Scaling Digital Collaboration: How Project-Based Communities Shape EU Interoperability Rules in Health, Mobility, and Energy

Chloé Bérut, MSCA fellow, Ca' Foscari University of Venice (Italy)
Supervision: Sabine Saurugger (Sciences Po Grenoble - UGA)

Context and objectives. This project investigates how **small-scale**, **project-based international collaborations** evolve into **large-scale digital collaboration** at the **European Union** (EU) level, particularly through the adoption of interoperability rules. Interoperability refers to the capacity of different digital infrastructures to communicate and exchange data, even when they are owned by distinct organizations. Therefore, interoperability rules are a core component of digital collaboration, especially when it occurs on a large scale, such as within the EU, since they enable digital data to be exchanged and reused for a wide variety of purposes. To foster digital collaboration across sectors, the EU aims to establish **14 Common European Data Spaces** in areas such as health, energy, and mobility. These data spaces are designed to facilitate cross-border data flows and promote EU-wide digital collaboration. Such initiatives often lead to binding EU rules on interoperability. For instance, the European Health Data Space mandates standardized formats for health data, enabling doctors to collaborate across borders to improve patient care and allowing researchers to exchange datasets more easily. Although often perceived as purely technical, interoperability rules involve **sensitive political decisions** — especially regarding data. Key questions arise: Is the data underpinning large-scale collaboration relevant to all groups (inclusiveness)? Who can access it, and under what conditions (privacy and security)? Is data collection proportionate and safe for citizens (fundamental rights)? These choices are crucial, as data structures shape both the processes and outcomes of digital collaboration. As the EU's interoperability agenda advances, a central question emerges: **How are EU-level interoperability rules made?** This research project addresses that question by examining a specific yet underexplored aspect of EU rule-making: the role of **project-based communities** in shaping and structuring interoperability over the long term. In other words, it seeks to understand how small-scale digital collaborations influence large-scale EU-level collaboration in the long run.

Challenges and Originality. Beyond the formal EU decision-making process, typically driven by negotiations among institutions, interoperability decisions are also shaped by a distinct dynamic rooted in a specific instrument: the **European cross-border collaborative project**. EU interoperability rules often emerge from years of small-scale, international digital collaborations, where diverse communities co-develop solutions and lay the groundwork for interoperable infrastructures. In this context, large-scale EU digital collaboration is deeply reliant on the work and decisions of smaller project-based communities, whose everyday practices collectively shape long-term technical frameworks. Yet, **little is known about these communities** — who participates in them (private companies, public research infrastructure, civil servants, technology firms, interoperability experts), how they form and evolve, and how their characteristics influence the knowledge, tools, and infrastructures they produce. This project seeks to fill that gap by closely examining the internal dynamics of these groups and their role in shaping the foundations of EU-level digital collaboration.

Approach. This project will generate new insights into project-based communities operating within the EU interoperability ecosystem by advancing two key analytical directions:

1) The evolution from project-based groups to structured international communities for digital collaboration. Currently, little is known about how these communities are formed, why some evolve into lasting, structured networks (as seen in the health sector), and who their participants are. Do participant characteristics—such as professional background, institutional affiliation, or group homogeneity—play a decisive role? What motivates certain locally oriented groups to commit to long-term, cross-border collaboration? This line of inquiry explores how grassroots project dynamics can scale into enduring digital collaboration frameworks.

2) The influence of project-based communities on large-scale digital collaboration at the EU level. In addition to examining how these communities operate, this project explores how their specific characteristics influence the knowledge and infrastructural solutions they produce — such as decisions around **data standards**, **interoperability protocols**, and choices of **hardware** and **software**. A central line of inquiry concerns the **translation of knowledge** from small-scale projects into large-scale EU-level systems. How are local experiences and solutions scaled up? To what extent do project participants engage with the broader implications of their work beyond the immediate project context? How do they understand their role within a wider European digital infrastructure landscape?

Method. To answer the research question, this project adopts a **comparative approach**, examining project-based communities involved in EU interoperability across three sectors: **health**, **mobility**, and **energy**. These sectors vary in maturity, providing a valuable basis for comparing community development and collaboration at different stages.

- **Health:** The European Health Data Space represents the most advanced EU-level digital collaboration, allowing health professionals and scientists to collaborate remotely in order to improve patient care across the EU. Although regulatory frameworks are underway, key interoperability standards are still being defined. A long-standing, structured digital community is actively engaged, offering an opportunity to study collaboration and knowledge production at a mature phase. This case also allows exploration of how such communities interact with traditional EU decision-making processes involving experts, standardization bodies, private actors, and Commission-appointed specialists.
- **Mobility:** The European Mobility Data Space is less mature, enabling study of community formation at an earlier stage. Funded by the Connecting Facility Program, various local but internationally connected digital collaboration projects are underway. For example, the 'Deploy EMDS' project unites 16 digital collaborative initiatives across nine cities focused on multi-fleet management, traffic optimization, passenger information systems, and environmental data sharing — all intended to support future large-scale EU collaboration.
- **Energy:** At a similar developmental stage as mobility, the energy sector offers insights into emerging digital collaboration models. Multiple initiatives aim to optimize cross-border renewable energy consumption through digital collaboration. Unlike mobility, where initiatives appear diverse yet coordinated under a common framework, energy projects operate in a competitive landscape, with only one solution likely to prevail. This contrast suggests differing collaboration dynamics across sectors that warrant further investigation.

To answer the research question, this project adopts a **mixed-methods** design that combines qualitative and quantitative techniques in a three-stage investigation:
1) Comprehensive mapping of projects and associated communities within each policy sector. This phase aims to identify the communities, the nature of their participants, and their broad characteristics, as well as to determine which ones persist over time and how they relate to each other within the same sector.
2) Qualitative analysis of community dynamics through semi-structured interviews. One project per policy sector will be selected to gather exploratory insights into day-to-day operations: how new participants join, professional and collaborative practices, type of collaborative tools and infrastructure produced, and how members perceive their role within the broader digital collaboration ecosystem.
3) Quantitative assessment of community dynamics via a survey. Building on findings from the previous stages, a questionnaire will be developed and distributed to the identified project-based communities. This will provide more precise data on the forms of digital collaboration present and allow for statistical analysis linking community characteristics to outcomes.
Throughout the study, the project will leverage the **interdisciplinary expertise** of Pepr eNSEMBLE and collaborate with the INRIA team in Grenoble to enhance understanding of the communities' professional and technical practices and of how these influence large-scale digital interoperability.

Anticipated results. Academically, the project's anticipated results are multifold. First, it will advance knowledge about digital communities — how they emerge, the forms of collaboration they adopt and the tools they develop, and why some endure while others dissolve. More broadly, the project will contribute to understanding how power operates in the digital age by examining how digital collaboration reshapes **regulatory processes**. In particular, it will shed light on the **transformation from small-scale to large-scale forms of collaboration**.
From a **political science** perspective, the project seeks to break new ground in EU studies by analysing digital collaboration and technical governance as a new form of power at the European level — that is, the power to create digital networks. While existing theories often associate this power with private platforms, this research highlights how state or state-like institutions can also exercise it. Rather than emphasizing the decline of the state, as suggested by the notion of the 'platform state', the project explores how public actors can reclaim and redefine power in the digital age. The insights generated will lay the groundwork for an ERC Starting Grant proposal, scheduled for submission during the project's course.
On a **practical level**, the project aims to raise **awareness** among project-based communities and decision-makers of how technical interoperability choices influence large-scale EU digital collaboration — particularly regarding security, privacy, inclusiveness, and fundamental rights. The goal is to develop short, intuitive communicative tools to illustrate

the political trade-offs of technical solutions, such as videos or interactive simulations that recreate the technical decisions underpinning digital collaboration and their societal impacts. To this end, the project will draw on INRIA's expertise in risk awareness (Privatics team). These tools will be distributed to EU-level communities involved in the development of the Common European Data Spaces, as well as to EU-level decision-makers, particularly within the European Parliament. The ultimate objective is to support more **enlightened and fair decision-making processes**.

Project organization (duration: 24 months)

Table: Work Packages (WP), Tasks (T), and Timeline (Months - M)

T		M
WP1 Desk research, Analysis & Academic writing		
T1.1	Desk research, phase 1 – Mapping project-based communities; preparation of research field (interview guidelines, qualitative approach)	1-2
T1.2	Desk research, phase 2 – Design of questionnaire (quantitative approach)	9
T1.3	Writing and revision of ERC Starting Grant proposal	8-12
T1.4	Analysis and academic writing – Article 1 (structuring of project-based communities), Article 2 (impact on large-scale digital collaboration). Target journals: *Big Data & Society; Policy Sciences; Journal of European Public Policy; Information, Communication & Society*,	9-24
WP2 Field Research		
T2.1	Semi-structured interviews (3 communities) and transcription	5-8
T2.2	Distribution of online questionnaire	10
WP3 Scientific dissemination (Month 12-22)		
T3.1	Thematic workshop on EU interoperability	18
T3.2	Presentations at international conferences (e.g. Conference of Europeanists, ECPR)	12, 22
Milestones		
Interview transcriptions completed		8
Questionnaire distributed		10
Submission of Article 1		14
Workshop on EU interoperability		18
Submission of Article 2		20
Conference presentations		12, 22

Feasibility. The main challenge of the project may be the unavailability or reluctance of participants to take part in interviews or complete questionnaires. If such difficulties arise, the project will engage with the relevant European executive agencies responsible for funding these programs — namely, the European Health and Digital Executive Agency and the European Climate, Infrastructure and Environment Executive Agency—to raise awareness about the research and use their communication channels to reach participants.

Partnerships. This project will strengthen collaboration between Sciences Po Grenoble - UGA and **INRIA** on digital transition, while building bridges between the Pepr eNSEMBLE and **Pepr Cybersécurité** (in particular the IPoP programme focusing on data protection). It will also bring political science expertise to PC4 and integrate the study of (very) large-scale digital collaboration at the EU level. To advance this work, an international, **interdisciplinary workshop on EU interoperability** will be held at Sciences Po Grenoble - UGA, following two related panels I organized at the 2025 EU Studies Association conference. Participating researchers will come from institutions across Europe, including Vrije Universiteit Brussels, the European University Institute in Florence, and the University of Padova in Italy.

Adequacy with the objectives of Pepr eNSEMBLE and of the selected PC. This project is directly aligned with the Pepr eNSEMBLE objectives, as it examines how large-scale digital collaboration emerges at the EU level through the adoption of interoperability rules. By exploring the political implications of these new forms of cooperation, it will contribute to the **development of fair and inclusive digital collaboration tools across the EU**. In addition, the project directly addresses key research questions of PC4 CONGRATS by investigating how project-based groups and communities form around digital collaboration initiatives, aiming to identify patterns behind their success. By emphasizing the political dimensions of group formation, the project will also examine the nature of the knowledge these groups produce and how it shapes broader large-scale digital collaboration. Finally, the project will benefit greatly from PC4's interdisciplinary expertise, particularly in disseminating knowledge to these communities.