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STUDY ON THE IMPACT OF THE APPLICATION OF INFORMATION SYSTEMS ON THE EFFICIENCY AND PRECISION OF TOPO-CADASTRAL WORKS IN THE PREPARATION OF DOCUMENTATION FOR A ROAD IN DOLJ COUNTY

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Abstract

The work was carried out based on the experience of over 30 years of study of the authors' team in the field of land measurements, during which, throughout the specific activities of topography and cadastre, they worked with both classic equipment and high-performance, modern equipment. Based on this, we thought of presenting in this short work, the essence of the experience, which aims to target the impact of modern information systems on all aspects related to topo-cadastral works. A case study was presented for the technical documentation necessary for the tabulation of a road in a locality in Dolj County. As a result, all the advantages and novelties related to the application in topo-cadastral works of the complex information system, consisting of high-performance modern equipment used to collect data from the field, combined with automatic data processing, with a high-performance specialized program, with wide applicability in several fields in Romania. The results were very relevant and significant in terms of their impact on the efficiency, cost-effectiveness and accuracy of the terrestrial measurement work carried out in the presented case study.

Key words: *information systems, topographic measurements, documentation, AutoCAD, road registration, geospatial accuracy*

INTRODUCTION

It is widely recognized that for an organization to succeed and remain competitive in a dynamic economic environment, managers must identify optimal solutions and drive radical innovations despite uncertainty. To support this, organizations need to invest in information systems that add value to business processes. These systems are primarily designed to automate information processing, which serves as the foundation for informed decision-making (Furby & Akhavian, 2024).

Information systems play a crucial role in enhancing the flow of information between tools, equipment, and work methods. This integration leads to the automation of processes and improved efficiency in topo-cadastral measurement activities (Călina et al., 2018; https://gisgeography.com/trilateration-triangulation-gps).

Studies show that, in order to complete tasks on time and make accurate decisions, professionals in the field must rely on high-performance information systems that align with the core requirements of their activities. All data and information collected from the field and processed through various activities or procedures can be easily accessed by users of information systems, while also offering a unified and integrated perspective. These systems provide a range of advantages for their users, facilitating not only the sharing and transfer of data and information but also supporting the optimization and automation of work processes (Sestras et al., 2022). Efficient data exchange can accelerate the achievement of objectives and reduce the time required to complete specific tasks. The implementation of such systems often results in improved data quality, reduced working time, enhanced communication between operators, more accurate decision-making, and significantly increased productivity (Doneus & Neubauer, 2005; https://rompos.ro/index.php/informatii-tehnice/sisteme-gnss). In the domain of land surveying, automation has substantially improved the quality of topo-cadastral data, particularly through enhanced positional accuracy and resolution. These systems integrate a wide range of technical tools with varying levels of automation, with the electronic

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computer at the core. Minimizing manual operations reduces the risk of errors. The integration of real-time position determination using global positioning systems (GPS) and automated data processing contributes to increased accuracy and uniformity across all digital and analog products (Păunescu et al., 2020).

New knowledge in the field of land surveying is already being applied to address both local and global challenges. However, specific issues often arise with certain techniques and technologies - likely due to the absence of well-defined methodologies for designing and utilizing information systems (Stöcker et al., 2020). Numerous studies highlight the growing need for practical geospatial solutions to address social, environmental, and economic problems. One of the most pressing challenges today is balancing the exploitation of natural resources with the preservation of ecological systems. This tension calls for a reevaluation of development strategies at local, regional, and global levels. Information systems will undoubtedly play a critical role in supporting these new directions by providing essential data and tools for managing, analyzing, visualizing, and applying geospatial knowledge (Mihai et al., 2015).

The current development of integrated information systems is characterized by substantial transformations, both in terms of procedures for collecting and processing data and information, and in terms of defining and creating final products, thus analyzing the data collected both as sources and as products. With the launch of the first artificial earth satellites and spacecraft, a new era in the development of topo-cadastral measurements from all points of view opened. Satellite systems have been differentiated from the beginning into: reconnaissance systems; meteorological systems; systems for the study of terrestrial resources; commercial satellite systems. In this field, there have been significant developments in recent decades, which have targeted both theoretical foundations and cartographic technologies, means of representation and equipment for collecting, processing, organizing, storing, retrieving and using topo-cadastral data and information (Longley et al., 2011; https://gisgeography.com/trilateration-triangulationgps).

Among these are: what is the nature of geocoded data (X,Y,Z) at different scales and after different transformations; how does data quality behave at different transformations; how to manage the large volume of data resulting from raster or vector digitization or imported from photogrammetric and remote sensing systems; how to generalize and reduce this amount of data to optimize storage; the criteria to be followed to choose the necessary archives to keep; how to generate missing data, either for the "lost" ones or from those previously compacted; how to choose a national or international standard for data exchange or to collaborate on the creation of maps with continental or global changes (Herbei & Sala, 2020).

In the context of cadastral works, the use of modern technologies plays a crucial role in ensuring the accuracy and efficiency of measurement and recording processes. Among these technologies are GPS systems, modern measurement equipment (total stations), CAD systems, and GIS technology. Each of these tools contributes to the creation of an accurate cadastral framework and proper documentation of land ownership (Dragomir et al., 2025). The technologies serve as tools for primary data collection and processing, while GIS represents an advanced solution that enables the collection, storage, analysis, and visualization of spatial data (Nițu & Tomoioagă, 2015; Roșca et al., 2020).

In cadastral work, GIS proves essential for the integration and efficient management of geographic data. Through GIS, information regarding property boundaries, roads, and existing infrastructure is centralized in a digital system that can be easily accessed and updated. This system allows for precise analysis of land development and changes, which is vital for legal and administrative purposes, including the registration of a road sector in the land registry (Sestras et al., 2025).

One of the key advantages of GIS over other technologies is its ability to manipulate and analyze data within a geographical context. GIS can integrate data from multiple sources (GPS, digital maps, satellite imagery), making it extremely useful for creating a detailed and accurate cadastral framework. Additionally,

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through GIS, spatial analyses can be performed to determine risk areas, evaluate the impact of new constructions on existing networks, or optimize land use.

Moreover, it is important to understand the main similarities and differences between CAD products (such as AutoCAD) and GIS products. Both CAD and GIS are essential tools in the field of cadastral work, but each focus on different aspects of the mapping process. AutoCAD is a software primarily dedicated to drafting and creating detailed technical plans, including contours, lines, and geometric shapes. It is frequently used in the design of infrastructure and construction works, and files generated in AutoCAD are often used for cadastral documentation (Akinci et al., 2010).

On the other hand, GIS focuses on managing and analyzing geospatial data. While AutoCAD is geared towards creation and drawing, GIS is concerned with manipulating and interpreting location- and land-related data. GIS allows for advanced analyses such as generating thematic maps, calculating distances, or assessing the impact of various changes on land.

In a complementary manner, AutoCAD can be used to create detailed drawings of an area, which can then be integrated into a GIS system for more detailed geographical analysis and visualization. Data related to a road sector can be created in AutoCAD and then transferred into a GIS to study its impact on the road network in a larger area, considering factors such as topography, land use, or existing infrastructure.

In this study, the use of the AutoCAD work system integrated with field equipment such as total stations and GPS was analyzed. This method was used because AutoCAD represents a standard for design in the fields of mechanics, architecture and geodetic engineering, being very useful for both designers and draftsmen (Becker et al., 2011).

At the same time, this was also due to the advantages obtained by using the AutoCAD program, such as:

- creating 3D (three-dimensional) constructions;
- obtaining virtual images of the designed objects;
- avoiding any routine work, by using the commands that create the required graphic element;
- obtaining drawings of exceptional clarity, due to the fact that the drawing, once created, is printed, and the changes made during the work do not appear on paper;
- perfect quality of the drawing created on the computer;
- its accuracy;
- reduced execution of modification time;
- easy transfer of information (CDs, DVDs, USB Sticks).

This paper aims to evaluate the efficiency and precision of topo-cadastral documentation using modern integrated information systems in a real-world case study.

MATERIALS AND METHODS

Reducing efforts and costs is essential for improving the competitiveness and long-term sustainability of any company. Geodetic engineering activities involve complex processes that require significant time and labor resources, and optimizing these processes can bring major benefits. Automation and digitalization are key solutions for minimizing manual intervention, eliminating errors, and enhancing the precision and speed of operations. Implementing advanced software solutions can significantly reduce the time needed for processing documentation and fieldwork, thus contributing to lower operational costs (Carrera-Hernández et al., 2020).

The applied methodology is presented in Figure 1, with the stages of the applied case study being presented and detailed further.

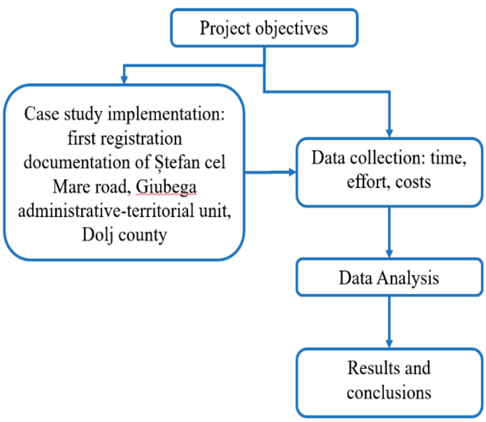

Figure 1. Applied methodology

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To analyze efficiency and identify potential areas for improvement, we have conductes a detailed case study. This includes collecting and analyzing data on the time spent, efforts made, and costs involved in carrying out various cadastral activities. The aim of this study is to better understand workflows and discover optimization opportunities. The results obtained will be used to identify solutions that reduce the resources needed to complete projects, thus contributing to the streamlining of the cadastral firm's activities and increasing its profitability.
The case study presents a first registration documentation of the Ștefan cel Mare Street, ATU Giubega, Dolj County.
The process of preparing the cadastral documentation for the first registration of a road sector in the Land Register involves a series of methodical and sequential operations, carried out in accordance with national legislation and technical norms in force. The methodology adopted in this study ensures the acquisition of accurate spatial data, the legal identification of the land parcel, and the formalization of the necessary cadastral documents for submission to the competent cadastral and land registration office.
Field measurements were performed using high-precision GNSS equipment in RTK (Real Time Kinematic) mode, specifically a GPS Hi-Target V200 GNSS receiver and iHand55 controller, with RTK correction through the ROMPOS network, using the Stereo 70 projection system. Coordinates were exported in CSV format and processed in AutoCAD using the TopoLT plugin. To complement the geodetic data, a total station Leica TCA 1205 was used for areas with limited satellite signal reception or for detailing specific construction elements (e.g., curbs, culverts, or road infrastructure boundaries). For data processing, the AutoCAD Civil 3D platform (and TopoLT plugin) was employed for drafting the technical plans, while the geospatial database was managed and analyzed using QGIS 3.28. The final cadastral documentation was structured according to the requirements of the National Agency for Cadastre and Land Registration (ANCPI), using the specialized software e-Terra.
Figure 2 illustrates the main working stages, as well as their logical sequence within the framework of the present project. As shown, the entire workflow is illustrated, starting from equipment preparation and document analysis, all the way to final processing, printing, and exporting the cadastral plan for the measured road sector.

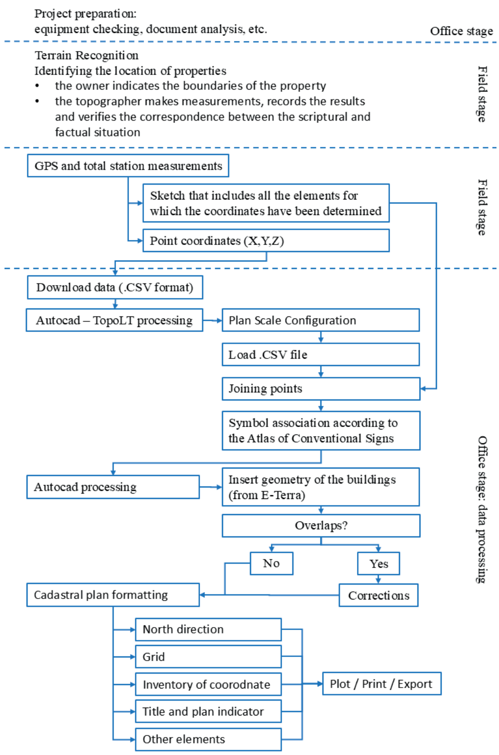

Figure 2. Workflow for measurements and data processing

The cadastral works were executed by a multidisciplinary team consisting of: a certified geodetic engineer (responsible for field measurements and technical verification), a legal consultant (responsible for verifying property rights, administrative boundaries, and legal acts), and a technician (responsible for assisting in field operations and document preparation).
Measurements for the Ștefan cel Mare Road were taken over a distance of about 430 meters and an area of about 6050 sqm. The field data were collected in a single day, in September 2023.
In this case study, a complex work system was used in which modern and high-performance equipment was used for field work, such as

global positioning systems (GPS) for collecting the main data, and total stations with high precision were used to complete the details. After collecting the data with high precision and high efficiency, they were processed with an older specialized program but widely used in several fields of activity in Romania, namely AutoCAD.
Working with this integrated computer system allows the total replacement of the pencil, the drawing board, the ruler, the square, the compass and the eraser. However, this program does not eliminate the need to pay increased attention to details, to thoroughly analyze the project. Emphasis must be placed on accuracy in drawing, as these drawings often go directly to numerically controlled machining machines (Pop et al., 2019).
Considering that the purpose of this article is to study the effectiveness of applying modern data acquisition and processing techniques, in addition to the technical data collected, details regarding execution time, efforts, and costs required to achieve the expected results were also recorded.

RESULTS AND DISCUSSIONS

The case study presents a First Registration Documentation of the Ștefan cel Mare Road, ATU Giubega, Dolj County. For the first registration documentation, the cadastral work was carried out based on field measurements, using the data processing method using the Auto-CAD program and drawing up the plan of this work.
The preparation of cadastral documentation involves the following stages (Sălăgean et al., 2016; Călina et al., 2022):
- identification of the location of the property and technical documentation;
- execution of field and office work;
- preparation of documentation.

This approach was chosen because it was concluded that it is very important and interesting how Auto-CAD has become an essential tool in cadastral works, offering the possibility of creating detailed plans of real estate. By using this complex information system GPS-Total Stations - Auto-CAD, it is possible to create and manage all the information regarding the lands registered in the cadastre, thus facilitating the process of recording and monitoring them. This system ensures precision and efficiency in the creation of cadastral plans, representing a crucial component in cadastral activity.
As is known, the owner is responsible for knowing, indicating the boundaries of the property and preserving them, as well as for making available to the authorized person all the acts/documents he holds regarding the property. The authorized person is responsible for measuring the property indicated by the owner, for the correctness of the documentation and its correspondence with the reality on the ground and with the documents proving the ownership right made available by the owner. In the case of tracings, the authorized person is responsible for materializing the boundaries of the property in accordance with the up-to-date geometry of the property in the database of the territorial office.
The road subject to modernization is located in the village of Giubega, a village located in the immediate vicinity of the city of Băilești. The Ștefan cel Mare Road is a road of national interest connecting the European road DN 56 and the city of Calafat. With the completion of the project for the modernization of the road, traffic in the area will increase, leading to the development and economic growth of the commune.
Before starting the measurement, the team moves into the field to reconnoiter the terrain. In this process, the area to be measured, the length of the route and the fixed elements are checked. Depending on the complexity of the details, the scale at which the documentation will be drawn up is established.
As shown in Figure 3, the survey team used a GPS receiver connected to ROMPOS for real-time measurements and a Leica TCA 1205 total station in the Giubega area.

Figure 3. Taking field measurements

The field trip was carried out with representatives of the Giubega Commune City Hall, who identify the neighborhoods of the building. A person who is part of the measurement team draws up a sketch of the building, respecting the numbering of the points in the GPS and representing all the measured elements.

As a result of the case study, the following concrete outcomes were obtained for Ștefan cel Mare Street, which has a length of approximately 430 meters and a surface area of 6,055 square meters:

- a coordinate inventory consisting of 104 points, for which coordinates were determined in the Stereo 70 reference system, as presented in Table 1;
- the cadastral documentation required for the first registration of this road sector in the land register;
- the site location map at a 1:2000 scale, as shown in Figure 4;
- used resources, as presented in Table 2.

Table 1 presents the inventory of coordinates for the surveyed points, and the publication of this table contributes to the methodological transparency of the study, providing a verifiable and useful database for researchers, professionals in engineering and surveying, as well as cadastral authorities. Thus, the obtained coordinates can serve as a concrete example of the application of advanced geodetic techniques in road infrastructure projects and in the process of updating cadastral data. At the same time, they are essential for the correct integration of the rehabilitated road section into the land registry, a process that guarantees the legal validity of the work.

Including these coordination points in this article not only supports the scientific validity of the research but also adds practical value, contributing to the improvement of precision standards in infrastructure projects and cadastral data management.

Table 1. Inventory of road coordinates for Ștefan cel Mare Street, Giubega, Dolj county

Point no.	X [m]	Y [m]	Point no.	X [m]	Y [m]	Point no.	X [m]	Y [m]
1	373031.405	293299.467	36	372942.966	293313.618	71	373234.649	293188.745
2	373027.910	293301.139	37	372961.875	293307.499	72	373250.633	293181.744
3	373025.650	293302.040	38	372965.594	293306.295	73	373274.911	293171.727
4	373020.493	293304.056	39	372984.714	293300.108	74	373282.102	293168.695
5	373007.259	293309.164	40	372988.265	293298.923	75	373287.293	293181.286
6	373005.719	293309.623	41	373003.589	293293.766	76	373273.794	293186.911
7	372998.818	293312.475	42	373021.302	293287.805	77	373262.180	293191.714
8	372986.210	293316.486	43	373029.009	293284.462	78	373254.655	293194.313
9	372968.615	293322.450	44	373048.373	293276.217	79	373244.484	293199.130
10	372963.801	293323.416	45	373053.878	293273.305	80	373240.910	293201.017
11	372954.017	293326.152	46	373064.956	293268.475	81	373234.289	293203.895
12	372950.478	293327.043	47	373080.983	293260.970	82	373231.553	293205.024
13	372939.208	293330.413	48	373095.493	293254.629	83	373223.596	293208.290
14	372927.691	293333.619	49	373109.521	293247.270	84	373199.108	293218.547
15	372922.822	293335.439	50	373123.063	293240.654	85	373189.392	293222.830
16	372921.708	293335.814	51	373127.459	293238.183	86	373187.057	293223.582
17	372909.671	293340.034	52	373130.319	293236.755	87	373176.619	293228.289
18	372901.063	293343.305	53	373132.494	293235.665	88	373164.576	293233.719
19	372894.108	293345.948	54	373140.467	293231.669	89	373157.284	293238.541
20	372893.612	293344.160	55	373140.578	293231.613	90	373153.638	293240.630
21	372891.487	293337.706	56	373144.770	293229.495	91	373147.529	293243.748
22	372888.381	293329.141	57	373156.902	293223.566	92	373134.976	293249.932
23	372889.218	293328.838	58	373158.082	293222.886	93	373126.402	293254.274
24	372890.937	293329.868	59	373158.653	293222.557	94	373120.013	293257.407
25	372902.362	293326.255	60	373159.465	293222.201	95	373114.085	293260.243
26	372907.173	293324.734	61	373167.783	293218.551	96	373100.169	293266.989
27	372909.658	293323.977	62	373171.884	293216.752	97	373094.662	293269.819
28	372918.366	293321.074	63	373175.584	293215.106	98	373087.326	293273.776
29	372921.827	293319.839	64	373189.604	293208.870	99	373074.715	293279.946
30	372931.071	293316.834	65	373193.861	293206.977	100	373057.536	293287.037
31	372933.014	293316.174	66	373209.027	293200.188	101	373048.174	293290.099
32	372934.712	293315.212	67	373216.905	293196.661	102	373037.436	293296.648
33	372937.488	293314.694	68	373216.876	293196.608	103	373032.345	293299.017
34	372937.864	293314.856	69	373230.162	293190.711	104	373031.405	293299.467
35	372942.825	293313.910	70	373230.318	293190.642			

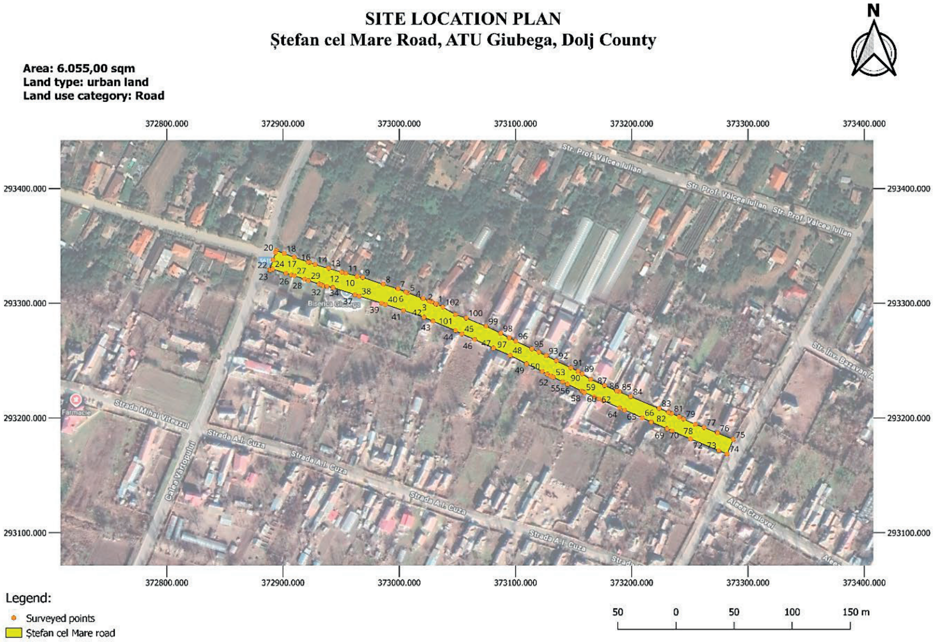

Figure 4. Site location plan

Table 2. Resources used in the case study implementation

No.	Type	Resource	Measuring units	Quantity
1	Personnel	Geodetic engineer	Minutes	530
2	Personnel	Legal consultant	Minutes	45
3	Personnel	Technician	Minutes	305
4	Material	Hi-Target V200 GNSS receiver	Units	1
5	Material	Leica TCA 1205 total station	Units	1
6	Software	AutoCAD, TopoLT plugin	Units	1
7	Software	QGIS v.3.28	Units	1
8	Other	Consumable materials		
9	Other	Transportation expenses		
10	Other	Indirect costs		

In any company, efficient cost management is essential to ensuring profitability and maintaining competitiveness in the market.

A company's efficiency cannot be measured solely by the volume of activities carried out, but also by the ratio between the costs incurred and the results achieved. A company can only be considered efficient when it manages to intelligently reduce costs without compromising the quality of the services or products offered, while simultaneously increasing profitability. This objective can be achieved by adopting modern technological solutions which, although requiring initial investments, bring considerable long-term savings (Šafář et al., 2021).

Therefore, only through constant cost analysis and the identification of optimization opportunities can a company ensure its financial stability and remain relevant in an increasingly competitive economic environment. Cost reduction should not be seen as a crisis measure, but as a strategic practice, integrated into the organizational culture, focused on performance and sustainable development.

It is important to note that the cost structure of a company differs from the cost structure associated with a project. Thus, in order to identify opportunities for reducing efforts and costs, and for optimizing activity, cost analysis must be conducted from at least three perspectives: the type of expenses, the elements that generate them, and the stage at which they occur. Table 3 presents the main cost structure associated with a project and assesses the impact that each type of cost may have on the total cost of the project.

Table 3. Project cost structure and its impact

Expense type	Generated by:	Details	Impact on the project	Can be optimized	Remarks
Direct	Involved personnel	Primarily includes personnel costs associated with the project.	High	Yes	The personnel can work more accurately and efficiently. The personnel can use optimal solutions to achieve objectives, depending on the field conditions.
	Material consumption	Includes the consumption of materials within the project: survey markers, spray paint, etc.	Low	No	Modifying these cannot have a significant impact.
	Transport expenses	Includes transport expenses within the project.	Low	No	
	Other expenses	Other unforeseen expenses initially not anticipated.	Low	No	
Indirect	Uninvolved personnel	Includes the costs associated with administrative personnel and the costs for the professional training of the staff.	Low	No	
	Equipment	Includes the costs for the depreciation and insurance of the equipment.	High	Yes	They can vary by acquiring more efficient equipment that reduces execution times.
	Licenses	Includes the costs for licensing the software products used.	High	Yes	They can vary by licensing more efficient solutions that reduce processing times.
Administrative	General costs	Includes costs for rent, utilities, etc.	Low	No	

Therefore, it can be observed that the elements with the greatest impact on a project's costs are: the personnel directly involved, the equipment, and the software solutions used. At the same time, these are also the main elements that can be optimized within the context of a project.

The directly involved personnel can contribute to cost reduction through continuous professional development, which enables them to work more efficiently and accurately. Additionally, they can help lower expenses and increase efficiency by using appropriate technologies (best suited to field conditions) and software products that automate data processing.

The "high" impact attributed to the equipment and software solutions used does not refer to their depreciation or insurance costs, but to the benefits that can be generated by using optimal equipment and software in the context of a project.

For example, in the case study carried out, measurements could have been performed using either a total station or a GNSS receiver. However, the surveyor chose to use the GNSS receiver because field conditions were favorable, and the execution time was significantly shorter than when using the total station.

Moreover, during the office phase, the surveyor used both TopoLT and AutoCAD to process the data, which reduced the time needed for processing and preparing the required documentation. Table 4 presents the possibilities for optimizing activities and reducing costs depending on the project phase.

Table 4. Optimization opportunities according to project phase

	Personnel	Equipment	Software
Project preparation	No	No	No
Terrain recognition	No	No	No
Measurements	Yes	Yes	Yes
Data processing	Yes	No	Yes
Cadastral plan formatting and export	Yes	No	Yes

Considering the aspects mentioned above, the equipment and software solutions used, as well as the measurement methods applied, we can conclude that the case study was carried out under optimal conditions. This assessment is based on the following considerations:

- The personnel had access to all necessary resources (equipment, software licenses);
- The participants were properly trained and used the best methods and techniques suited to the field conditions;
- During the office phase, the personnel used all available software solutions (including the TopoLT plugin) to automate data processing;
- Field conditions (absence of interference and good visibility) allowed the use of a GNSS receiver for determining point coordinates. The surveyor also had access to a total station, but its use would have required more time for measurements;
- Data recorded by the GNSS receiver is easier to process compared to data collected by total stations;
- The use of the TopoLT plugin facilitated data processing;
- Predefined templates were used in AutoCAD, which reduced the time required for preparing the necessary documentation.

CONCLUSIONS

From the beginning, great importance was given to the accuracy of the data and products of the complex information system. A good treatment of this problem allowed the choice of the best data sources, the choice of the most correct methods of data collection and the choice of the most correct procedures for processing and creating the final products. Considering the various types of data and procedures for collection, validation and processing, it can be shown that:

- data have different measures and methods of assessing accuracy;
- the required level of accuracy specific to different types of applications varies greatly;
- data accuracy is strictly related to the collection methods, the equipment used, the data sources, the processing procedures, etc.;
- as a result of the above, data accuracy also depends on the costs of the information systems and vice versa.

By strictly respecting all the requirements listed above, the study team achieved much greater precision through this modern method of combining data collection with modern equipment and their automated processing with specialized programs, compared to the classic methods used over time in cadastral works. The classic equipment had a very low precision by construction, little or no possibility of collecting and storing data and a cumbersome maneuverability, aspects that led to the recording of very large total errors, which ultimately resulted in low precisions, which were difficult to achieve within the tolerance limits allowed in the case of such works and especially in the case of engineering works such as those presented in this case study. It was also found that technological and scientific progress led in the field of terrestrial measurements to the emergence of new methods and techniques necessary for the proper conduct of the activity, the computer offering greater precision compared to traditional drawing and design methods. Precision, accuracy, flexibility, ease of manipulation and modification are attributes of graphic representations created with specialized programs.

With the help of computer systems, which have a friendly, easy-to-use interface, the tedious tasks of drawing and detailing are greatly simplified by using geometric construction tools, such as: grid, snap, auto-quotation senders. The dimensions and technical notes are always legible on the drawings made, and the paper drawings produced by these systems are of a much higher quality than drawings made by hand. These performances obtained are undoubtedly related to the qualities of the programs, but they depend mainly on the way in which their capabilities are exploited. A detailed knowledge of these modern computer capabilities and tools represents the basic premise of a high-performance activity, being at the same time powerful tools that can help, but cannot replace, the experience and knowledge of the specialist or user in a certain field.

In terms of the efficiency and profitability of specific land surveying and cadastral works, these have increased considerably, as modern computer systems represent essential tools, which offer the possibility of creating detailed, faithful and highly accurate plans of real estate properties, in a much shorter time and with a much-reduced volume of personnel and material expenses. By using these new systems, it is possible to create and manage all the information relating to real estate registered in the cadastre, thus facilitating the process of recording and monitoring properties, while they also become an essential component in the cadastre and real estate advertising activity.

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