The EGSAct Project – Towards a White Paper on Geodetic Surveying in Europe

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SUMMARY

The European Geodetic Surveyors Act (EGSAct) is a strategic initiative led by the Council of European Geodetic Surveyors (CLGE) aimed at producing a solid basis to support European regulations that promote trust in geodetic surveying. This project seeks to bridge the gap between professional practice, academic research, and policy development by systematically documenting the role of geodetic surveying in contemporary European society. Surveying underpins critical domains such as property rights, spatial planning, environmental governance, and digital infrastructure. Despite its foundational role, the profession remains underrepresented in academic and policy discourse. EGSAct addresses this by offering a multidisciplinary investigation into the economic, legal, and social dimensions of surveying, supported by empirical data and expert contributions from across Europe. The project is structured in phases involving a sector-wide study combining quantitative questionnaire and qualitative interviews with European professionals. This will generate a robust dataset on demographics, education, licensing, professional standards, and technological adoption (e.g., BIM, GNSS, AI). Further interviews and external analyses will be conducted by experts in economics, law, sociology and others to assess the profession's macroeconomic contributions, legal relevance in land governance, social impact in areas such as disaster resilience and urban sustainability and many more perspectives. These perspectives will inform knowledge dissemination and engagement, including a targeted visibility & influence campaign. The dissemination will involve public outreach, academic publications, and policy dialogues to enhance the visibility of the profession and its alignment with EU priorities such as the Green Deal, digital transformation, and territorial cohesion. The final outputs will include a full White Paper, integrating data analysis and theoretical insights, policy-oriented summary for decision-makers and a conference declaration to be adopted at the XI CLGE Conference of the European Surveyor in 2027. By fostering collaboration between academia, professional bodies, and policymakers, EGSAct aims to reposition geodetic surveying as a critical, interdisciplinary field of study and practice. It invites academic engagement through contributions to thematic papers, peer-reviewed publications, and participation in strategic foresight activities.

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1. INTRODUCTION

Geodetic surveying underpins critical domains such as property rights, spatial planning, environmental governance, digital infrastructure and trust in the property market. Despite its foundational role, the profession remains underrepresented in academic and policy discourse. The European Geodetic Surveyors Act (EGSAct) addresses this by offering a multidisciplinary investigation into the economic, legal, and social dimensions of surveying, supported by empirical data and expert contributions from across Europe.

Building on previous work stemming from as far as 1990s (Allan, 1995) and subsequent analyses with respect to EU legislation (CLGE, 2008, 2010) and the Dynamic Professional Knowledge Base (CLGE, 2019), EGSAct is a strategic initiative led by the Council of European Geodetic Surveyors (CLGE). EGSAct is designed to inform and support evidence-based policymaking in the fields of land management, spatial planning, and digital transformation. Framed as a White Paper on Geodetic Surveying in Europe, EGSAct is not about standard legislative regulations, but a smart regulation proposal encompassing a comprehensive strategic document to serve as a foundation for future policy, professional development, and public engagement within the European Union. This project seeks to bridge the gap between professional practice, academic research, and policy development and it invites academic engagement through contributions to thematic papers, peer-reviewed publications, and participation in strategic foresight activities.

The project is developed in phases focusing on (1) the understanding of the current wealth of knowledge on the situation of geodetic surveying in Europe; (2) a questionnaire-based sector study data collection and interviews with CLGE members, covering demographics, education, employment, legal frameworks, and technological adoption; (3) external expert analyses to explore economic value of geodetic surveying, assess its legal significance in securing property rights, and explore its social role in sustainable development and public safety; (4) developing a White Paper including strategic recommendations for the future of the profession that will inform, and (5) EGSAct drafting.

2. PUBLIC TRUST

Trust is one of the foundations of the functioning of complex modern societies (Robbins, 2016). It is particularly important in those areas of life where citizens have to rely on the knowledge and decisions of experts, without being able to independently assess their correctness or effects

(Resnik, 2011). However, trust is not only a feature of interpersonal relationships, but is also institutional in nature (Hwang, 2017), and is thus produced and sustained by regulatory systems and ethical norms (Braithwaite, 2021) as well as societal expectations of professionals (Evetts, 2011). In this context, professions of public trust with a high degree of responsibility towards society, such as medical doctors (Hall *et al*., 2002), lawyers (Xu *et al*., 2024) and accountants (Paisey & Paisey, 2020), play a special role. A common feature of these professions is the permanent asymmetry of knowledge (Haupt, 2015) and the fact that the effects of errors or abuses go far beyond the service provider-recipient relationship, affecting the public interest (Garoupa, 2006).

Trust issues are critically important in professions related to shaping the built environment (Foxell, 2025), which function at the intersection of private and public interests (Laurian, 2009), and their effects also materialize in the common space (Madanipour, 2003), affecting the safety of users (Stevenson, 2006; Qin *et al*., 2025), protection of land and property rights (Wiejak-Roy & Edwards, 2025), and spatial order (Carmona, 2019). Research on the perception of professions related to the construction sector indicates that the social evaluation of these professions is based not only on technical competence but also on perceived ethical responsibility and social trust (Egemen, 2022; Wiejak-Roy & Edwards, 2025). At the same time, trust deficits in relations between participants in the construction process often lead to conflicts, increased costs and a decrease in the quality of investment implementation (Hoots *et al*., 2024). In this context, geodetic surveying also appears as a profession of particularly high, although often overlooked, importance for the society (Adewara *et al*., 2017). However, its public image may be sometimes downright unfavourable, as it is viewed as mainly associated with unspectacular?? fieldwork (Coutts, 2017). Therefore, the spatial information obtained and processed by geodetic surveyors is the basis for the functioning of disciplines related to many areas of everyday life (Müller, 2016; Escandón-Panchana *et al*., 2024). Thus, one central role of geodetic surveyors is to produce an accurate picture of the space that allows decisions to be made in a rational, comparable and responsible way (Merebashvili, 2024). Geodetic surveying is therefore not only about the technical basis for other fields, but one of the key pillars of the functioning of modern societies (Li, 2020).

A particularly important area of influence of geodetic surveying is the sphere of real estate rights (Atazadeh *et al*., 2021). Determining their scope by indicating the boundaries of real estate and keeping a land register are the foundation of social order and economic stability (Williamson, 2001). A clear definition of the scope of rights is crucial for the protection of citizens' interests, the functioning of real estate markets and the implementation of public and private investments (Deininger & Feder, 2008). Without reliable geodetic data, the concept of ownership is at risk of losing its practical effectiveness, and a breeding ground for constant disputes and legal uncertainties (Lai *et al*., 2018).

3. ROLE OF GEODETIC SURVEYING

FIG (2004) defines a surveyor as "*a professional person with the academic qualifications and technical expertise to conduct one, or more, of the following activities;*

- *to determine, measure and represent land, three-dimensional objects, point-fields and trajectories;*
- *to assemble and interpret land and geographically related information,*
- *to use that information for the planning and efficient administration of the land, the sea and any structures thereon; and,*
- *to conduct research into the above practices and to develop them*."

While the role of architects and other built environment professional in the society is well established and communicated (Commonwealth Association of Architects, 2018, 2020; ACE, 2024), comprehensive understanding and public communication of the role of geodetic surveying remains scattered. To address this in the context of the above definition, following on Schuster (2004), this section discusses the role of geodetic surveying in terms of public governance, land reallotment, use and spatial planning, economic value of geodetic surveying, efficiency of the real estate markets, impact on construction, infrastructure and industrial facilities development, natural environment, social, health, safety and well-being, disaster management, culture and heritage, and tourism.

3.1 Public governance

The importance of geodetic surveying is revealed in **the functioning of public administration** (Georgiadou & Stoter, 2010; Ganczar, 2021). Spatial data provides an information base for institutions from many sectors, enabling the coordination of activities and the integration of public policies (Čada & Janečka, 2016; Ahmad *et al.*, 2025). An efficiently functioning administration whose activities are based on reliable geodetic data is more predictable and transparent (Mansberger *et al*., 2012; Klimach *et al*., 2018), which is conducive to building social trust (Wiencierz & Luenich, 2022). Moreover, reliable geodetic data limits subjectivity of administrative decisions (Kocur-Bera & Frąszczak, 2021), as they can be referenced to objective data and verified against uniform criteria (Krügel *et al.*, 2024).

In addition, the integration of spatial information with social and economic data supports informed decision-making (Torrieri & Batà, 2017). This makes it possible to better target public interventions and assess their effectiveness in the longer term (Lech *et al*., 2018). In this context, participatory processes and **social control** are also important, as they require a common, understandable and comparable language of space description (Appleton & Lovett, 2005). Sharing reliable geodetic data fosters transparency in public activities, enables citizens to verify the effects of public decisions, and strengthens a culture of shared responsibility for space (Ballari *et al*., 2025). Geodetic surveying then becomes an element of information infrastructure that supports social dialogue and increases the quality of the decision-making process (Williamson *et al*., 2006).

At the **state level**, geodetic surveying is **an integral part of territorial sovereignty** (Abidin *et al*., 2005; Silver & Shoshany, 2009). Spatial reference systems and geodetic data resources enable the exercise of control over the territory and the conduct of an independent spatial policy (Faxon *et al.,* 2022). Local and regional governments base their activities on reliable information about the national and regional territorial boundaries (Runfola *et al*., 2020). They operate within legally defined authorities where local governments provide public services (Karnowski & Rzońca, 2021) or collect taxes (Burzyńska, 2022). In case of the latter, issues related to borders often relate to discrepancies between administrative and cadastral boundaries (Kociuba, 2021). Geodetics surveying supports these processes through technical and documentation activities that result in the provision of unbiased spatial data (Saberrad & Zamani, 2016). However, they do not make political decisions about the course of borders (Shrestha, 2021).

In many countries, transfer of rights to real estate is only possible through contracts that are prepared by notaries or other designated lawyers (e.g. conveyancers in the UK) specializing in real estate law (Morandi, 2007). They rely on cadastral data to ensure security of transactions, while surveyors provide or verify the spatial information that forms the basis for the documents they prepare (Klimach *et al*., 2023). Such cooperation reduces the risk associated with misrepresenting of traded real estate rights (Abdulai & Owusu-Ansah, 2014).

3.2 Land reallotment, use and spatial planning

The importance of geodetic surveying is also indisputable **in spatial planning processes** (Bydłosz *et al.*, 2018; Vaitis *et al.*, 2022). Geodetic data provide reliable information about the structure of the space to be shaped by means of new planning prescriptions (Unger & Bačić, 2011; Cysek-Pawlak *et al*., 2023). Without such information, spatial planning would lose its operational function, thereby becoming only a collection of declarations devoid of a real reference to the terrain (Schindler *et al*., 2018). Geodetic surveying makes it possible to organize space in a systematic way, ensuring consistency between planning documents and actual land use (Subedi *et al*., 2025). The social benefit of this process is to prevent or reduce spatial chaos (Ćwik, 2024), prevent functional conflicts (Wang *et al*., 2025), and improve the quality of life of residents (Mouratidis, 2021).

In the practice of spatial planning, the dimension of mobility and accessibility is also particularly important (Telega *et al*., 2021). Analyses of transport networks, spatial barriers, continuity of road and pedestrian systems, and the distribution of public services require precise geodetic data (Deliry & Uyguçgil, 2023; Villanueva-Durbán *et al*., 2025). Thanks to such data, it is possible to design solutions that improve access to services and functional cohesion of urban areas (Škoda *et al*., 2025). Moreover, with the help of geodetic procedures and based on planning documents, changes are made to the built environment (Šoškić *et al*., 2022). Land consolidation and subdivision for reorganisation and redistribution plots of land improve land use or increase development potential, while guaranteeing land rights (Gong & Tan, 2021).

Surveyors play a key role in these activities by preparing geodetic and legal documentation, in which they design new plot layouts (Łuczyński & Stańczuk-Gałwiaczek, 2016).

3.3 Digital spatial information services

Public services for citizens are increasingly digitalised (Latupeirissa *et al*., 2018) and their effectiveness frequently depends on digital spatial data (Latre *et al*., 2013). In practice, this means the need to unambiguously identify the properties as objects and link them to the associated property rights and administrative restrictions (Lemmen *et al*., 2014). In such a situation, geodetic data acts as a reference layer that integrates various registers (Mika, 2017), thanks to which it is possible to automate procedures, handle applications remotely and make consistent decisions (Noardo *et al*., 2020). The prerequisite is timely availability of high quality data, as well as technical and institutional interoperability that helps maintaining the reliability of digital processes (Bielecka *et al*., 2018). Moreover, the importance of geodetic surveying is revealed in the **development of location services** (Tsuji & Komaki, 2005). Logistics, navigation, delivery services, business analytics, urban applications, and digital space models all use geodata as the basis for operations (Sadoun & Al-Bayari, 2007). In this sense, geodetic surveying affects the daily functioning of residents and the efficiency of economic processes, becoming not only an administrative tool, but also a key data infrastructure for the private sector (Bond, 2016).

3.4 Economic value of geodetic services

The importance of geodetic surveying is also revealed through **its links to financial and fiscal systems**. Information about the property is the basis for the assessment of local taxes and fees (Kent, 1988), as well as for the processes of valuation of real estate for the purposes of its trading (Cienciała *et al.*, 2023) and determination of damages (Konieczna & Trystuła, 2012). As a consequence, geodetic surveying affects the fairness of financial burdens, the stability of economic turnover and the security of credit and investment decisions (Enemark, 2009). On the other hand, the **economic value of surveying services** is also important (Geospatial Council of Australia, 2024). In this context the surveyors' primary task is to reduce the risk of errors and disputes, shorten decision-making processes and enable process automation across many sectors. Thus, geospatial services create an ecosystem that permeates administration, industry and services for citizens, and investments in reliable data and spatial services generate measurable macroeconomic benefits.

3.5. Efficiency of real estate markets

It has long been observed that there are persistent challenges to **transparency in real estate markets** (Wiejak-Roy *et al*., 2024). Despite several attempts and major improvements facilitated by the use of digital technologies, reliable and easily understood property information that links land, building, environmental, heritage and economic data is still problematic even across European countries (Wiejak-Roy *et al*., 2026). Such integrated data is

necessary to reduce transaction costs and make informed investment decisions. Geodetic surveyors, with their technological skills play a key role in accurately capturing geospatial data and combining it with other datasets. Moreover, in most European countries, geodetic surveyors dealing with property surveyors are entrusted with independent valuation tasks that are critical for functioning of real estate markets (TEGOVA, 2024).

3.6 Construction, infrastructure and industrial facilities development

Every **construction investment**, regardless of scale and use, is based on measurements and geodetic studies that determine its location, scope and relations with the environment (Lam, 2001; Skorupka *et al*., 2018). Geodetic surveying translates design assumptions into executive reality. Setting boundaries, identifying points of reference on the ground, monitoring of displacements and deformations during construction, or as-built inventory are guarantors of safety in every investment process. The durability of built facilities and the safety of their users depend on the quality of these studies (Scaioni *et al*., 2018; Zaczek-Peplinska & Kowalska, 2022). Surveying errors can lead to serious consequences, ranging from construction delays (Palaneeswaran *et al*., 2007; Kim *et al*., 2024) to construction disasters (Kruszka & Ostrowska, 2024). In this context, geodetic surveying has a preventive function, protecting the public interest by minimizing risk at an early stage of the investment process (Zaczek-Peplinska *et al.*, 2018). In addition to the implementation of new investments, geodetic data supports the long-term management of housing and other construction facilities (Kang & Ong, 2015). Reliable as-built documentation, verification of areas and volumes, and consistent spatial referencing facilitate their maintenance and upgrades (Klein *et al*., 2012).

In addition, within the broadly understood geodetic surveying, a special role in the investment process is played by specialists dealing with the land registry (Karabin, 2025). Their work is not only technical, but also legal and evidentiary (Karabin & Łuczyński, 2024). They interpret legal titles to real estate, reconstruct boundaries, document rights and restrictions, and prepare studies used in administrative or judicial procedures (Pęska, 2012) and in construction processes to determine the scope of investments.

Public infrastructure, such as roads, schools, hospitals, railways, or airports, requires a coherent spatial reference in design, land acquisition for construction, implementation control and maintenance (Pantha *et al*., 2010; Hu *et al*., 2023). This also applies to critical infrastructure in sectors such as energy (Eichhorn *et al*., 2018) or defence (Sobczyński & Pietruszka, 2017). In these areas, trusted reference systems and validated positioning support system resilience, prompt repairs, safety constraints, and interoperability (Kaasalainen *et al*., 2021; Petrenj *et al*., 2023).

A special case of infrastructure, strongly dependent on spatial data, is **the underground utilities of the area** (Li *et al*., 2019). Reliable information on gas, energy, water and sewage, heating or telecommunications networks translates into the safety of earthworks carried out in their immediate vicinity. Precise location data reduces risks of failures, helps to remove defects

and reduces social and economic costs associated with interruptions in the supply of services (Matje *et al*., 2015). Across Europe efforts are made to improve increasingly complex underground infrastructure networks to reduce infrastructure development costs, speed up development processes and to improve security of the underground infrastructure facilities (CLGE, 2024; Goodman, 2025).

3.7 Natural environment

The role of geodetic surveying is also crucial **in environmental protection** and sustainable development (Scott & Rajabifard, 2017; Cetl *et al*., 2024; UN Statistical Commission, 2025; UN-GGCE, 2025). About 65% Sustainable Development Goals are directly linked to territorial and urban development, making geodetic surveyors critical for achievement of these goals (UN Habitat, 2020).

Monitoring of land use changes (Hejmoanowska & Kramarczyk, 2025), spatial pressure analysis (Nasr & Orwin, 2024) and identification of areas of natural value (Geneletti, 2004; Deribew *et al*., 2022) are based on geodetic data. Thanks to them, it is possible to **rationally manage natural resources** and make decisions that take into account long-term environmental impacts (Sharma *et al*., 2024). Thus, geodetic surveying makes it possible to combine the spatial dimension with environmental analyses, creating the basis for a responsible development policy (Zwirowicz-Rutkowska & Michalik, 2016).

The same is true for **agriculture** (Zysk *et al*., 2020). In this case, geodetic data on the agrarian structure enable rational management of agricultural land, by enabling production analyses (Reumaux *et al*., 2023) and supporting consolidation processes (Maciąg *et al*., 2024). In this sense, geodetic surveying affects food and economic security (Rockson *et al*., 2013), as well as the long-term quality of the landscape and spatial order in agricultural areas (Różycka-Czas *et al*., 2019). By reducing soil degradation, creating ecological corridors, or improving water management, land consolidation and exchange can also bring environmental benefits (Podhrázská *et al*., 2015).

Geodetic surveying also supports the responsible management of non-renewable resources through mining measurements, monitoring of subsidence and deformation, and documenting the spatial effects of exploitation (Guzy & Witkowski, 2021; Long *et al*., 2025). This integrates economic value with environmental accountability and security (Xiong *et al*., 2025).

Spatial data is critical for maritime management (Roy *et al*., 2022) and adaptation to climate change (Roest *et al*., 2023). Bottom bathymetry and coastline measurement support shipping safety, fisheries management, off shore windfarm construction, maritime spatial planning, pollution monitoring, and the protection of undersea telecommunications and energy infrastructure (Hell *et al*., 2012; Dragun, 2022; Makrakis *et al*., 2023; Ma *et al*., 2024). In addition, consistent reference data on undulation, landscaping, terrain forms together with hydrography modelling are the basis for flood risk assessment, early warning systems and

resilient design of flood infrastructure under conditions of more frequent extreme weather conditions (Gesch, 2018; Idier *et al.*, 2021; Lekkerkerk, 2022).

3.8 Social, health, safety and well-being

Geodetic data also reveal **inequalities** in access to infrastructure, public services or recreational areas (Malaker & Meng, 2024). Thanks to such data, it is possible to objectively diagnose social problems of a spatial nature and design public interventions aimed at equalizing opportunities (Robin *et al*., 2019). Spatial justice then ceases to be just a normative postulate, and becomes an analytical category based on measurable data (Hao *et al*., 2025).

The area of **public health** is also connected to this area. Analyses of the distribution of environmental hazards such as noise (Gharehchahi *et al*., 2024), air pollution (Ye *et al*., 2024) or heat islands (Teo *et al*., 2022), as well as infection control (Kamel Boulos & Geraghty, 2020; UNECE & FAO, 2021; Aboalyem & Ismail, 2023) and access to health and social services (Guagliardo, 2004; Polo *et al*., 2015) require reference to reliable spatial data. This makes it possible to plan public interventions better suited to the real needs of residents and mitigate spatial risks (Todd *et al*., 2021).

Another important area is **public safety and crisis management**, where geodetic surveying provides tools to identify natural and anthropogenic hazards, such as floods, landslides, fires, earthquakes, or wars (Vučić *et al*., 2021). Precise spatial data enables planning of preventive actions and effective response in crisis situations (Der Sarkissian *et al*., 2019). The social value of geodetic surveying in this context lies in the **protection of life and property** and in increasing the resilience of communities to extreme phenomena.

3.9 Disaster management

In **disaster management**, reliable geodetic data are part of the critical infrastructure (Snoeren *et al*., 2007). They enable quick assessment of emergency situations, coordination of services and impact assessment (Shiraishi & Usuda, 2025). The ability to combine data from multiple sources and immediately translate it into operational activities (Fang *et al*., 2023) enables prevention, preparedness (designation of evacuation zones, planning of access routes), response (location of supply interruptions and sensitive objects, evacuation), recovery and reconstruction (assessment of resource availability, prioritization of remediation works) (Moss *et al*., 2024; Schneider *et al.*, 2025). After the response phase, the same data supports the damage inventory and recovery phase (Richardson & Renner, 2007). In this sense, the role of surveyors is to provide a coherent picture of space that reduces informational chaos and increases the effectiveness of institutions (Steen-Tveit & Munkvold, 2021; CLGE (2023); Moss *et al.* (2024).).

3.10 Culture and heritage

In addition, a special though often underestimated area that requires spatial data is the **shaping of society's memory** (Synenko, 2018; Qui *et al*., 2025). Archival maps and measurement documentation inform the creation of reliable and continuous knowledge about the history of the space in which we live and help comparing changes at different historical moments (Affek *et al*., 2022). This makes it possible to analyse the effects of past spatial decisions (Ciampi *et al*., 2025), reconstruct lost landscapes (Brůha *et al*., 2020) and objects (Guidi *et al*., 2014), and protect our cultural heritage (Penjor *et al*., 2024). Hence geodetic surveying can be seen as a vehicle to carrying our collective memory and thus enabling responsible reference to the past in the processes of planning the future.

3.11 Tourism

Tourism is one of the important beneficiaries of spatial information services (Nguyen *et al*., 2023). Reliable spatial information determines how easy it is to reach the target and how to move safely in the field (Taczanowska *et al*., 2008) and how to show a place attractively through maps (Robinson *et al*., 2017) and visualizations (Tometzová *et al*., 2020; Bieda *et al*., 2021). Well-prepared geodetic data allow for the creation of reliable tourist cartography, wayfinding systems, navigation, as well as location content with a description of tourist routes (Molnár, 2020). For tourism facility administrators, it is also a management tool (Šoltésová *et al*., 2025) that allows you to monitor the use of trails and attractions, direct traffic during peak periods, protect sensitive areas, plan accompanying infrastructure, and ensure quick access for emergency services (Paliaga *et al*., 2023). As a result, geodesy supports tourism both from the marketing and operational side, which translates into the quality of tourist services and the durability of their resources.

4. PUBLIC TRUST PROFESSIONS IN EUROPE

Approximately half of EU citizens move for employment reasons (Adamis *et al*., 2019). The Professional Qualifications Directive (PQD) (EU, 2025a), establishes an EU system of recognition of professional qualifications to facilitate mobility of professionals within the EU. Regulated professions account for about 22% of the European labour force, representing around 50 million citizens (EC, 2016). The EU automatic recognition procedure (available for professions with harmonised minimum training requirements) works well and improves mobility of doctors and nurses (Adamis *et al.*, 2019, Kokaj, 2023). However, differences in the education and training requirements and cooperation between competent authorities across the EU are the main obstacle to effective recognition of qualifications (Adamis *et al.*, 2019).

As noted by Henssler and Kilian (2009), the current EU regulations restrict geodetic surveyors from exercising freedom in providing services and upholding freedom of the establishment. To that CLGE proposes smart regulation for geodetic surveying in Europe (Krupa *et al.*, 2023). Such a proposal is in line with the current thinking of CEPLIS - The European Council of the Liberal Professions promoting moral, cultural scientific and material interests of the liberal professions.

Over the recent years, other regulated public trust professions facing similar challenges to geodetic surveying have considered means to promote quality and trust in their professions, while supporting mobility across the EU member states and by that improve the efficiency of the EU's labour market. Nurses and midwifery professions have been long subject to EU standards (WHO Europe, 2009) and since 2024, nurses responsible for general care, dental practitioners, and pharmacists are subject to harmonised training requirements that simplifies mobility and helps to improve healthcare provision across the EU (EU, 2024). Similarly, the European Association of Psychotherapy since 2018 is working towards the European Psychotherapy Act (EAP, 2018). These all pave a way of CLGE towards EGSAct.

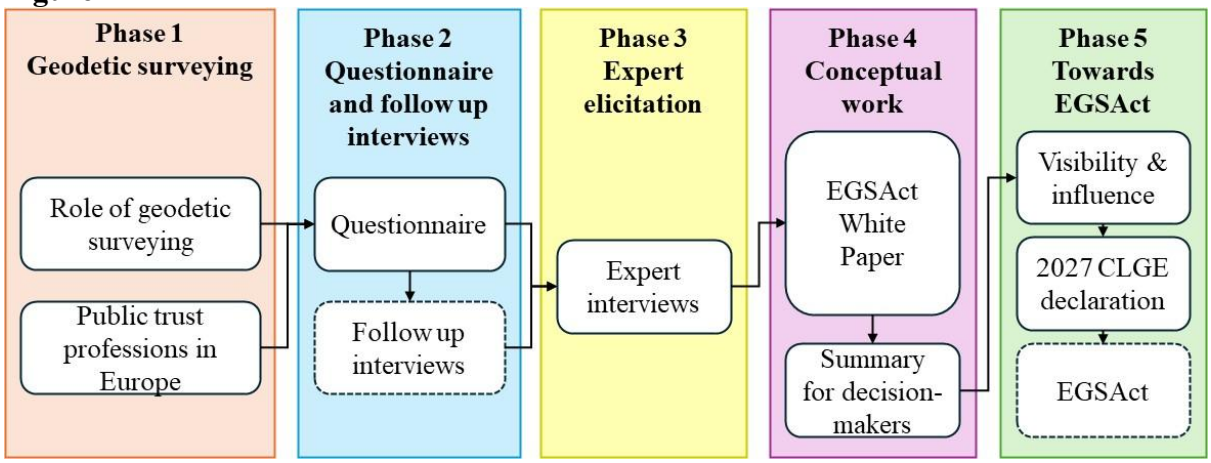
5. METHODOLOGY

The project involves a sector-wide study developed in phases that will generate a robust dataset allowing to assess the current state of the profession in Europe and the profession's contributions to the society (**Figure 1**):

- Phase 1 involves a comprehensive literature review focusing on current understanding of the role of geodetic surveying in Europe and an overview of the current state of affairs with respect to other public trust professions, including especially legal, health-related and built environment professions. In this phase we plan to expand on chapter 2 of this paper and explore various perspectives on geodetic surveying, including social, legal, economic and philosophical.
- Phase 2 deals with primary data collection and involves collecting and analysing quantitative on-line questionnaire of senior geodetic surveying professionals across European Countries. The on-line questionnaire will generate a robust dataset on demographics, education, licensing, professional standards, and technological adoption (e.g., BIM, GNSS, AI). To collect rich qualitative data and to validate the questionnaire results, follow up interviews with be conducted with selected questionnaire respondents.
- Phase 3 includes conducting qualitative semi-structured interviews with economists, legal scholars, and sociologists to assess the profession's macroeconomic contributions, legal certainty and land governance, public trust, and social impact in areas such as disaster resilience and urban sustainability. These interviews will also seek to identify strategic recommendations for enhancing the profession's contribution to EU policy goals, including digitalization, climate resilience, and territorial cohesion.
- Findings from these phases will inform the conceptual work (Phase 4) culminating with the EGSAct White Paper accompanied by policy-oriented summary for decision-makers.
- Finally, in Phase 5 the White Paper and other materials derived from it will be used for knowledge dissemination and engagement, including a targeted visibility & influence campaign to promote EGSAct and lobbying to draft and implement the actual European Geodetic Surveyors Act. This phase will involve public outreach, academic publications, and policy dialogues to enhance the visibility of the profession and its alignment with priorities of the European Union (such as the Green Deal, digital transformation, and

territorial cohesion (EU, 2025b, 2025c; EU, 2026)). A key milestone will be a conference declaration to be adopted at the XI CLGE Conference of the European Surveyor in 2027.

Figure 1



Source: Authors' own

Work on Phases 1, 2 and 3 is expected to be completed by mid-2027 with the EGSAct Paper published by Autumn 2027. This paper provides an overview of the work planned for Phase 2 - Online survey.

5.1 Phase 2 - Sampling

In line with Etikan *et al.* (2016), experienced professionals are selected as respondents via purposive expert sampling. These include professionals working in geodetic surveying across the private and public sector as well as in the higher education sector. Participants are specifically sourced among members of CLGE, who represent European professional bodies associating geodetic surveyors. Addressing the questionnaire to participants, who are members of their relevant national professional organisations, ensures that they are competent to respond to the questionnaire and can be reasonably expected to respond professionally. Since they are bound by strict ethical standards and duty of care to their respective professional organisations, they can be reasonably expected to provide well informed and factually correct responses to questionnaire questions.

5.2 Phase 2 - Data collection

This Phase 2 of the research is based on an online questionnaire through which we collect views of a wider range of geodetic surveyors operating across European countries, which allows the gathering of first-hand experience. An on-line questionnaire as a research instrument has been selected as it enables data comparison and both qualitative and quantitative analysis and helps boost the response rate needed to collect sufficient evidence from participants across a number of countries. To obtain a rich picture of their understanding and impressions on the current state

and the role of geodetic surveying in Europe, the questionnaire included qualitative multiple-choice and Likert scale questions and questions allowing participants to freely express their perspectives (Denzin & Lincoln, 2005). The questionnaire covers participants personal profiles, routes to geodetic surveying, surveying skills, professional regulations, organisations and practice, role of SDGs and technology (incl. artificial intelligence) in shaping the future of geodetic surveying, social, political and economic perspectives on geodetic surveying, engagement with the society and ideas on how to raise the profile of geodetic surveying in Europe.

5.3 Phase 2 - Data analysis

For statistical analysis, all primary multiple-choice and Likert scale data is analysed using frequency analysis, whereas qualitative text responses are examined using the six-step thematic analysis including (1) familiarising with data; (2) generating initial codes; (3) searching for themes by combining codes; (4) reviewing themes; (5) defining themes; and (6) reporting findings (Guest *et al.*, 2012; Braun & Clarke, 2022).

5.4 Phase 2 - Ethical considerations

This study is performed following the ethical standards as laid down in *The European Code of Conduct for Research Integrity* (Allea, 2023). Before commencing the survey, all participants are informed of the nature of the study via a participant information sheet detailing that their consent and involvement are anonymous and entirely voluntary. Following the survey, participants are given a two-week window to allow them (if they desired) to withdraw their responses.

6. NEXT STEPS

At the FIG 2026 Congress we will report on current wealth of knowledge on the role of geodetic surveying in Europe, provide details of the questionnaire and invite participants to engage with the questionnaire. It is expected that discussions following the presentation will inform developing the detailed questions for expert interviews to be conducted in Phase 3 of the research.

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BIOGRAPHICAL NOTES

Dr Grazyna Wiejak-Roy is a Senior Lecturer in Urban Economics and Real Estate. Her research is on investment strategies, transaction risk, the changing nature of the retail real estate market, and land management. Grazyna is a Fellow of the Royal Institution of Chartered Surveyors, Chartered Valuation Surveyor and a Senior Fellow of the Higher Education Academy. Grazyna is a co-founder of LINK – Land – International Network for Knowledge,

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Dr Agnieszka Bieda is an Associate Professor at the AGH University of Krakow, Poland. Her research interests include spatial planning, urban regeneration, cadastre, and real estate valuation and market analysis. She is Editor-in-Chief of the journal 'Geomatics and Environmental Engineering', a member of the Task Force for Legal and Urban Planning within the Polish Academy of Sciences, and Poland's national delegate to FIG Commission 3. She is also a board member of the Polish Real Estate Scientific Society, member of the Polish Association for Spatial Information, Croatian-Polish Scientific Network, and the Association of Polish Surveyors.

Matjaž Grilc is a senior geodetic expert and strategic coordinator at the Surveying and Mapping Authority of the Republic of Slovenia (GURS). His work focuses on land administration systems, spatial data infrastructures, and the digital transformation of cadastral systems and national geospatial services. He is a long-standing Slovenian delegate to the Council of European Geodetic Surveyors (CLGE) and has been actively involved in the IG-PARLS working group on property surveying. He coordinates major national initiatives such as Geo Slovenia and SLO4D (Green Slovenian Location Framework), integrating spatial data, processes, and stakeholders into a coherent national geospatial ecosystem aligned with EU digital and Green Deal policies. Internationally, he has contributed to projects related to national spatial data infrastructures (NSDI), spatial planning in connection with cadastre - Smart Parcel concepts, and utility cadastre development, in assignments supported by the World Bank and Lantmäteriet. His professional interests include digital twins, geospatial governance, and the strategic role of the geodetic profession within European policy frameworks.

Vladimir Krupa is a CIO and Project Leader at the design company Zavod za urbanizam i izgradnju d.d. Osijek, where he is responsible for spatial data management, information technologies, and development. His professional work integrates geodetic expertise with urban planning, geodetic support for design and construction, and the digital transformation of planning and development processes. Following the establishment of the Croatian Chamber of Chartered Geodetic Engineers (HKOIG) in 2009, he was a member of its Management Board and was President of the Chamber from 2013 to 2019. He was a long-standing representative of HKOIG in the Council of European Geodetic Surveyors (CLGE) from the Chamber's admission to CLGE membership and chaired the CLGE Interest Group on Publicly Appointed and Regulated Liberal Surveyors. From 2020 to 2024, Vladimir Krupa served as President of CLGE. His leadership was marked by the inclusion of a significant number of new corporate and institutional members, continuous efforts toward the standardization of geodetic professional activities across European countries, and contributions to shaping the profile of the modern European geodetic professional.

Nicolas Smith is the President of CLGE. After graduating from the INSA Strasbourg engineering school with a specialization in topography, Nicolas joined a surveying firm where

he completed his two-year internship and has remained for the past eighteen years. Based in Val d'Oise, he undertakes a wide range of assignments, including land surveying, co-ownership projects in both new and existing buildings, volume divisions, as well as survey and monitoring operations throughout the northern Paris region. In 2007, he joined the Europe & International Commission of OGE and subsequently became its delegate to CLGE. He later served as Vice-President of CLGE and Chair of the IG-PARLS Group, which brings together regulated surveying professions across Europe. Treasurer of CLGE since 2018, he was elected President of the organisation in 2024.

Jean-Yves Pirlot is the President of the newly established Chamber of Property Surveyors in Belgium. He also serves as Director General of CLGE (Comité de Liaison des Géomètres Européens – the Council of European Geodetic Surveyors), where he previously held the positions of Secretary General and President. He represents CLGE within CEPLIS, the European Council of Liberal Professions, where he is currently serving his second consecutive term as Vice-President. Following a military career—during which he qualified as a geodetic surveyor within the Belgian General Staff—he joined the Belgian National Mapping Agency as Deputy Director General, a position he held for twelve years. He now manages a small surveying and consultancy firm, while devoting most of his time to professional organisations and bodies. Jean-Yves is an active FIG Delegate for Belgium since 2014.

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