under warranty. The petition is currently being reviewed by the State Road Agency administration.

Analysis of the road lifecycle and study of the experience of designers by Nora

The Nora service detects unapparent ties among construction market participants based on open data of the State Architectural and Construction Inspectorate. The project aims to overcome the lack of transparency in business relations among construction market operators in order to protect government project owners and end users against risks.

Experts analyzed the lifecycle of roads and, based on their findings, identified the status and key challenges during major road repairs. Because the process of obtaining permits is delayed during road construction, the actual time frame for the completion of work becomes shorter, and work is commenced late in the year under unfavorable weather conditions.

62 https://www.facebook.com/karta.remontiv/posts/681078605980467
63 https://www.facebook.com/karta.remontiv/posts/681734782581516
64 https://nora.in.ua/
65 https://nora.in.ua/chomu-kozhnoyi-vesni-ASFALT-ASFIYaE-z-doreeg-upravleennyia-proektami-z-nora
Obviously, a shorter completion time frame means that the quality suffers. In other words, it’s all part of a pyramid of sorts: quality, time, money. Open data on the start of construction shows that nobody is in control of time frames in our country.

Oleksandr Tereshchenko,
Founder of Nora

As a result, the road surface quality is often unsatisfactory just months after work completion and requires another round of repairs and extra budget outlays.

Nora analysts created a step-by-step algorithm for monitoring timely performance of major repairs, from project launch to completion.

For example, during renovation of the Shuliavka crossover road, Nora analyzed the prior experience of designers who proposed their own concepts of the traffic interchange for the bridge66.

To this end, Nora uses algorithms to process data from various sources, integrates them, and obtains consolidated information in the form of an interactive dashboard. It shows information about the number of projects launched by every bidder, the list of their returning clients, and an analysis of tender documentation from previous projects. Based on this data, the project owner performed an integrated evaluation of the eligibility of design contractors bidding on the tender.

66 https://nora.in.ua/kak-sravniat-opyt-proektantov-na-primere-shulyavskogo-mosta-v-kieve
Impact of open data in the road sector on the resolution of the problem of poor-quality repairs

The publishing of data has made it possible to create independent tools for technical supervision of the quality of repairs, which helps resolve a problem of great social importance, namely low-quality road construction and repairs.

In 2019, owing to the CoST module, the exposed violations committed during road repairs were rectified at the expense of contractors and not at the cost of the budget.

"The competitive bidding process is not everything there is to know about a road project. For there are very many components and risks that are not limited to procurement alone but extend to planning, actual implementation, and quality control. These are the shadowy aspects of the infrastructure onto which CoST sheds light."

Sviatoslav Abramov,
Executive Director, CoST Ukraine
Owing to the analytical module of the Transparent Infrastructure portal and the Anti-Corruption Repair Map, we have been able to involve the public in the work quality control process by simplifying access to information on the progress of repairs. Activists are now able to not just detect but also solve specific problems.

Public involvement at the local level is an effective way to fight corruption during construction and repairs of infrastructure projects in the regions. The Anti-Corruption Repair Map has already helped prevent potential embezzlement of over three million hryvnias in budget funds.

Increasing public pressure and the fight against corruption contribute to better governance: accountability of the State Road Agency and local government bodies, improved services, and sharing of information. Owing to the CoST module, the Ministry of Infrastructure and regional offices of the State Road Agency receive comprehensive information about the status of the road sector or a particular project.

The fight against corruption in road sector and, accordingly, better road quality promote economic growth through savings of budget funds, faster transportation of passengers and goods\(^{67}\), lesser depreciation of vehicles, and fewer road accidents\(^{68}\).

\(^{67}\) [https://delo.ua/opinions/jak-budivnictvo-dorig-vrjatuje-ukrajinsku-ekonom-366578/](https://delo.ua/opinions/jak-budivnictvo-dorig-vrjatuje-ukrajinsku-ekonom-366578/)

List of organizations whose representatives were interviewed

<table>
<thead>
<tr>
<th>Organizations</th>
<th>Description</th>
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<tbody>
<tr>
<td>BRDO: Better Regulation Delivery Office</td>
<td>An independent expert analysis center committed to improving the business environment and investment attractiveness of Ukraine, promoting private enterprise and a public dialog between the business community and the government.</td>
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<tr>
<td>CoST Ukraine</td>
<td>An infrastructure transparency initiative (CoST) committed to ensuring the transparency and accountability of publicly funded construction.</td>
</tr>
<tr>
<td>Open Contracting Partnership</td>
<td>An organization pursuing innovative cooperation among existing enterprises, businesses, civil society, and experts in terms of technologies aimed at the transformation of government contracts in order to ensure their transparency and openness.</td>
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<tr>
<td>Open Up</td>
<td>A community of activists committed to popularizing the values of openness in Ukraine.</td>
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<td><strong>Organizations</strong></td>
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<tr>
<td><strong>Anti-Corruption Headquarters</strong></td>
<td>An NGO committed to exposing corrupt schemes, embezzlement of public budgets and community resources, as well as other corrupt practices of government representatives in order to hold them accountable.</td>
</tr>
<tr>
<td><strong>Effective Solutions Agency</strong></td>
<td>An NGO focused on the development of local governance and public procurement, which aims to enhance the level of public control of and influence on decision-making by executive authorities and local government agencies.</td>
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<tr>
<td><strong>Nora</strong></td>
<td>An analytical system in construction, which detects unapparent ties among construction market participants based on open data of the State Architectural and Construction Inspectorate.</td>
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<tr>
<td><strong>All-Ukraine Road Association</strong></td>
<td>An association committed to ensuring innovative development and transparent competition in the road sector in the interests of quality, safety, and comfort.</td>
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<tr>
<td><strong>M.P. Shulgin State Road Research Institute</strong></td>
<td>The leading Ukrainian research institution in matters of road and transport facilities construction, repairs, and maintenance and the primary organization in charge of pricing in the road sector.</td>
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<tr>
<td>Organization</td>
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<tr>
<td>Ministry of Infrastructure of Ukraine</td>
<td>A central execution authority in charge of transportation, the road sector, postal services, and infrastructure.</td>
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<tr>
<td>Our Money project</td>
<td>A journalist project aimed at analyzing the procurement sector in Ukraine.</td>
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<tr>
<td>Against Corruption NGO</td>
<td>A regional-level NGO committed to uniting the efforts of the public toward the development of a civil society, democratic institutions, and effective local governance in Ukraine. Activists of this organization are involved in the CoST Ukraine initiative.</td>
</tr>
<tr>
<td>Trypillia Land NGO</td>
<td>A regional-level NGO committed to improving the local of local governance and monitoring of local government authorities at the local level. Activists of this organization are involved in the CoST Ukraine initiative.</td>
</tr>
<tr>
<td>Eidos Political Studies and Analysis Center</td>
<td>An analytics resource organization committed to uniting the efforts of the public towards the development of a civil society, democratic institutions, and effective local governance in Ukraine.</td>
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# Recommendations

<table>
<thead>
<tr>
<th>Problem</th>
<th>Recommendation</th>
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<tbody>
<tr>
<td>1 Lack of machine-readable data on petitions or complaints relating to</td>
<td>Publish open data with the support of type-based classification of complaints,</td>
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<tr>
<td>infrastructure facilities of the State Road Agency.</td>
<td>traceability of key parameters (date, geography), and status of resolution /</td>
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<td></td>
<td>feedback from the relevant government authorities.</td>
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<td></td>
<td>Put in place a mechanism for the forwarding of complaints about roads that</td>
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<td></td>
<td>are outside the scope of responsibility of the State Road Agency.</td>
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<tr>
<td>2 Lack of information about the results of monitoring of the quality</td>
<td>Publish information about the monitoring of the quality of work performed by</td>
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<tr>
<td>of work performed by the Road Quality Control Research and Engineering</td>
<td>the Road Quality Control Research and Engineering Center in open data format:</td>
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<tr>
<td>Center in open data format.</td>
<td>• an inspection certificate with a list of fields (Road Service, project</td>
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<td></td>
<td>description, contractor, date of entry into operation, warranty period,</td>
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<td></td>
<td>results of monitoring);</td>
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<td>• materials test record.</td>
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<td>Problem</td>
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<tr>
<td>Lack of information about the results of monitoring of infrastructure projects by technical supervision engineers.</td>
<td>Publish logs of technical supervision of construction in open data format, with information about the project supervised, the date of inspection, defects detected, and improvement notices issued.</td>
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<td>Publish certificates of concealed work.</td>
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<tr>
<td>Lack of an integrated ID of an infrastructure project in the Prozorro system, which would unite all existing contracts for work within the scope of a single construction project. This results in the inability to keep track of all procurements relating to the same infrastructure project.</td>
<td>Implement a unique ID (code) for every infrastructure project and all of its competitive procurement components.</td>
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<td>Lack of links between procurement of additional work and the primary competitive bidding process.</td>
<td>Add a field for entering a reference to the primary competitive bidding process in the context of procurement of additional work.</td>
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</tbody>
</table>
**Problem**

6 Lack of high-quality and regularly updated data on spatial coordinates of roads of national importance.

Lack of any data whatsoever on spatial coordinates of roads of local importance, which could be used to create products powered by geographic data and issue technical data sheets of the road infrastructure in order to ensure better tracking and planning of repairs.

7 Lack of tools that would allow users to use data on spatial coordinates of roads for public services.

8 Lack of information on the actual status of completion of contracts for the work phases reflected in Prozorro. The resulting inability to monitor completion time frames and spending for specific kinds of work.

**Recommendation**

Publish data on spatial coordinates:

- with the capability to receive coordinates of an infrastructure facility at intervals of at least 50 meters in the format of a data set;
- in a unified format for all data owners in the fields “Road name”, “Kilometer reference”, “Kind of work”, “Work start and end coordinates”;
- with regular updates after completion of construction, renovation, or repairs of an infrastructure facility.

Connect an API to the “Kilometer+” spatial coordinates system of the State Road Agency, make the system public without a limit on the number of queries to the system.

Propose tools (based on Prozorro or third-party services) for regular publication of information about the progress of repairs.

Publish information about the amount of funds already paid before completion of contract work in Prozorro.
9 Lack of specific data sets on the road infrastructure.

Recommendation

Publish a list of public roads of national importance in open data format, which will include information about the road name, index, length, and region, including the road length in every region.

Publish a list of public roads of local importance in open data format. Ensure updates and administration of data sets to reflect changes in subordination of infrastructure facilities at the local level.

Publish and regularly update the data set “Road Repairs Database” with the involvement of all local government agencies.

Publish and regularly update the data set “Information about spending of public funds on construction, repairs, and renovation of road infrastructure facilities and progress of project implementation”.
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<th>Problem</th>
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<tbody>
<tr>
<td>10 Lack of specific types of documentation that help monitor the progress of work.</td>
<td>Publish a list of routine repairs / construction work completed.</td>
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<tr>
<td>11 Lack of specific types of information that are not published by bidders in procurement processes, which would provide additional tools for public control and more effective monitoring of spending during construction.</td>
<td>Publish the document showing the contractual price.</td>
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<td>Publish contact details of all parties involved in project work.</td>
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<td></td>
<td>Publish the cost of one square meter of the roadbed, excluding additional infrastructure.</td>
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