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# FOSSR

Fostering Open Science in Social Science Research  
Innovative tools and services to investigate economic and societal change

## HIGH-QUALITY, HIGH-FREQUENCY INDIVIDUAL DATA PRODUCTION IN ITALY: INNOVATION INTRODUCED BY FOSSR

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## OUTLINE

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### Presentation

This policy brief addresses the increasing demand for timely, reliable, and granular social science data to inform research and public decision-making in contexts of rapid social, economic, and political change and urgent issues. Online panels for survey research and large-scale behavioral laboratories have become essential tools for monitoring societal dynamics and evaluating policy interventions, yet Italy has historically lacked a publicly governed infrastructure capable of delivering such services at scale.

This contribution illustrates how the FOSSR (Fostering Open Science in Social Science Research) project aims to fill this gap through the development of an integrated research infrastructure combining three complementary services. The Italian Online Probability Panel (IOPP) is being developed to provide probability-based longitudinal data for monitoring social transformations, enabling a representative depiction of social phenomena and alignment with leading European survey infrastructures. The Online Research Panel (ORP) is an opt-in panel calibrated through quota sampling, designed to support socio-economic research, particularly by enabling the investigation of emerging phenomena and the study of specific subpopulations. Poolpo enables large-scale behavioral experimentation, facilitating access to a broad base of volunteers and supporting the design and real-time monitoring of experimental activities.

By integrating these services within a single, open, and publicly accessible framework, FOSSR enhances the capacity of Italian social science to produce policy-relevant evidence while ensuring transparency, ethical standards, and compliance with FAIR data principles. Such an ecosystem contributes to more responsive, inclusive, and accountable policymaking, strengthens public trust in data-driven governance, and aligns Italy with leading European research ecosystems.

## 1. Introduction and questions

As societal challenges grow more complex, the frameworks supporting Social Science research are also evolving. Social, demographic and economic information has always been a necessity for human communities, but nowadays the demand extends beyond data collection to include the timeliness of information and the anticipation of potential impacts on the recipients of specific actions and policies. For policy officers and public institutions, this means having access to up-to-date evidence to guide strategic planning and support data-driven decision-making. In this context, innovative research tools and services for investigating economic and societal changes have become critical to supporting high-quality data collections and evidence-based policymaking.

Research panels for conducting surveys and large-scale laboratories for studying human behavior on large groups of people are services capable of responding to these needs. They enable social science researchers and policymakers to monitor values, behaviours, and attitudes, analyze social trends, anticipate policy effects, and design targeted scenarios across a wide range of social domains.

Research panels consist of groups of individuals who participate in repeated surveys over time, allowing the observation of individual-level changes and providing valuable insights into social trends. They can also be used to administer cross-sectional surveys, unrelated between each other. A specific type, based on web interviews, is the online panel, which was introduced to overcome the limitations of traditional survey methods. Online panels have benefited from increasing internet penetration and technological innovation, enabling faster and more cost-effective data collection (Baker et al., 2010).

Panels generally fall into two categories:

**Probability panels** are composed of groups of respondents selected following a sampling design that involves random selection. If the panel is sufficiently large, this selection method makes it suitable for producing representative estimates associated with a probability of sampling error. Constructing probability panels is costly and time-consuming, but it allows for answering informational questions with high-quality and high-value data (according to Callegaro et al., 2015 - "accurate, reliable, relevant, well-documented data").

**Non-probability panels** recruit participants through voluntary opt-in methods, enabling rapid and cost-efficient data collection. While this approach may lead to self-selection issues and differences in representativeness across population groups, techniques such as quota sampling and data weighting mitigate biases in descriptive estimates. At the same time, non-probability panels are effective for analyzing relationships between variables, identifying patterns, and studying dynamics within sub-populations (Freese & Jin, 2025).

**Large-scale laboratories** provide researchers access to extensive participant pools for behavioural experiments. These controlled settings allow to precisely test causal relationships and isolate specific variables - a key advantage over observational studies. Running behavioral experiments in large-scale laboratories can accommodate

complex experimental designs with multiple conditions and allow for systematic replication of findings. Moreover, the large scale of these experiments offers a better understanding of the way in which humans behave in large groups, and can help with real-world issues and with the testing of policies.

This policy brief addresses two key topics.

On the one hand, it highlights the central role research panels and large-scale laboratories play in monitoring the evolution of society in a timely, flexible, and granular way - an emerging and frequently unmet **informational need**.

On the other hand, it underlines the **need for a public research infrastructure** that makes these services available through open and collaborative access. Such an infrastructure should serve both as a resource for social scientists and as a tool for public institutions, enabling a more democratic production and access to knowledge.

The policy brief will then show the potential of combining panel-based services and experimental research within an **integrated infrastructure offered by the FOSSR (Fostering Open Science in Social Science Research) project** to enhance the capacity of social science to generate actionable knowledge.

## 2. Topic addressed

*Understanding, monitoring, and anticipating* social dynamics is critical for navigating contemporary society. In the face of accelerating technological, environmental, health, economic, and political transformation, the ability to produce timely, granular, and reliable knowledge about societal processes has increasingly become a structural requirement for informed governance and public accountability. Thus, **research panels and laboratories for behavioral research become central tools to advance empirical social science and support evidence-based policy-making.**

These services enable scientists and stakeholders to explore several **key questions**, relevant to policy design, management and implementation such as:

- i) How do citizens' attitudes, values, norms, and behaviors evolve in response to social or political changes?
- ii) What are the short- and long-term effects of public interventions on different population groups?
- iii) How can targeted interventions be designed to address the needs of underrepresented communities?

From a methodological perspective, having high-quality and timely data on citizens' values, opinions, attitudes, and behaviors is essential to track dynamics as they unfold and to understand causal relationships.

**Online panels** allow surveys to be deployed rapidly, with results available within days or weeks. This agility is particularly valuable in times of crisis or rapid social change, where real-time feedback is essential for responsive governance. A notable example occurred during the COVID-19 pandemic, when some countries relied on existing online panels to gather fast, reliable data on public behavior and needs. The German Internet Panel (GIP) was swiftly adapted into the Mannheim Corona Study, delivering daily longitudinal data to decision-makers. This provided

near real-time insights into public compliance, economic concerns, well-being, and shifting attitudes - enabling more informed and timely policy responses (Blom et al., 2020). Otherwise, in the Italian context, where no readily accessible probability-based panel existed during the COVID-19 pandemic, a large number of small-scale surveys emerged. However, with few exceptions (e.g., Cerbara et al., 2020), their results were not really representative of the entire Italian population.

**Large-scale laboratories** also facilitate the rapid recruitment of numerous participants to conduct studies aimed at better understanding the behaviour of large groups of people and testing interventions for achieving swift and effective large-scale behavioural changes in response to crises. For example, during the COVID-19 pandemic, it was possible to conduct large-scale behavioural experiments through collaborations between different laboratories at national and international levels, which helped understand how to align human behaviour with public health experts' recommendations (Bavel et al., 2020).

To fully harness the potential of research panels and large-scale behavioral laboratories, it is necessary to move beyond isolated initiatives toward stable, transparent, and **publicly governed infrastructures** capable of ensuring methodological rigor, ethical standards, and timely access to high-quality data.

Such infrastructures enable at least three fundamental advancements:

1. **Data as public good.** Publicly governed research infrastructures affirm the principle that high-quality social science data should be treated as a public good, rather than a private asset. When these services are developed and controlled by private actors, they risk becoming tools of value extraction, subject to market logics that may skew social research toward commercially viable domains and audiences, rather than pressing societal needs (Frischmann, 2012). **The public and open nature refers not only to the data produced by the services, but also to the possibility of accessing the services themselves.** Universities and other research institutions can benefit from the services provided by the public infrastructure to carry out research activities that would otherwise be difficult and costly to implement, relying on methodologically transparent and robust platforms.

2. **Enabling digital citizenship and participatory practises.** Such infrastructures are not merely technical tools - they can help foster a renewed model of digital citizenship. Especially in a time of political disengagement and social fragmentation, participatory research ecosystems can offer citizens opportunities to inform collective knowledge, co-construct knowledge, and shape better public policies.

3. **Protection of participants' rights and implementation of FAIR data principles.** Finally, in an era of data breaches, algorithmic opacity, and declining trust in digital systems, public infrastructures play a crucial role in safeguarding participants' rights - ensuring data protection, informed consent, and ethical standards beyond market-driven interests. At the same time, they are best placed to ensure that data are Findable, Accessible, Interoperable, and Reusable (FAIR).

### 3. How FOSSR can address

Unlike other European countries with consolidated infrastructures like GESIS (Germany) or ODISSEI (Netherlands), Italy has lacked in recent years a structured public offering of research panels or large-scale behavioral laboratories – an infrastructural gap that limits the ability of social sciences to effectively address urgent societal challenges. The FOSSR project addresses this infrastructural weakness in Italy’s social science ecosystem by supporting open tools for high-quality data collection and sharing, with a focus on transparency, participation, and alignment with societal needs. Through initiatives such as IOPP (a probability-based longitudinal panel), ORP (a flexible non-probability panel), and Poolpo (a behavioral research platform), FOSSR strengthens the capacity of social sciences to deliver accessible and policy-relevant knowledge.

**IOPP.** The Italian Online Probability Panel (IOPP) is the first initiative in Italy designed to produce probabilistic high-quality longitudinal survey data for monitoring social transformations. Developed in alignment with leading European experiences, it brings Italy into the broader landscape of advanced survey infrastructures, enabling both cross-sectional (comparing different groups once) and longitudinal (following the same group over time) analyses. IOPP is based on a nationally representative probability sample of individuals aged 18-74 from the national population register (ANPR). The data collection process is administered online. Five annual waves are provided, centered on a “Core questionnaire” that tracks, on an annual basis, stable constructs such as family and housing, health, education, employment, income, leisure, social integration, and political attitudes. The “Core questionnaire” is complemented by rotating or one-time modules, proposed by the researcher community through open calls issued by the National Research Council of Italy (CNR) and evaluated by a specifically constituted scientific committee. IOPP thus represents an open tool, accessible to the scientific community, ensuring scientific rigor and high-quality standards.

**ORP.** The Online Research Panel (ORP) is an opt-in (non-probability) panel composed of 10,000 adult residents of Italy, recruited through voluntary participation via social media channels. Its composition is calibrated *ex ante* through quota sampling on key

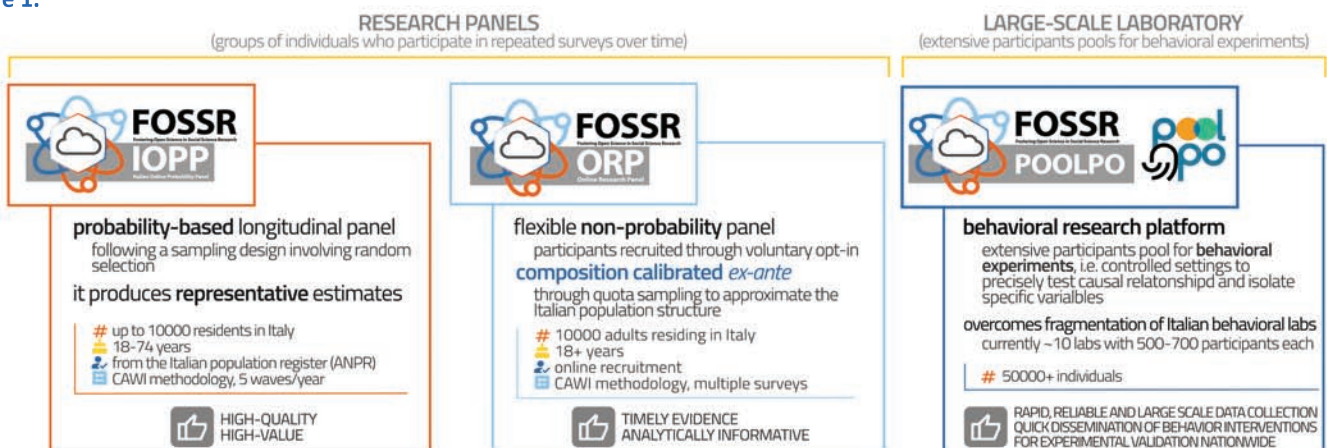
educational level), ensuring that panellists are enrolled in a way that approximates the Italian population distribution as closely as possible. Residual imbalances in representativeness are addressed *ex post* through data weighting techniques. A reserve sample of approximately 1,500 units and periodic panel refreshment help offset participant drop-out.

ORP is managed by CNR-IRCrES and accessible to the scientific community upon request, supporting the implementation of survey research. In its regular operation, ORP runs the periodic administration of its core questionnaire – the Observatory on Civicness and the Evolution of Society (CIVES Observatory) – developed by CNR-IRCrES and Carlo Cattaneo Research Foundation, through which it monitors changes in the opinions and orientations of the adult population in Italy, with particular attention to relationships between individuals, communities, and institutions.

ORP is well suited for research designs in social and economic domains focused on exploring latent constructs and relationships between variables; moreover, it allows studies on groups often underrepresented in traditional surveys, enabling the production of targeted data on specific subpopulations that complement the general-purpose information provided by IOPP. ORP supports research designs with timelines compatible with ordinary research projects, facilitating the provision of evidence on new or rare phenomena and allowing timely responses to unforeseen events or urgent policy questions.

**Poolpo.** Behavioral research in Italy is currently fragmented. There are approximately 10 behavioral laboratories, mainly located in central and northern regions of Italy. Each laboratory has a subject pool of about 500-700 participants, which limits the ability to conduct large-scale studies. Poolpo aims to make behavioral research more collaborative by connecting laboratories conducting behavioral experimental research across Italy and facilitating access to such research for researchers who don’t have their own laboratory. Poolpo provides participants with a modern and user-friendly web app, accessible via mobile devices. The platform aims to provide a large participant pool (50k+), ensuring rapid, reliable, and large-scale data collection, as well as the ability to quickly disseminate behavioural interventions for experimental validation among a broad base of volunteers recruited nationwide. Poolpo is developed by FOSSR in collaboration with the extended partnership Growing Resilient, Inclusive and Sustainable – GRINS.

Figure 1.



The added value of the IOPP, ORP, and Poolpo services offered on a single research infrastructure lies in the fact that, despite their very different nature, they complement each other. The methodological rigor that makes IOPP highly reliable yet somewhat rigid is matched by the flexibility of the ORP, which enables rapid analysis of emerging dynamics, with the possibility of studying specific subpopulations of interest. In addition to data collection, ORP also serves as a laboratory for methodological innovation to be repropounded in IOPP, enabling the testing of new survey designs, question formats, and participatory approaches to social research. On its side, Poolpo offers a further opportunity for advanced experimentation, making it possible to examine actual behavior rather than self-reported actions and creating more controlled conditions leading to stronger causal inferences. Therefore, it is not only the difference in methodological terms, but the very nature of the proposed output that determines the distinction and complementarity between the three services.

## 4. Policy evidence

Through IOPP, ORP and Poolpo, FOSSR wants to create a coordinated system that supports both empirical research and methodological innovation, positioning Italian social science within a broader European framework, aligning with established frameworks such as the European Social Survey (ESS), Eurobarometer, and the European Open Science Cloud (EOSC).

The availability of research panels and large scale experimental laboratories as open and public services through FOSSR carries important policy implications, reshaping how public decisions are informed and how research infrastructures engage with society.

One of the most tangible benefits of accessible panel data is its potential to support more responsive and informed policies. Policymakers can obtain rapid, evidence-based feedback on public needs and the potential effects of new policies. For instance, before launching a public health campaign, a targeted survey can quickly assess citizens' awareness, attitudes, or misconceptions, allowing communication strategies to be fine-tuned in advance. Establishing panel services as permanent infrastructure contributes to what we can now think of as a "real-time evidence ecosystem" for public decision-making.

Another key dimension is inclusivity and public participation. Open panels like ORP can serve as platforms for co-designing surveys, where not only researchers but also public agencies, civil society organizations, or even citizen groups are invited to propose topics or specific questions - under scientific supervision. Furthermore, a well-structured panel is designed to reflect the diversity of the population across regions, age groups, socio-economic conditions, and other relevant dimensions. This inclusiveness means that decisions informed by panel data are more likely to represent the perspectives of groups that are often overlooked in conventional consultation processes.

To maximize the strengths of panel methodologies, it is beneficial to maintain a dual-panel system - combining the robustness of probability-based panels (such as IOPP) with the flexibility of non-probability panels (such as ORP).

While IOPP provides a statistically representative backbone benchmark data, ORP allows for faster deployment, supports the analysis of emerging patterns and enables outreach to specific subpopulations. These two components can be designed to work in synergy - for example, by periodically fielding overlapping survey questions to both panels, enabling calibration and deeper analysis of differences (Lavrakas, 2022). This complementary model helps compensate for the limitations of each individual approach and provides a more complete picture of public attitudes and behaviors. Furthermore, one key advantage of having large-scale behavioral laboratories like Poolpo is the possibility to have easy and rapid access to participants to examine the dynamics of large groups of people over time and test the effect of different types of interventions in controlled contexts. The fast data collection makes it possible to contribute timely, transparent data that tracks behaviors, attitudes and norms over time and the size of the subject pool allows access to specific kinds of participants.

Equally important is the need to ensure methodological transparency and traceability. Every study conducted through these services is supported by comprehensive documentation, including information about sample recruitment, fieldwork timing, response rates, weighting procedures, and the strategies used to address bias.

From a societal perspective, the availability of an infrastructure that integrates services as research panels and large-scale behavioural laboratories plays an important role in making scientific knowledge accessible to policymakers and the public, thereby enhancing the social relevance and practical impact of research.

Figure 2.



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## Websites

IOPP: <https://www.fossr.eu/iopp>

ORP: <https://www.fossr.eu/online-research-panel-orp>

Poolpo: <https://www.poolpo.it>

FOSSR - Fostering Open Science in Social Science Research aims to become an Italian Open Science Cloud, along the lines of the European Open Science Cloud project, in which to integrate innovative services developed by the project for data collection, data curation and Fairness, and data analysis on economic and societal change. FOSSR fosters the building of an integrated knowledge sharing platform, a single point of access to all the tools and services made available by the Italian nodes of social science infrastructures: CESSDA, SHARE and RISIS adopt the common theme of the development of Open Science in the Italian context with the goal of creating a framework of tools and services for the social science scholar community.

FOSSR wants to promote toward multiple audiences, a widespread knowledge and awareness of the data and methodologies employed in empirical social science, fostering the growth of a broad societal environment favourable to further thriving of social science research in Italy, providing easy, open, streamlined access to social science data through innovative interfaces. The integration of this pool of resources shall concretely contribute to the realization of open science for scholars in social sciences, going with an important program of scientific training on methods and instruments for social science research based on FAIR empirical data.

*FOSSR Policy Brief Series aims to communicate key findings from the FOSSR thematic network to a non-specialized audience with a strong emphasis on the demonstration of usage cases of FOSSR resources. The series can accomplish two goals: improving the use of data for evidence-based policymaking and assisting the stakeholders in making informed decisions.*

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## AUTHORS OF THE CURRENT ISSUE:

Giulia Andrighetto | CNR-ISTC, Poolpo

Maria Bigoni | Unibo, Poolpo

Loredana Cerbara | CNR-IRPPS, IOPP

Claudia Pennacchiotti | CNR-IRPPS, IOPP

Andrea Simone | CNR-IRCrES, ORP

Andrea Orazio Spinello | CNR-IRCrES, ORP

Eva Vriens | CNR-ISTC, Poolpo

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## GRAPHIC DESIGN:

Serena Fabrizio, CNR-IRCrES

Rita Giuffredi, CNR-IRCrES