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<th>Description</th>
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<tbody>
<tr>
<td>SACI</td>
<td>The State Architectural and Construction Inspectorate of Ukraine</td>
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<tr>
<td>SACI Register, the register</td>
<td>The uniform register of documents authorizing pre-construction and construction operations and evidencing acceptance of structurally complete buildings into operation, and of information about documents returned for revision, applications denied, or any documents that have been revoked or annulled</td>
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<tr>
<td>DIM</td>
<td>The State Urban Development Inspectorate</td>
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<tr>
<td>Derzhservisbud</td>
<td>The State Service for Urban Development</td>
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<tr>
<td>MDCT</td>
<td>The Ministry for Development of Communities and Territories</td>
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<td>CMU</td>
<td>The Cabinet of Ministers of Ukraine</td>
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<td>MDT</td>
<td>The Ministry of Digital Transformation</td>
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<tr>
<td>NGO</td>
<td>Non-governmental organization</td>
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<tr>
<td>RC</td>
<td>residential complex</td>
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<tr>
<td>CEO</td>
<td>Chief Executive Officer</td>
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<td>Court Register</td>
<td>The Uniform State Register of Court Rulings</td>
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<td>API</td>
<td>Application Programming Interface</td>
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<td>MoF</td>
<td>The Ministry of Finance of Ukraine</td>
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<tr>
<td>UHI</td>
<td>Utility and Housing Infrastructure</td>
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<tr>
<td>Access Law</td>
<td>the Law on Access to Public Information</td>
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<tr>
<td>KOATUU</td>
<td>Code of the population center per State Classification of Administrative and Territorial Units of Ukraine.</td>
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Introduction

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 aids the monitoring of government agency performance, the improvement of public services, and creation of new tools and services. Dozens of products have been created using open data: online services and analytical modules, applications and chatbots used by millions of people every month.¹

A series of thematic studies focused 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. Measuring the impact of open data is extremely important because it helps assess the performance of public authorities and provides a mechanism for tracking progress over time.

This study focuses on open data from the State Architectural and Construction Inspectorate of Ukraine (SACI). Notably, the SACI Register is the biggest database of new development projects in Ukraine and includes information on all building permits issued since 2012.² Up until December 2019, the register was available on the SACI website in the form of an incomplete web interface. Then, the Register was finally published, in open data format, on the Single State Web Portal of Open Data.³

In this study, the authors examine the value of open data for business owners and the public at large. For example:

- SACI data is the most common tool used by NGOs and journalists to combat violations of urban development laws. Attempts to reform this sector became politically feasible because violations and corruption were exposed using SACI data made public.

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² Official name: “The uniform register of documents authorizing pre-construction and construction operations and evidencing acceptance of structurally complete buildings into operation, and of information about documents returned for revision, denied applications, or any documents that have been revoked or annulled.”
³ https://data.gov.ua/dataset/e626418b-8403-4afa-bf9c-55581cf16f96?filter=all_time
• SACI data helps housing investors avoid investing in risky properties. Monitor.Estate, Bild.ua, and other services supply analytics for this exact purpose.

• Architects and urbanists of the Renovation Map project rely on SACI data to monitor architectural heritage and prevent violations during the renovation of historic buildings.

• The combination of SACI data with the Court Register data in the Sud na Doloni service (literally meaning “a court in the palm of your hand”) enables construction market operators to choose contracting parties and construction projects with due diligence.

• Analyses of SACI data made public helped improve the effectiveness of staff planning at the State Urban Development Inspectorate. It also helped develop forward-looking macroeconomic indicators used by companies to improve their operational planning and decision-making practices.

The authors of this study have collected user recommendations on how to improve access to the data. They include: regular and more frequent register updates, the publication of a wider scope of data at the disposal of SACI, and, the improving access to other data sets that will help unlock the greater potential of SACI data through interoperability; interaction among registers.
Methodology

A wide range of initiatives, aimed at quantifying the readiness, implementation, and impacts of open data exists. It relies on a variety of methods, including expert surveys, data collection, and detailed data evaluation.

To date, two primary aspects to open data studies exist, namely, the quantitative and qualitative. Quantitative approaches (indexes, ratings, etc.) serve to measure the progress of open data policy and compare the results with other countries or benchmarks. This enables an objective assessment of country performance. The issue of impact is secondary in such studies. Normally undertaken on a global scale, Ukraine is also examined within their scope.

Qualitative approaches focus on studying the methods by which data is used and the impact of open data policies. Such studies include case studies of achieved effects, typologies of effects, and other factors contributing to the success of open data projects. A drawback to these approaches is their difficulty in demonstrating 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. The Open Data Impact project involves the analysis of specific, open data application case studies, by way of direct communications with process owners, interviews, governmental document reviews and the mass media.

This study focuses on the SACI Register practices of open data usage with the objective of eliciting the impact open data has on the life of communities, society, and government performance. Direct interviews with individual linked to both the open data and urban development sectors in Ukraine (e.g., managers of services created using open data, former and current SACI employees, and representatives of the general public) form the primary source of information for the study at hand. These individuals handle SACI data directly, are aware of problems associated with Ukraine's construction market, and possess valuable experience developing IT products in Ukraine. The authors have conducted 14 in-depth interviews via teleconference and received two sets of written answers to their questions.

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4 [https://www.stateofopendata.od4d.net/chapters/issues/measurement.html](https://www.stateofopendata.od4d.net/chapters/issues/measurement.html)
5 [https://odin.opendatawatch.com/Report/countryProfile/UKR?appConfigId=5](https://odin.opendatawatch.com/Report/countryProfile/UKR?appConfigId=5) see also [https://opendatabarometer.org/4thedition/detail-country/?_year=2016&indicator=ODB&detail=UKR](https://opendatabarometer.org/4thedition/detail-country/?_year=2016&indicator=ODB&detail=UKR)
The respondents discussed their activities, the practices of SACI data usage in their work, and the challenges they faced. They also offered advice on how to improve SACI data. Information gleaned from the interviews was processed and divided into seven thematic sections grouped by social issues that can be resolved using open data. Every section includes examples of open data usage and accompanying information: a description of data usage and effects achieved.

Notably, the study at hand does not encompass all of the services that use open data from the register. Specifically, the report does not cover: Ring, CityScale, Clarity Project, Nerukhomi, and YouControl.⁶

In conclusion, the report contains recommendations made by the authors and respondents that will foreseeably facilitate the unlocking of the potential of open data in urban development.

⁶ See Ring at: https://ring.org.ua/, City Scale at: https://www.cityscale.com.ua/, Clarity Project at: https://clarity-project.info/dabi, Nerukhomi at: https://nerukhomi.ua, and Youcontrol at: https://youcontrol.com.ua/
Relevant authorities and their powers

The State Architectural and Construction Inspectorate of Ukraine (SACI) was formed in 2011 and was a central executive agency tasked with implementing public policy related to the control and supervision of architectural and construction matters.

Architectural and construction control pertains to measures taken to make operators within the construction market comply with urban development laws, including national building codes and standards. Alongside SACI, architectural and construction control agencies include organizational units and executive bodies from local state administrations. Together, they exercise control by conducting scheduled and unscheduled audits, executing registrations, and issuing permits.

Architectural and construction supervision involves measures aimed at ensuring compliance by the relevant authorities (including the control authorities) with legislative requirements.

SACI used to be wholly responsible for providing architectural and construction supervision. Therefore, it needed to have complete and comprehensive information and insight into the documents supporting the decisions that were made by the controlling authorities. Thus, the SACI Register was created.

Whereas all architectural and construction control authorities make entries in the register, SACI was specifically tasked with its administration. This is how SACI ended up with Ukraine's largest construction and reconstruction project database.

In 2020, the decision to disband SACI was made. Its architectural and construction control and supervision functions were delegated to a new agency; the State Urban Development Inspectorate (DIM). The maintenance of its register was entrusted to yet another agency; the State Service for Urban Development (Derzhservisbud). Meanwhile, the Ministry for Development of Communities and Territories was tasked with making the register public.

This report was written during the period after the decision to disband SACI, but before the register was handed over to Derzhservisbud. Thus, for the purposes of this study, the abbreviation SACI is used to denote a central executive agency tasked with implementing public policy in matters of architectural and construction control and supervision to the extent of the keeping of the register.

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7 https://zakon.rada.gov.ua/laws/show/553-2011-%D0%BF/ed20200318#Text
8 https://zakon.rada.gov.ua/laws/show/698-2015-%D0%BF/ed20170610#Text
9 https://zakon.rada.gov.ua/laws/show/218-2020-%D0%BF#Text
10 https://zakon.rada.gov.ua/laws/show/835-2015-%D0%BF#n1958
Status of Access to SACI Data

Web version of the register

The SACI register was created pursuant to Order No. 92 of the Ministry of Regional Development, Construction, and Housing and Utility Infrastructure of Ukraine dated June 24, 2011. It identifies the purpose of the creation of the register as follows: “In addition to keeping a record of documents, the register is created to ensure transparency, accessibility of information about documents...information about documents returned for revision, rejected applications, or any documents that have been revoked or annulled.” Furthermore the order, stipulates that users are to access the register’s data via the SACI website.

The website’s functionality allows for the display of register entries in HTML format as well as for the filtering of results by region, year, month, type of document, category, and complexity class. The register’s web version does not contain entries related to certain types of documents (i.e. declarations returned for revision and decision to deny permits). Consequently, the register partly fails to serve the purpose for which it was created. Furthermore, the register does not include information about documents revoked or annulled. Its functionality does not even cover entries with the relevant codes. When documents are revoked or annulled, entries are simply erased.

Even though the HTML format is formally machine-readable, much of the information in the register's web version is presented in a manner which complicates machine processing. The register contains only the metadata of SACI documents. In order to receive the text of the permit, one must submit a request for public information to SACI, which takes about five days to process. Despite these shortcomings, many users rely on the web version and use scripts to retrieve information from it automatically.

11 Order No. 92 of the Ministry of Regional Development, Construction, and Housing and Utility Infrastructure of Ukraine dated June 24, 2011 On the Approval of the Procedure for Maintaining a Uniform Register of incoming notices about the beginning of pre-construction and construction operations, registered declarations of the beginning of pre-construction and construction operations, building permits issued, registered declarations of the readiness of a building for operation, and certificates issued, decisions to deny registration of such declarations or deny issuance of such permits and certificates.
12 Ibid.
13 https://dabi.gov.ua/declare/list.php
14 The authors did not find entries on the register’s web version. Their absence from the register’s web version is also corroborated by the SACI Register published in 2019. This information (i.e. declarations returned for revision and decision to deny permits) is published as part of the Transparent SACI platform.
Transparent SACI

In 2018, SACI developed the digital platform Transparent SACI.\(^{15}\) It is an open application review system for medium and high complexity construction projects. The platform contains information about the review of building permit applications, applications requesting changes to building permits, and certificate applications. As with the register's web version, Transparent SACI is also displayed as an HTML table and is updated once a day. However, it does substantially differ from the web version:

- A significant portion of the metadata is unavailable (information about construction project participants, the land lot, etc.).
- It contains links to scanned copies of rejections.
- Information is available since 2018.

Open data

Amendments to the Cabinet of Ministers of Ukraine Decree No. 835, obligating SACI to publish the register in open data format were approved in 2017. In December 2019, SACI published the relevant data set on the Single State Web Portal of Open Data\(^ {16} \) under the auspices of the Ministry of Digital Transformation and the USAID/UK aid project, Transparency and Accountability in Public Administration and Services (TAPAS). The publication of the register in open data format became a milestone in SACI's increased transparency and accountability. The data set in CSV format contains 31 fields, whereas the web version of the register had only 11 fields. As a result, heretofore unavailable data have been published:

- The property's area and number of stories.
- The lot's cadastral number.
- Code of the population center per State Classification of Administrative and Territorial Units of Ukraine (KOATUU).
- The number of author's certificate.
- Details of the expert organization and examiner.

\(^ {15} \) https://dabi.gov.ua/prozora-dabi/
\(^ {16} \) https://data.gov.ua/dataset/e626418b-8403-4afa-bf9c-55581cf16f96?filter=all_time, and: http://tapas.org.ua/
Open data usage scenarios

6.1 Combating violations of urban development laws

⚠️ Problem

The most common violations of urban development laws consist of exceeding the permitted number of stories to be built, and starting construction work without a building permit. According to Monitor.Estate research, 42% of new building developments ensue on undesignated land, 27% take place without building permits. The situation is further complicated by the fact that detecting specific violations requires the analysis of large volumes of data as well as legal expertise in construction and urban development.

😊 Those Affected

City and district communities.

✔️ How open data can help resolve the problem

The SACI Register's open data, and products based on it, facilitate the detection and combatting of construction law violations, including:

1. Missing building permits.

Everybody can use the SACI Register to check for a building permit, locate a new development based on its address, or the cadastral number of the land lot. Should the permit be found to be missing, it is likely that the construction project is to be unlawful.

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18 Monitor.Estate publication dated February 24, 2020. “52% of new developments in Kyiv end up in the high-risk category, according to study findings.”
This information is not representative of all Ukraine, as the project database covers Kyiv, Odesa, Kharkiv, Lviv, and several smaller cities.
19 The address-based property search can be complicated by incorrectly filled out fields of the register. Also, the cadastral number of the lot can be found on the map: https://map.land.gov.ua/
2. Discrepancies between the construction project and permit details.

For instance:

- The number of stories built in a newly constructed building exceeds the number stipulated in the permit (e.g., the permit is for three stories but the actual number of stories is greater).
- The complexity class (CC1, CC2, CC3) which should be based on a selection of property parameters, including floor area, number of stories, etc.) is incorrect.
- The work phase for which the permit has been issued does not coincide with the facts on the ground (e.g., a permit is issued for the start of pre-construction work, where in actuality, primary construction work is already underway). 20

3. Discrepancies between the permit and the designated purpose of the land lot.

The issuance of an unlawful permit which contravenes the land lot’s designated purpose (e.g., a permit is issued for the construction of a residential complex on a land lot designated for horticultural purposes.

4. Post factum legalization of unlawful construction projects.

A common practice exists in Ukraine whereby a building permit is obtained after it has been constructed rather than before. As a result, the building permit is obtained almost concurrently with the operating permit. Data from the SACI Register enables time span analysis by showing the formal date of commencement of the construction works and the date property was made operational. 21 The post factum legalization of unlawful construction projects can be revealed by a suspiciously short time frame between the issuance of the aforementioned permits.

It is noteworthy that Mind.ua journalists have authored an insightful article describing violations of construction laws at various construction stages. 22

21 Example: the notice of commencement of construction work and the declaration of readiness of the residential building for operation were submitted in the space of one month (March 2020): https://petrimazepa.com/volodar_metriv_tri_vezhi
22 Brazen Construction: How to Construct an Apartment Building and Violate all Codes and Regulations in the Process, see: https://mind.ua/publications/20206454-zhk-zuhvalobud-yak-zvesti-bagatopoverhivku-z-porushhennyam-usih-norm-i-pravil
Public participation in detecting unlawful construction projects

Researcher and activist Heorhiy Mohylnyi took an interest in unlawful construction projects in 2012. His new-found interest was provoked by scandalous construction projects being realized by Ukogroup; a company owned by Oleksandr Voytsekhovsky. Fighting unlawful construction projects has become Heorhiy’s hobby of sorts: Daily, he scrutinizes new building permits and rejections and offers advice to journalists and local communities affected by unlawful development. Nashi Hroshi (Our Money) and bihus.info are among the media organizations cooperating with Heorhiy. His efforts continue elucidating numerous urban development law violations. This notwithstanding, Heorhiy asserts positive changes are scarce as a result of corruption and conflicts of interest in the law enforcement.

“As long as all law enforcement agencies are able to act as construction project owners and build unlawful properties, it is theoretically impossible to restore order.”

Heorhiy Mohylnyi

The so-called “Bilozir Building” is among the most controversial examples of Mohylnyi’s work. In 2019, he drew media attention to a construction project which violated requirements pertaining to the number of stories permitted to be built at 2/1 Myrna Street in Kyiv. The project owner filed a notification of the construction of a complexity class CC1 building. The CC1 class is extended to the construction of residential buildings up to four stories high. However, in the meantime, six stories had already been constructed. With such glaring violations of the law, the construction project captured the interest of journalists, the public as well as government representatives.

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Following a statement filed by one of the Kyiv City Hall members, the national police initiated criminal proceedings. Then, in 2020 SACI, under public pressure, revoked its registration of the notice of commencement of construction work as well as the registration of the declaration of operationality. Despite the positive shifts, the lien imposed on the property was successfully contested and lifted, and the litigation of this case is ongoing.25

The story of the “Bilozir Building” illustrates how open data from the SACI Register helped draw public and political attention to the problem. Although this case remains unsolved, it highlighted the issue of construction violations, provoking a public and political discussion addressing the need to address the problem.

**Urbandata website and Dabibot chat bot**

Yuri Brykalo is a lawyer specialized in land and urban development law. Instead of writing queries and processing heaps of paperwork, he wanted a convenient tool that would provide relevant information about a construction project with a just a click of the mouse. The Urbandata project, developed in 2019, was meant to automate his daily workflows. The service originally operated as the Dabibot chat bot, and then the urban.online website went online in March 2020.

The service provides the possibility of finding building permits for any property; based on its address, cadastral number of the land lot, permit number, and other parameters. Yet unpublished data, (e.g., scanned copies of contracts, texts of specific urban development conditions and restrictions and others) can be obtained by filling out an automatic request for public information configured on the site.

While using SACI data, Yuri found that certain register entries could vanish without a trace or contrarily, appear several years after they were first created. For this reason, the service launched its own database of permits, which is being continuously compared with officially published data. Yuri created a “Back to the Future” module which allows one to track down changes made post factum to the public section of the SACI Register as well as document mistakes and violations committed while maintaining the register.

Its first users were SACI inspectors and local government representatives. They checked the legality of construction projects by using the chat bot. The service was found to be particularly useful when access to the public section of the register was unavailable for technical reasons.

Yet, its main target audience remains activists and journalists committed to detecting violations. Market operators such as architects and technical supervision specialists also use the service to verify that their certificates are not being used in construction projects in which they are not involved.

The chat bot processed over 50,000 queries from 2,500 users in the space of six months. The Urbandata website currently caters to between 5000 and 6000 monthly visitors.

"Look at this fence, it is marked with the subway logo. Network repairs are in progress. Yet, a building permit for a shopping mall was issued for this site 10 months ago. In other words, the open nature of such data allows one to check whether a construction project is lawful or not. It is common practice here to conceal information, keep a low profile for some time, and then build something quickly."

Yuri Brykalo
Impact of SACI open data on the resolution of problems involving violations of urban development laws

The publication of information about SACI activities and expansion of the scope of published data increases the agency’s transparency and accountability. Numerous instances of construction projects found to have no permits or showing signs of unlawfulness sparked the reform of this sector; legislative improvements, the launching of e-services, and reorganization of government agencies in this sector.

Furthermore, the opening of SACI data and their use to rectify violations of urban development laws had the following effects:

Social mobilization

The detected violations are covered by the mass media, contributing to greater public awareness about problems in this sector. In turn, social mobilization manifests in protests, criticism of the actions of SACI and construction project owners. An additional manifestation of social mobilization is seen by community members self-organizing into groups to defend their rights. They either operate online or exist as NGOs (Mykilska Slobidka NGO, Committee to Fight Unlawful Development NGO, Osokorky Ecopark NGO).

Improved governance

The aforementioned public activities generate political pressure forcing politicians to take steps to reform the sector. A good example of this is the creation of the electronic cabinet for real estate developers. Automated services from eCabinet will subsequently be provided via the DIIA [“Action”] portal. Olena Shulyak, Member of Parliament and Deputy Chair of the Parliamentary Committee on the Organization of National Government, Local Self-Government, Regional Development and Urban Planning, notes it was created specifically to combat unlawful construction projects. The online account serves the dual purpose of ensuring transparency in construction and providing better public services to market operators.

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Any questionable decision is no longer on paper, locked away in a drawer in a public servant’s office. It is now on the surface... If the declarations were submitted in hard copy format, we would still know nothing about the real state of affairs.²⁹

Olena Shuliak

Another example of how public demand forces government agencies to take steps to rectify the violations can be found in the case of an apartment building which was torn down over violations of the law in Lviv in 2019.³⁰ However, there are other well-known cases of court orders to tear down unlawfully constructed properties not being complied with to this day.

Fighting corruption

Information about potential construction violations that goes public serves as grounds for criminal cases. Numerous criminal proceedings have been initiated through the efforts of respondents in this study.

Raising awareness about real estate investment risks

⚠ Problem

Annually, 70,000 to 90,000 real estate purchase contracts are signed in Ukraine's new construction market. Investors often lack complete information about the risks that may arise during construction. Whereas a significant number of new construction development is accompanied by violations of urban development laws, construction projects risk either being suspended or rendered inadmissible for being registered as operational. Another common risk involves the possibility of developers cutting off funding to their construction projects, rendering investors unable to recover their funds or receive apartments promised to them for years on end. This is exactly what happened to investors of the Elita-Center in 2006, Ukogroup in 2015, and Ukrbud in 2019.

😊 Those Affected

Buyers of real estate in the new construction market and investors of construction projects in progress.

✅ How open data can help resolve the problem

A majority of risks linked to real estate investment can be avoided by having access to information about construction project participants and building permits. The SACI Register's open data can help create products that allow users to receive or verify relevant information on immovable property.

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31 According to the State Statistics Service, 88,245 apartments in condominiums were rendered operational in 2019 vs. 76,587 apartments in 2018.
Monitor.Estate: Online legal due diligence of immovable properties

In 2018, Volodymyr Kopot, a lawyer, and Oleksandr Radzishevskyi, IT specialist created the Monitor.Estate service. The launch was preceded by an ambitious goal: to create a product that would replace lawyers in the housing real estate sector.

Monitor.Estate currently generates automated legal due diligence reports on immovable properties and construction project participants using the SACI Register’s open data. Such reports help investors learn about the status of building permits, contractor licensing, standing land management violations, litigation against construction project participants, as well as information about developers’ other construction projects. The most fastidious users are offered online consultations with a lawyer, who will clarify all risks and recommend ways of mitigating them.

The service originally analyzed risks associated with new construction developments in Kyiv. After winning the Open Data Challenge competition and securing additional funding, the project expanded to include other Ukrainian cities: Dnipro, Lviv, Kharkiv, Odesa, Zhytomyr, Drohobych as well as towns and villages within a 30-kilometer radius around Kyiv. It currently contains information on over 1,100 immovable properties.

This service also promotes the development of best due diligence practices in construction. A study of risk levels associated with new construction developments in Kyiv is published biannually. The authors also have a YouTube channel explaining the common risks and mistakes that housing buyers make. The Monitor.Estate website receives approximately 4,000 unique visitors per month.

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32 Monitor.Estate publication dated February 24, 2020. “52% of new developments in Kyiv end up in the high-risk category, according to study findings.” This information is not representative of all Ukraine, as the project database covers Kyiv, Odesa, Kharkiv, Lviv, and several smaller cities. 
33 https://www.youtube.com/c/MonitorEstate/videos
The ultimate goal is ensuring fewer buyers get duped, so that everybody would buy housing in lawful new developments.

Volodymyr Kopot

Mind.ua journalists used data from the Monitor.Estate service to prepare an analytical report on the legal challenges of new construction developments in Kyiv. According to their findings, 71 residential complexes in the capital city are being built without building permits; 118 construction project participants owe past-due taxes to budgets at various levels; 201 new construction sites occupy or occupied land not designated for construction; almost one half of 585 developers are named in criminal cases. The Mind.ua report helped over 22,000 readers learn about risks associated with specific new construction developments.

Bild.ua resource for ranking the reliability of new developments

Created in 2019 by real estate expert Vitaliy Kotenko, the Bild.ua resource encourages users to verify the reliability of the developer and assess risks prior to investing in real estate. To this end, Bild.ua experts analyze new development projects and compile a ranking of the safest properties in the country.

For assessment purposes, the authors came up with the concept of the New Construction Reliability Index. It is a calculated indicator obtained by analyzing 40 parameters used to assess the risks of a new development project. Some of them are formed using open data from the SACI Register, while others are a product of the experts’ own research and user feedback. Each new development project receives a score based on every parameter the sum of which produces the index as a 220-point indicator of project reliability.

New development projects are able to receive the highest scores for compliance with the designated and functional purposes of land, ownership of land by the construction project owner, absence of liens, availability of a notice about the commencement of construction work or a building permit. If the construction project owner has other, delayed construction projects or properties whose entry into operation has been delayed, the score decreases.

For visualization purposes, each property is assigned a shield of one of three colors: green is awarded to lawful, new development projects run by a reliable developer; yellow is given to those development projects associated with some problems requiring a review of the report details; red is assigned to problem-ridden projects amounting to a risky purchase.

According to expert Bild.ua assessments, in October 2019 only 4% of construction projects in Kyiv received the green shield while one in five new development projects in the capital city (18.6%) was assigned a red shield.35

The majority of properties are marked with a yellow shield. For a fee, users are able to access detailed reports on every new development project and learn about their problematic aspects. The report includes the texts of permits, urban development conditions, and other available documents.

As of July 2020, Bild.ua had already evaluated 917 new development projects in Ukraine and is currently analyzing over 2,000 more. The site attracts 90,000 monthly visitors.

“On a global scale, our project is a step towards a more democratic and less corrupt state, since we do not receive money from developers but merely operate on facts that can be corroborated with official data.”

Vitaliy Kotenko

35 https://ain.ua/2019/10/21/kak-vybrat-zastrojshhika-i-ne-popast-v-ruki-moshennikov/
Other examples of the use of the SACI Register’s open data use

Monitor.Estate and Bild.ua are only a part of the transparency ecosystem being created within Ukraine’s new construction market. Lun.ua, among the largest real estate websites, offers users manually collected information on building permits and summaries drafted by lawyers. The blog “Good Places to Live in Kyiv” prepares critical materials about new residential complexes based on data from the SACI Register and the State Land Cadaster.

Impact of SACI open data on the knowledge of real estate buyers and investors

Access to complete information about new development projects enables investors and purchasers to make informed decisions. They are able to choose for immovable properties with the least risk exposure, projects that comply with all requirements of good urban development practices. Greater public awareness will lower demand for risky investments in turn driving construction project owners to abide by urban development laws.
New opportunities for the analysis of judicial disputes in construction

⚠️ Problem

A lack of access to complete information on development projects is a problem in Ukraine. Annually, between 70,000 and 90,000 real estate purchase contracts in the new construction market are signed.36 An additional 69,000 to 114,000 building permits are registered annually.37 Frequently, investors purchase real estate without possessing full information about the construction project and its owners. As a result, they often end up handing money over to companies with bad track records caught up in litigation. They may buy apartments in new developments whose lawfulness is the subject of ongoing litigation. Problematic for construction project owners is the lack of information related to ongoing litigation involving expert and technical organizations. Furthermore, the complexity of keeping track of the initiation and process of annulling a building permit is problematic for both the project owners and investors.

😊 Those Affected

Buyers and real estate investors, other construction market operators.

✅ How open data can help resolve the problem

Owing to the combination of data from the SACI Register and the Uniform State Register of Court Rulings (Court Register),38 users can look up information about any court cases, their outcomes and decisions affecting specific individuals, construction projects, land lots, etc. The user-friendly and effective data search was made possible owing to dedicated services developed on the basis of these registers.

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36 According to the State Statistics Service, 88,245 apartments in condominiums were accepted into operation in 2019 vs. 76,587 apartments in 2018.
37 According to data from the SACI Register
38 https://data.gov.ua/dataset/af3b8bd7-4d50-4837-b3db-28545f43169d
Open data usage examples

“Sud na Doloni” — analysis of court rulings with just a few clicks

The Sud na Doloni service (literally meaning “a court in the palm of your hand”) was launched in 2018 by lawyers Kyrylo Zakharov and Olha Buhai. The online service offers a quick and convenient way to find and analyze court decisions, particularly those relating to the construction industry. The project audience numbers close to 200,000 users.

A common example of the service at work is a search for court cases containing a specific legislative provision with a reference to a particular article, or a search for cases against specific legal entities.

Owing to open data from the SACI Register, users can find construction project owners or IDs of developments. The ID is a code of a land lot or address and, following the launch of the Single State Electronic Service in Construction, the unique ID of the construction project. With this ID, the user can use the Sud na Doloni tools to detect relevant court cases pertaining to a land lot, a property or a construction project participant. The outcomes or stages of cases (form of judicial document, form of administration of justice, public / classified cases) and legal precedents based on similar court disputes are also available.

Project authors have plans to launch a separate dedicated functionality for the needs of the construction market. The upcoming product version will include automated filters for data from the SACI Register, statistical analysis (e.g., based on the territorial agency of the inspectorate tasked with the controlling function). Apart from interacting with end users via the web interface, Sud na Doloni grants other market operators access to Court Register data via an application programming interface (API). This enables services to automatically retrieve and publish information about court cases involving construction market operators or projects.

39 https://conp.com.ua/
Other examples of usage of open data from the SACI Register

There are numerous other projects in Ukraine that are also tackling the problem of limited availability of court data. For example, the Monitor.Estate service provides information about court cases against developers in paid reports and via legal consultations. The lun.ua website offers information about court cases involving residential complexes. The NORA analytical service provides information about court cases against market operators (owners, designers, contractors, etc.) using the API of the Sud na Doloni project.

Impact of SACI open data on greater availability of judicial data

Cost savings for new product development

Owing to the API of the Sud na Doloni project, other projects are able to integrate its deliverables, thereby avoiding the cost of development of their own similar solutions for managing court data. The various tools that are available contribute to greater availability of information about court cases against new developments and construction project participants. This in turn improves market transparency and creates reputation risks for parties to court disputes.

Protection against risky investments and partnerships in construction

The availability of court data helps investors and real estate buyers make more informed decisions. This information can be helpful both at the time when the decision to invest is made and when tracking the reliability of the investment and predictability of the progress of construction. Another example involves background checks of contracting parties in the construction market by business owners.
When deciding to cooperate with a contracting party or work at a construction site, a company should mind the risks that may arise such as bankruptcy, insolvency, or the risk of getting named as a party to a criminal case. Questionable construction projects are often run by seemingly “clean” fly-by-night companies. However, field and technical supervision of such projects is carried out by certified entities whose reputation can be verified. For example, their involvement in other construction projects can be tracked using the SACI Register, and information about any court cases involving such projects can be looked up in the Court Register. Any ongoing criminal cases or commercial lawsuits seeking to recover payment for services make it possible to predict any systemic problems experienced by a developer.

Such background checks can be automated with the help of a combination of analytical data from the SACI Register in the NORA service and information from the Court Register received via the API of Sud na Doloni, for example. The user can pick a construction project and access the litigation history of all construction project participants and their ties with a just a click.

According to the most recent amendments to the Law on Regulation of the Urban Development Sector, permits will be revoked by courts only. Under such conditions, the ability to keep track of court cases relating to their properties will enable project owners monitor the initiation of the permit revocation process in real time.
Optimization and effective planning of State Urban Development Inspectorate workflows

⚠️ Problem

The reform of the architectural and construction control system calls for disbanding the SACI and creating three separate agencies, including the State Urban Development Inspectorate (DIM). The new agency will ensure supervision and control over urban development operations. To this end, it will require a staff of inspectors at the central headquarters and at eight regional offices. In May 2020, the chairman of the newly formed DIM proposed on his Facebook page a staff list for the eight regional offices numbering 570 staff members. This allocation attracted public attention, particularly that of NORA analytical service founder Oleksandr Tereshchenko, since an almost identical staff list had been planned for all DIM offices: 70 to 75 staff members. The plan failed to consider the actual workload of inspectors in different regions, which directly depends on the number and scale of construction projects. For this very reason, a proper allocation of human resources and, accordingly, budgets among regions is of crucial importance.

😊 Those Affected

Taxpayers and urban development entities.

✔️ How open data can help resolve the problem

Access to open data from the SACI Register allows for the calculation of the correct allocation of human resources to newly formed regional agencies, considering the number of immovable properties, their scale, and complexity class.

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44 Except for the western and central interregional headquarters, for which 75 staff members had been planned.
The NORA project’s contribution to the effective regional allocation of DIM inspectors

With the aid of SACI open data, specifically the number of class CC2 and CC3 properties and their gross floor area, Oleksandr Tereshchenko, Founder NORA Project, was able to calculate the required DIM staff list. Depending on the region being considered, his calculations diverge from the proposed staffing plan anywhere between 10% to 142%. A subsequent discussion revealed that the proposal based on NORA data also had its shortcomings, namely: it failed to consider each regional office's administrative personnel requirements (about 30% of the staff list), the existence of local architectural and construction control authorities in certain regions, the problematic nature of some properties, and others.

After lengthy discussions between the representatives of state authorities and the public, the staff list was adjusted in favor of NORA recommendations after the factoring in of other important official data.

45 https://nora.in.ua/udoskonalenna-uryadu-z-veedkritimi-danimi-u-sferee-meestobuduvannya-ukrayini
## Comparison of DIM regional office staff list

<table>
<thead>
<tr>
<th>Region</th>
<th>Preliminary Allocation</th>
<th>NORA Allocation</th>
<th>Final Allocation</th>
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<tbody>
<tr>
<td>Western</td>
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<td>65</td>
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</tr>
<tr>
<td>Central-western</td>
<td>52</td>
<td>70</td>
<td>65</td>
</tr>
</tbody>
</table>
Impact of SACI open data on the performance of authorities in urban development

Improved governance

The open data policy of government agencies, and the willingness of government representatives to engage in dialog led to the fact that business owners and the public are now able to critically assess the authorities’ efforts and use actual data to submit recommendations on improving their performance.

Cooperation with the NORA project helped the newly formed DIM optimize its workflows by reallocating employees to those regional offices with the greatest need (the Southwestern and Central offices). This helped prevent 35 employees at slower offices from going idle and led to an annual saving UAH 5 million of taxpayer funds.\textsuperscript{46} It also ensured a more uniform workload distribution among DIM inspectors.

\textsuperscript{46} Assuming budget outlays for the monthly salary of each inspector in the amount of UAH 12,000.
The Development of macroeconomic indicators for construction market forecasts

⚠️ Problem

Ukraine's construction market is estimated at UAH 182 billion. With an estimated 73,000 professional market operators (contractors, designers, field and technical supervisors), the industry employs close to 650,000 individuals. This notwithstanding, business owners and investors do not have a clear national forecast for construction market growth, or the condition of the economy as a whole. Both would enable them to better plan their operations.

❓ Those Affected

Manufacturers of construction materials, construction project participants (contractors, designers, and others.), furniture manufacturers, representatives of other industries dependent on the construction sector.

✅ How open data can help resolve the problem

On a global scale, new construction indicators are key macroeconomic metrics that reflect the status of specific industries (construction, manufacturing, financial services) and the economy in general. Eurostat publishes an index of building permits. The US Bureau of the Census publishes the data of building permit and the start of new construction surveys.

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48 An indicator calculated by authors of this study, which factors in the number of certified field and technical supervisors as well as design firms and building contractors in the register of permits for 2013-2020. See also: http://www.ukrstat.gov.ua/operativ/operativ2014/rp/zn_ed/zn_ed_u/zn_ed_2013_u.htm
50 https://catalog.data.gov/dataset/building-permits-survey
The US developed a forward-looking building permits indicator. It is one of the four indicators that all economies of the world have their eyes on. This indicator has been calculated since the 1960s. As a forward-looking indicator, it warns in advance when an economic crisis is looming.

Oleksandr Tereshchenko

Since 2018, the State Statistics Service of Ukraine has been publishing SACI data on the launching of new construction projects. The indicators include, inter alia: the overall floor area of residential buildings by type; the overall floor area of commercial buildings by type, and the number of apartments in condominiums by type.

Markedly, its data is accompanied by a number of shortcomings which necessitate more flexible tools for construction market forecasts:

- The data are published quarterly, despite being collected more frequently.
- The data are presented for Ukraine as a whole, without being broken down regionally.
- Monthly statistics on construction projects, broken down by property category do not exist. Only consolidated information about square meterage is presented quarterly.
- The Law on State Statistics prohibits the disclosure of specific indicators due to considerations of confidentiality of statistical data. This poses the risk of certain aspects of statistics remaining off-limits to the public.\textsuperscript{51}

According to an expert with one of the Big Four companies, who wished to remain anonymous, the real estate market in Ukraine is highly nontransparent. Official statistics are unavailable. The bulk of information is not derived from official state statistics. Rather, it represents data collected by companies themselves or disparate data from reports authored by international or local consultants that need to be imported, aggregated, and analyzed.

\textsuperscript{51} For example, the indicator “Gross floor area of residential buildings at the start of construction” for apartment buildings with single-bedroom apartments was not disclosed in the 1st quarter of 2020 for reasons of confidentiality of statistical data.
Open data usage examples

Ukraine Building Permits and Index Nora indicators

Recognizing businesses require reliable and insightful construction market development indicators, particularly in the face of a volatile macroeconomic situation, the NORA analytical service developed two indicators, the Ukraine Building Permits and Index Nora by using SACI data on permits to launch construction projects.\(^5\)

Ukraine Building Permits is a forward-looking macroeconomic indicator that shows the number of permits issued to construct new residential properties in Ukraine.

This indicator reflects the condition of the real estate market and the economy as a whole. For instance, an increase in this indicator reflects a growing number of new construction developments and building permits, higher spending by new homeowners on furniture and services of the housing and utility infrastructure. Each of these factors is linked to higher living standards among the population and favorable trends in the national economy.

“Ukraine Building Permits is a free indicator designed to help all users understand economic growth. Risks increase when global indicators are overlooked. For example, you could open a production line only to find there is no market for your product.”

_Oleksandr Tereshchenko_

\(^5\) NORA researches the demand of construction projects for services and materials and sells aggregated information to market operators that use such data to formulate their business growth strategies and find new projects for their goods and services.
The NORA service used data from the SACI website and filtered out building permits specifically issued for residential buildings containing words such as “residential”, “garden”, and “apartment building” in their names. Once the data set is been published on the data.gov.ua website, it becomes much easier to calculate the indicators owing to the availability of the DK 018-2000 code which encodes property type.

Nevertheless, Ukraine Building Permits was unable to resolve the question of market comparisons between different cities. The NORA Analytical Service team devised Index Nora after the SACI data set, with codes of population centers per State Classification of Administrative and Territorial Units of Ukraine (KOATUU), was published on the data.gov.ua website. Its publication compares growth trends of cities with different population sizes and even with the growth trends of different countries.

**Index Nora** is a monthly indicator that shows the annual number of building permits issued for residential buildings/1,000 inhabitants. The indicator is relative and demonstrates construction activity in a population center taking its size into consideration. It can be calculated for the entire country and for separate population centers. For example, the average Index Nora for Ukraine is one property per 1,000 inhabitants whereas in the United States this average index is four properties per 1,000 inhabitants. Notably, the indicators for some Ukrainian cities can be even higher than those for the US. As a result, the investment attractiveness of such population centers can promote additional investments and new job creation.

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53 [https://nora.in.ua/building-permits-usa-building-permits-ukraine-may-2020](https://nora.in.ua/building-permits-usa-building-permits-ukraine-may-2020)
Impact of SACI open data on forecasting the construction market situation

Informed decision making

SACI open data can be used by companies to plan their operations in the medium term. For example, a concrete producer can scale up production in the face of a growing number of new developments, while a chain of furniture stores may scale down a regional sales office when construction activity in the population center declines.

International companies can also consider these indicators when deciding to open permanent establishments in Ukraine or deciding on the amount of funding.

The information will also be useful for local authorities planning utility and housing infrastructure capacity and providing public services. For example, rising construction activity on the outskirts of Kyiv points to pent-up demand for medical and social services, the probable need to improve power grids, relieve the load on the road infrastructure, etc.

The Ukraine Building Permits and Index Nora indicators, created using open data from the SACI Register, are on the list of e-solutions and data for territorial communities and regions.54

54 https://cid.center/e-solutions/ ("Investment Analytics" section)
Monitoring the condition of historic and architectural heritage buildings

⚠️ Problem

Hundreds of abandoned historic buildings and architectural landmarks are gradually decaying in Ukrainian cities. Such buildings often go unused or get destroyed. Others are defaced by incompetent renovation. According to estimates of the Renovation Map project, there are 500 to 600 abandoned buildings in Kyiv alone. However, the current scale of the problem is unknown as there is no single database of such buildings.

😊 Those Affected

Residents of population centers, building owners, the state, administration of population centers, private owners.

✅ How open data can help resolve the problem

The problem of dilapidating historic buildings and architectural landmarks is caused by a number of factors:

- Limited budgets of their owners, i.e. local administrations, the state, utilities, and state-owned companies. The renovation, or even preservation, of buildings requires substantial investments their owners are often unable to afford.
- Lack of clear prospects. Business owners may be interested in renovating and using the buildings. However, up-to-date information on the buildings is deficient.
- Lack of accountability and political will. Abandoned buildings are often non-core assets and are ineffectively managed.
- A weak protection system for historic and architectural heritage buildings. Not all buildings deserving to be preserved have been included in landmark registries. Building usage is not monitored, which is why the problem of abandoned buildings is not addressed systematically. The deterioration of such buildings can go unnoticed for years.
No access to up-to-date information on the status of the buildings. Oftentimes, the community learns that a building's protected status was stripped only after it has been destroyed or damaged. The aforementioned factors can be eliminated by identifying building owners and the individuals responsible for them, drawing the public's attention to the situation surrounding the building, and devising economically feasible plans for putting such buildings to good use. Data from the SACI Register helps keep track of the issuance of permits to renovate historic buildings. Information about the title is contained in the register of real rights to property. Other data sources include archival designs of buildings, cultural heritage registers, and others.55

Open data usage examples

The Renovation Map – an architectural heritage monitoring tool

Architect Darya Korba took an interest in abandoned buildings in the capital city during one of her strolls through the Podil District. Upon discovering that information about such buildings is not collected or systematized anywhere, she and her friends decided to document the city's abandoned buildings, their owners, any existing legal collisions, and showed all of this information on a map. This is how the Renovation Map project came to be. It combines all the available information about abandoned buildings on a single map: their location, condition, history, ownership structure, permits, and work restrictions. Users such as activists and concerned citizens now have a powerful analytical tool that enables them to identify the people responsible and channel public and political pressure toward the rescue of these buildings.

“Buildings do not become abandoned all by themselves. One of our goals was to understand why this happened: who they belonged to, their condition is, and what legal collisions exist in respect of these buildings.”

Darya Korba

The project hired a large team of architects and software engineers after winning the Open Data Challenge in 2019. In little more than a year, Renovation Map compiled a complete database of abandoned buildings in Kyiv’s Shevchenkovsky District, which numbers over 200 properties. The renovationmap.org website was launched in September 2020. Subsequent plans include expanding the project reach to other districts of Kyiv and cities of Ukraine. The website offers functionality that helps coordinate citizens around problematic buildings. New properties will be registered in the future via a chat bot.

After assembling the complete package of data about buildings, including designs, Renovation Map will offer business owners and stakeholders analytical data on abandoned immovable properties tailored to their search parameters, and come up with project proposals regarding their renovation and revitalization for current owners.

Impact of SACI open data on the preservation of historic and architectural heritage buildings

The Protection of historic buildings and architectural heritage

Even at the inception stage of Renovation Map, the project team managed to preserve several architectural landmarks in Kyiv. For example, the team noticed dimensional changes made during renovation of a building in their database. Monitoring of SACI permits revealed that the only available document was a declaration of the start of construction, whereas legal due diligence of the project confirmed that a special permit had to be obtained for this building. Renovation Map went public with this information and engaged parliament member Hanna Bondar. She used the parliament member’s inquiry mechanism to compel SACI to pay attention to violations of the law. The declaration was annulled and the unlawful renovation project was suspended. However, the fight continues as the construction project owners have registered another declaration and are attempting to resume work.

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56 10 Yaroslaviv Val Street, Kyiv
Owing to a timely preparation of registration documents and the involvement of the Ministry of Culture of Ukraine (which granted the next building in question protected status), the team managed to rescue yet another historic building from being demolished. The protected status enabled a group of activists to win a lawsuit against the construction project owner who was planning to build a mall at the site of the building.

Social mobilization and improved governance

Renovation Map plans to draw public attention to the protection of architectural heritage by visually demonstrating the problems of abandoned historic buildings in Ukrainian cities.

"With the help of our site, journalists will be able to inform a broader audience about the problem by relying on formal documents. Instead of simply saying that there are 20 abandoned cultural heritage buildings, they will be able to tell who they belong to and what officials are involved."

Darya Korba

The project website is expected to become a platform that will rally people around a specific building. They will be able to monitor its status and act jointly to protect or renovate it. A team of lawyers is simultaneously processing the available information and drafting a package of legislative amendments that will resolve common legal collisions surrounding historical buildings.

58 2 Khoryva Street, Kyiv
59 Court Ruling No. 87990162 dated March 3, 2020, in Case No. 826/10888/18
Creation of economic opportunities

By offering analytics and expert advice, the project team plans on acting as a liaison between the owners of abandoned buildings and business owners interested in using them. Plans and drawings of buildings needed to develop any building retrofitting plans will also be available. There is also an ongoing project piloting this type of cooperation in respect of a building in Kyiv which is reflected on the balance sheet of a Kyiv utility company but remains vacant. Thus far, the project team has managed to initiate building conservation. For the potential investor, this move will win time to devise a building usage plan and negotiate with the owner.

60 22 Reytarska Street, Kyiv
Achieving greater transparency and accountability for SACI operations

⚠️ Problem

The lack of access to SACI Register information in open data format complicates the detection of abuse and problems related to the maintenance of the register. As of May 30, 2020, the register contained 1,314,901 entries. However, many entries are incomplete, contain errors or even false information (e.g., registration of technical supervisors or chief engineers who were not involved in the construction project in any capacity). Meanwhile, 73,000 professional construction market operators (building contractors, designers as well as field and technical supervisors) require high-quality and trustworthy information.

🤔 Those Affected

Construction market participants and communities.

✅ How open data can help resolve the problem

At times, government agency websites limit the scope of the available register data. Such cases make it difficult for the user to assess problems related to the register’s maintenance or abuse by the register administrator. Such problems become apparent when information is published in open data format. This is exactly what happened when the SACI Register was published in 2019.

[61](https://data.gov.ua/dataset/e626418b-8403-4afa-bf9c-55581cf16f96)
Open data usage examples

Discovery of special notations in the SACI Register

While making the SACI Register public, representatives of the Ministry of Digital Transformation of Ukraine discovered process notations (such as “Ne otpravlyat” [“Do not send”]) which indicated the register may be misused.62

“... I heard lots of legends about this register. But trust me, what we saw while making the data public exceeded all of the worst rumors. The poor condition of data, obvious traces of data getting overwritten multiple times, attempts to conceal data... All of this was accompanied by very interesting comments made directly in the register... Would you guess the intention of the previous administrators of this service, who made the ‘do not send’ notations?63

Mykhailo Fedorov
Deputy Prime Minister – Minister of Digital Transformation of Ukraine

When the SACI Register went public, researchers and users began analyzing the construction market. Persistent problems related to incorrectly filled out register fields were detected owing to data availability and machine readability. Specifically:

• Missing Information about the code of the field supervision certificate.
• Missing information about the dates of permits issued.
• Incorrectly filled out date fields (some data are dated to years “201”, “202”, “2021”, etc.).

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62 Translation from Russian: “Do not send”
● Incorrectly noted floor area fields (e.g., there is one entry with a building floor area of 999,999 square meters in an elevator shaft retrofitting project).
● Missing unique IDs of entities (e.g., in the case of individual entrepreneurs this makes it impossible to differentiate between people with the same names). Some contractors are registered as an individual (e.g., an individual performed road repairs).
● Inconsistencies in the manner in which the field of the cadastral number of land lots are filled out (e.g., it is impossible to separate cases when data were not entered as being unavailable from cases when data were not entered by mistake).
● Contractor fields were filled out with outdated or false information.

Impact of open data on greater transparency and accountability of SACI

Update of the urban development reform

The process of opening the SACI Register data exposed problems involving poor register maintenance practices and exposed corruption factors related to SACI. This provoked major discussions among the mass media, the public, and government representatives, prompting efforts to combat corruption in the construction industry.

One of the first actions towards reform was the disbandment of SACI and creation of three separate agencies: The State Service for Urban Development, the State Technical Regulation Agency, and the State Urban Development Inspectorate. This was done to separate the permit issuance, controlling, and regulatory functions in the urban development sector.

Detection and correction of shortcomings in the maintenance of the SACI Register

An outcome of the SACI Register being available in open data format was that market operators detected flaws in the register's maintenance and started demanding their rectification. For example, introducing the field supervision certificate code to the register caused users to collect codes and update the register. This, in turn, simplified the identification of people responsible for the field supervision of construction projects. Prior to the register being published in open data format, this sort of identification was hindered by typos in the names of individuals as well as those with identical surnames.
Detection and correction of false information in the SACI Register

The problem of false information about construction project participants entered in the register also became increasingly public and noticeable. According to Serhiy Tiutiunyk, Director of the Institute for Design and Building Expert Examinations, (a Clarity Project service user), he personally witnessed multiple instances in which his subordinates were registered as technical supervisors or chief engineers in construction projects to which they were in no way connected.

Currently, Serhiy Tiutiunyk and his colleagues search the names of individuals in the SACI Register using the Clarity Project (a functionality developed after the register was published in open data format). It is extremely important to perform such checks because technical supervisors face criminal liability for providing quality assertions and thereby approving sub-standard construction projects.

NORA analytical service CEO, Oleksandr Tereshchenko, received multiple client requests to have their status checked at various construction sites. One such individual, Olena Slepova, who had been away from Ukraine between 2015-2017, nonetheless appeared in the register as an architect working on a construction project she knew nothing about. Problems with this property gave rise to a criminal case, and Olena was summoned for questioning. Another example is elucidated by the case of architect Maksym Honcharenko. Despite having resigned from his position at a design firm, he remained according to the register, in charge of field supervision of a construction site for a long time afterward. The NORA analytical service revealed that his signature had been forged multiple times, exposing him to criminal liability. This case also indicates that no field supervision had been conducted at the construction site in question.

Such cases appear to be commonplace. Prior to the publication of the SACI Register, individuals affected by such schemes could only learn about their implied involvement through criminal case files. The online accounts of the electronic system in the construction industry users was presented in July 2020. It requires all construction project participants to use a digital e-signature.64 This functionality will mitigate the registration of false information about experts at construction sites and other corrupt practices.

64 https://e-construction.gov.ua/
Availability and quality of SACI data

⚠️ Problem description

Single, weekly data set updates at data.gov.ua do not meet user needs. Moreover, the inconsistency of the data set jeopardizes the users' business models.

Entries are erased from the register without warning and added with a delay.

☑️ Recommendation

Increase data set update frequency from weekly to daily or use an API for access to the data set.

Configure automatic updates of the data set from the developer's online account (electronic system in the construction industry).

Add a document status field and enter changes to this field without erasing the entire entry.

Keep a separate register of document status changes updated on a daily basis.
Problem description

Some information from the register is not published. For example:

- livable floor area of properties.
- number of apartments in residential buildings.

Recommendation

All register fields must be made public when no grounds exist for restricting access to them. Access is restricted to confidential, classified, and official-use information. If a register field contains information belonging to one of the aforementioned categories, a three-component test should be performed and, based on its outcome, a decision as to disclosure be made.

Publication of forms submitted by SACI to the State Statistics Committee. In particular, such forms contain the proposed livable floor area of new construction projects.

A substantial portion of information at SACI’s disposal is not published in open data format or is only provided upon request. Such information includes:

- Design documentation
- Scanned copies of permits
- Scanned copies of denials
- Scanned copies of expert reports
- Copies of land management documents.

Publish references to copies of the relevant documents in the SACI Register.

Introduce electronic forms of the relevant documents to simplify publication.

Users are often unaware which particular agency is responsible for issuing certain permits of a specific kind in a particular population center.

Publication of information about specific agencies and decision makers.
**Problem description**

Data in many register entries are incomplete (some fields are blank or filled with technical symbols). Such fields include:

- Cadastral numbers of land lots
- Permit issuance date

Absence of end-to-end identification of construction projects. Currently, only permits are identified and not the buildings in question. This complicates the processing of construction projects whose owners have changed. Identification of construction projects based on their addresses will remain problematic until the question of address registers is resolved.

Identification of certified individuals is complicated by typos in their names.

The land lot address and cadastral number fields do not always enable the precise determination of property location.

**Recommendation**

Implement automatic information comprehensiveness checks recorded in the register.\(^{65}\)

Begin using and publishing unique IDs of construction projects in the register. The Law of Ukraine *On Regulation of the Urban Development Sector* (2020) provides for the use of such IDs.

Fill out the certificate code field (field supervision, technical supervision), at least in entries dealing with construction in progress. Run a check for false information in the SACI Register.

Collect and publish information about the coordinates of the construction site.

---

\(^{65}\) According to the current procedure for keeping the register, automatic checks are applied when documents are submitted via the developer’s online account. In other cases, an official ensures that the information is complete.
<table>
<thead>
<tr>
<th>Problem description</th>
<th>Recommendation</th>
</tr>
</thead>
<tbody>
<tr>
<td>The value of the “land lot details” field does not enable the verification of lease validity. As a result, construction may be carried out on a land lot with an expired lease.</td>
<td>Supplement the register with the “land lease expiration date” field.</td>
</tr>
<tr>
<td>Permits can be issued, accepted, and annulled by court order. This is not reflected in the register in any way.</td>
<td>Create a separate field in the register (“grounds”) to be filled out with a reference to the relevant court decision or its number.</td>
</tr>
</tbody>
</table>

**Availability of other data sets**

- Address-based identification of construction and reconstruction projects is complicated. A property can change its address multiple times; the postal address and construction site address often differ.
- Data from the State Land Cadaster are not published in open data format. Users receive cadastral numbers and designated purposes of land lots using scripts from the Cadaster website. However, this functionality is only available for a fee.

Regulation of the procedure for assigning new addresses. Geocoding of addresses (assignment of coordinates to addresses).

Publish State Land Cadaster data in open data format, including lot coordinates and all the accompanying information.

---

66 [https://svyatoshino.org.ua/prokuratura-vmeshalas-v-stroitelstvo-torgovogo-tsentra-nad-stantsiej-metro-zhitomirskaya/?fbclid=IwAR1778xKu2tHZekgdftSmyn-bUJ3ik5VP89U-TEqSlutOliopRCMBv9Z3Cw](https://svyatoshino.org.ua/prokuratura-vmeshalas-v-stroitelstvo-torgovogo-tsentra-nad-stantsiej-metro-zhitomirskaya/?fbclid=IwAR1778xKu2tHZekgdftSmyn-bUJ3ik5VP89U-TEqSlutOliopRCMBv9Z3Cw)
<table>
<thead>
<tr>
<th>Problem description</th>
<th>Recommendation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Data from the Uniform Register of Real Rights are only available for a fee via an API.</td>
<td>Amend the law of Ukraine On State Registration of Real Rights to Immovable Property and Encumbrances Thereof regarding the fee charged for access to information. At a minimum, make information about legal entities that own land lots and buildings available free of charge.</td>
</tr>
<tr>
<td>The Bureau of Technical Inventory (BTI) is the administrator of information on the registration of real rights during the period leading up to the creation of the Uniform Register of Real Rights. BTI extracts are issued only upon request and for a fee.</td>
<td>Digitize BTI archives and publish the information from them.</td>
</tr>
<tr>
<td>Registers of certified persons/entities do not reflect information about annulled certificates even after accidents are reported at the relevant sites. In the event of accidents, there is no tool that would allow for the prompt contact of decision makers when the site does not have an offline stand (project manifest) or verifying building permits at the construction site.</td>
<td>Supplement the register with contact details, phone number, and email address for purposes of contacting such urban development entities as city architects, law enforcement agencies, and other offices of utility companies responsible for the relevant territory. Make it possible to verify the veracity of data on the offline stand (project manifest) at the construction site and in the electronic system by displaying the QR code of the construction project from the portal of the state electronic system in construction on the stand.</td>
</tr>
<tr>
<td>Urban development documents are often not published in open data format and instead are available as online maps and PDF images. This complicates their reuse.</td>
<td>Publish master plans, detailed plans of territories, and zoning plans in open geodata format.</td>
</tr>
<tr>
<td>Problem description</td>
<td>Recommendation</td>
</tr>
<tr>
<td>-----------------------------------------------------------------------------------</td>
<td>-----------------------------------------------------</td>
</tr>
<tr>
<td>There is no information about the financial position of companies involved in the</td>
<td>Publish financial statements of companies in open</td>
</tr>
<tr>
<td>construction project. This is important information for purposes of assessing the</td>
<td>data format.</td>
</tr>
<tr>
<td>degree of risk attached to investments in housing real estate. This information is</td>
<td></td>
</tr>
<tr>
<td>administered by the companies themselves, the State Tax Service, and the State</td>
<td></td>
</tr>
<tr>
<td>Statistics Service.</td>
<td></td>
</tr>
<tr>
<td>SACI data are not interoperable with the data of public procurement for</td>
<td>Update information about the project at all stages</td>
</tr>
<tr>
<td>infrastructure projects (retrofitting, road construction, etc.).</td>
<td>(initiation, competitive bidding, receipt of input</td>
</tr>
<tr>
<td></td>
<td>data, design, construction, delivery, payment) with</td>
</tr>
<tr>
<td></td>
<td>a unique ID in the relevant data publication systems</td>
</tr>
<tr>
<td></td>
<td>(prozorro.gov.ua, spending.gov.ua).</td>
</tr>
<tr>
<td>It is impossible to automatically check the availability of diplomas of higher</td>
<td>Combine data of certified individuals with the</td>
</tr>
<tr>
<td>education to verify compliance with the Law of Ukraine On Architectural Practice.</td>
<td>register of documents proving the level of education.</td>
</tr>
</tbody>
</table>

67 [https://info.edbo.gov.ua/edu-documents/](https://info.edbo.gov.ua/edu-documents/)
Problem description

Owners of construction projects of high complexity categories often begin construction after merely filing a notice of the start of construction. The permit is obtained as a formality only before the building is put into operation.

Recommendation

Automatically track the amount of time between permit issuance and entry of completed buildings into operation. A short time span (weeks or months) indicates that permit issuance procedures were violated and the use of corrupt practices is likely.

There is no consolidated register of all unlawful construction projects in Ukraine. “A construction project may be declared unlawful only by a court decision. People call this a scandal,” Yulian Chaplynskyi, Former Chief Architect of Lviv.

Compile a list of unlawful construction projects by analyzing court decisions.

The bulk of infrastructure construction projects are funded without officially putting the facilities into operation. As a result, warranty obligations do not apply to such facilities.

Recommend that, prior to making final payment, financial departments check the SACI Register for information about issuance of a certificate or another document proving that the facility is ready for operation, which proves completion of retrofitting or construction. Supplement the register with the date of expiration of the building contractor’s warranty obligations.

Example: list of unlawful construction projects in Lviv
<table>
<thead>
<tr>
<th><strong>Problem description</strong></th>
<th><strong>Recommendation</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>Sometimes permits are registered for multiple land lots, which gives rise to legal collisions when the lots have different designated purposes.</td>
<td>Analyze such registered documents and resolve the collision: either prohibit registration or amend the law by providing a clear wording.</td>
</tr>
<tr>
<td>Local administrations created 101 architectural and construction control agencies. The existence of a separate state architectural and construction control agency is not justified in all of these regions. Considering the low level of construction activity, the monthly average number of permits issued by such agencies may be 1.2 documents (relating to projects of complexity category CC1), their submission is already automated through the online account. Meanwhile, local budget expenditures for the relevant officials are constant, which may constitute unsustainable and ineffective spending of the available resources of local budgets.</td>
<td>After analyzing the level of construction activity in the relevant regions, suggest that local administrations disband state architectural and construction control agencies where it is impracticable to create them; bearing in mind the latest legislative amendments.</td>
</tr>
</tbody>
</table>
## Automation of processes to improve control and rule out violations

<table>
<thead>
<tr>
<th>Problem description</th>
<th>Recommendation</th>
</tr>
</thead>
<tbody>
<tr>
<td>There are documented cases where the professional details of certified individuals were used at construction sites which it would have been impossible for them to, they would not be able to visit.</td>
<td>Introduce an electronic log for the technical supervision of construction and mandatory photo documentation of the expert’s presence at the site.</td>
</tr>
</tbody>
</table>

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<thead>
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<tbody>
<tr>
<td>Development density standards are consistently violated. This causes an overload of the existing urban infrastructure.</td>
<td>Configure automated checks of the design density of the population using the habitable floor area of properties. Prevent registration of housing projects that violate urban development legislation and building codes at both the permit application and entry into operationality stages. Supplement the register with the mandatory field “land lot area”.</td>
</tr>
</tbody>
</table>
Annex 1.

Potential of open data of the SACI Register for building an urban development monitoring system

A substantial, untapped potential exists for using SACI data to control compliance with urban development laws. It involves automatically combining of all sources of urban development data within a single control system:

- State Land Cadaster
- Urban development cadasters of cites that include:
  - Master plans
  - Detailed territory plans
  - Territory zoning plans
  - Plans of utility lines
  - Register of urban development conditions and restrictions
  - Other resources
- SACI databases containing addresses, cadastral number of land lots, and information about permits, development plans.

The presence of coordinate references in cadasters and plans makes it possible to place information on separate layers of a single geoinformation system (map) and supplement it with the specific construction project plans as well as other accompanying documents (e.g., urban development conditions, permits, contracts, and others). This system can be additionally enriched with satellite image data and site photographs obtained from citizens using the crowdforce approach. This combination will help control the legality of activities at all stages of the urban development process, from allocation of the land lot to entry of the building into operation. By comparing information at different layers, the user can detect nonconformities between them, which is an indication of unlawful practices. For example:
• Construction is progressing in the absence of permits.
• Construction is actually progressing in a protected zone.
• The existing urban development conditions and restrictions do not correspond to the territorial plan.
• The development plan does not match the detailed territory plan.
• A building permit that has been issued violates the existing urban development conditions and restrictions.

If this system were mandatory for architectural and construction control inspectors, it would reduce the risk of violations getting “overlooked” by increasing the personal accountability of inspectors. The system would also simplify their job by combining all available information in one place and presenting it as map layers.

Should system like this be made publically available, society would be able to monitor the activities of urban development control and supervision authorities more effectively and, thereby, detect violations sooner.

An attempt to create tools with similar functionality for architectural and construction control inspectors has already been made. In 2018, volunteers developed the Open SACI system on a commission from SACI management. It was created with the use of SACI data that had not yet been made public, in combination with data from the urban development cadaster. Even in pilot mode, the system revealed numerous violations alas it was never put to use.
## List of interviews conducted

<table>
<thead>
<tr>
<th>Name of respondent</th>
<th>Organization and role</th>
</tr>
</thead>
<tbody>
<tr>
<td>Heorhiy Mohylnyi</td>
<td>Independent expert</td>
</tr>
<tr>
<td>Volodymyr Kopot</td>
<td>CEO of Monitor.Estate</td>
</tr>
<tr>
<td>Kyrylo Zakharov</td>
<td>CEO of Sud na Doloni</td>
</tr>
<tr>
<td>Yuri Brykalo</td>
<td>CEO of Urbandata</td>
</tr>
<tr>
<td>Viktor Hleba</td>
<td>Independent expert</td>
</tr>
<tr>
<td>Iryna Bardasova</td>
<td>Lawyer with the Construction sector, BRDO</td>
</tr>
<tr>
<td>Dmytro Chaplynskyi</td>
<td>RING developer</td>
</tr>
<tr>
<td>Yaroslav Harahuts</td>
<td>CEO of Clarity Project</td>
</tr>
<tr>
<td>Name of respondent</td>
<td>Organization and role</td>
</tr>
<tr>
<td>---------------------------------</td>
<td>---------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>Darya Korba</td>
<td>CEO of Renovation Map</td>
</tr>
<tr>
<td>Andriy Yevdokymenko</td>
<td>Chief of the Construction Control Directorate of the State Architectural and Construction Control Agency at the Kyiv Municipal State Administration</td>
</tr>
<tr>
<td>Olena Kostenko</td>
<td>Acting Chair of SACI from December 27, 2019 to March 11, 2020</td>
</tr>
<tr>
<td>Oleksandr Tereshchenko</td>
<td>CEO of NORA</td>
</tr>
<tr>
<td>Serhiy Milman</td>
<td>CEO of Youcontrol</td>
</tr>
<tr>
<td>Anna Denysenko</td>
<td>Municipal Social Projects Coordinator at LUN</td>
</tr>
<tr>
<td>Sviatoslav Abramov</td>
<td>Executive Director, Infrastructure Transparency Initiative NGO</td>
</tr>
<tr>
<td>Vitaliy Kotenko</td>
<td>CEO of domik.ua</td>
</tr>
</tbody>
</table>
## Use of data from the State Architectural and Construction Inspectorate of Ukraine Register by Listed Services:

<table>
<thead>
<tr>
<th>Name</th>
<th>Field description</th>
<th>Example of a filled-out field</th>
<th>RING</th>
<th>Monitor.Estate</th>
<th>Clarity Project</th>
<th>NORA</th>
<th>LUN</th>
<th>Bild control</th>
<th>Urbandata &amp;dabibot</th>
<th>Renovation map</th>
<th>Sud na doloni</th>
</tr>
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<tbody>
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<tr>
<td>EdrkoNo</td>
<td>Document number in the SACI Register, which serves as a unique ID of this document</td>
<td>LH 142130030504</td>
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<td>Q. 1</td>
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<tr>
<td>Name</td>
<td>Field description</td>
<td>Example of a filled-out field</td>
<td>RING</td>
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<td>Clarity Project</td>
<td>NORA</td>
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<td>Type of permit</td>
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<td>+</td>
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<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>−</td>
</tr>
<tr>
<td>RecDistrict</td>
<td>Name of property</td>
<td>Stakhanov training and education complex Common Secondary School of Degrees I-II – Preschool Education Institution No. 14 of Stakhanov City Hall, Luhansk Region</td>
<td>+</td>
<td>+</td>
<td>+</td>
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<td>dk018code</td>
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<td>1263.3</td>
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<td>−</td>
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<td>square</td>
<td>Gross floor area of the property</td>
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<td>−</td>
<td>−</td>
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<td>Number of stories</td>
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<tr>
<td>RegDistrict</td>
<td>Region and population center</td>
<td>Luhansk Region, Stakhanov</td>
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<tr>
<td>RegSity</td>
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<td>State Classification of Administrative and Territorial Units of Ukraine</td>
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<tr>
<td>Name</td>
<td>Field description</td>
<td>Example of a filled-out field</td>
<td>RING</td>
<td>Monitor.Estate</td>
<td>Clarity Project</td>
<td>NORA</td>
<td>LUN</td>
<td>Bild contro</td>
<td>Urbadata &amp;dabibot</td>
<td>Renovation map</td>
<td>Sud na doloni</td>
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<tr>
<td>customer</td>
<td>Customer name</td>
<td>Stakhanov training and education complex Common Secondary School of Degrees I-II – Preschool Education Institution No. 14</td>
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<td>+</td>
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</tr>
<tr>
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<td>37871768</td>
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</tr>
<tr>
<td>RemDecisNo</td>
<td>Name of the designer</td>
<td>Individual entrepreneur Olena Viktorivna Fedenko</td>
<td>+</td>
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</tr>
<tr>
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<td>+</td>
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</tr>
<tr>
<td>tnsurname</td>
<td>Surname, first name, and patronymic of the technical supervision engineer</td>
<td>Polevshchyykov Serhiy Yukhymovych</td>
<td>–</td>
<td>–</td>
<td>+</td>
<td>+</td>
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</tr>
<tr>
<td>Name</td>
<td>Field description</td>
<td>Example of a filled-out field</td>
<td>RING</td>
<td>Monitor.Estate</td>
<td>Clarity Projec</td>
<td>NORA</td>
<td>LUN</td>
<td>Bild contro</td>
<td>Urbandata &amp;dabibot</td>
<td>Renovation map</td>
<td>Sud nadoloni</td>
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<td>NORA</td>
<td>LUN</td>
<td>Bild contro</td>
<td>Urbandata &amp;dabibot</td>
<td>Renovation map</td>
<td>Sud nadoloni</td>
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Application of the three-component test in restricting access to SACI Register fields

The SACI Register contains many fields. Some were not opened in the web version of the register (e.g., number of stories of buildings) or even in the data set published in 2019. A few fields remain closed to this day (e.g., living floor area).

Such practices are wrong because they violate the requirements of the Access Law.69

The information contained in the SACI Register is public information and open by default, (except where expressly otherwise stipulated by the law). The possible exceptions are:

- imperative orders of the law (e.g., prohibition to publish personal data)
- the outcome of the three-component test with respect to restricted-access information.

Access is restricted to confidential, classified, and official-use information.70 Thus, if a register field contains information belonging to one of the aforementioned categories, a three-component test, which involves answering three questions, should be performed. Namely:

1. Are restrictions of access to information imposed solely in the interests of national security, territorial integrity, or public order with a view to preventing violations or crimes, protecting public health, protecting the reputation or rights of other individuals, preventing the disclosure of information obtained in confidence or support the authority and impartiality of justice?

2. Can disclosure of information materially harm these interests?

3. Does harm from disclosure of such information outweigh the social interest in obtaining it?

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69 Part 2 of Article 1 of the Access Law: Public information shall be open, except as expressly otherwise provided by the law.
70 Part 1 of Article 6 of the Access Law
Only if all three questions have been answered affirmatively, can the information in a register field be concealed.\textsuperscript{71}

Information in the register fields should be analyzed to determine whether or not an imperative ban on disclosure applies, and to detect any restricted-access information. Furthermore, the three-component test should be performed in respect of all of the available register fields. All register fields must be made public when no grounds exist for restricting access to them.

When a new register field is created, the information it contains should be analyzed to detect any legislative bans on disclosure or any restricted-access information. A decision should be made to either disclose or restrict such information as soon as the check (and the three-component test, if appropriate) has been completed.

\textsuperscript{71} Part 2 of Article 6 of the Access Law