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PARTICIPATORY UNBLOCKING OF BLOCKCHAIN USE CASES

LESSONS LEARNED FROM THE ARGENTINA ONCHAIN RESIDENCY

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EXECUTIVE SUMMARY

This report documents lessons learned from the **Argentina Onchain Residency**, a two-week, in-person program held in San Martín de los Andes from **1 to 15 November 2025** as part of Edge Patagonia and ahead of Devconnect Buenos Aires. The residency brought together more than 50 blockchain builders, researchers, and entrepreneurs, along with Argentine stakeholders across government, business, universities, cooperatives, and civil society, to test a practical methodology for moving from "blockchain potential" to concrete, adoption-ready use cases. The core premise was methodological inversion: start from concrete problems and barriers to adoption, then evaluate whether onchain systems are feasible, appropriate, and desirable.

The report opens by examining why blockchain innovation has struggled to generate sustained real-world impact beyond decentralized finance (DeFi). Adoption challenges, it argues, stem not only from regulatory headwinds or technical constraints, but from something more fundamental: blockchain solutions are too often built around rigid ideological assumptions or end up trying to address needs internal to the blockchain ecosystem itself rather than the needs of the people they are ultimately meant to serve.

To address this, the residency organizing team proposed a six-step methodology called **"Participatory Unblocking of Blockchain Use Cases"**, grounded in the principle that meaningful adoption begins with listening. **(1)** The process starts by selecting a place and defining the problem scope, **(2)** then moves into structured discovery of local needs that could genuinely benefit from blockchain's technological guarantees. **(3)** Local and international builders and experts are then recruited to address the selected problem statements. **(4)** Afterwards, everyone convenes in person for talks and workshops that help understand the economic, socio-political, and cultural context as well as the solutions that have already been attempted. **(5)** A time-bounded design sprint follows, producing needs-based blockchain solutions with continuous feedback from the people closest to each problem. **(6)** The process closes by connecting local users to the residency's builders after the event to support sustained implementation of the proposed blockchain solutions.

Argentina in late 2025 provided a uniquely fertile context for this experiment. Chronic inflation and historical capital controls have driven high stablecoin adoption and broad crypto literacy across the population. The regulatory environment has been evolving toward formalization and sandboxing. The country boasts strong technical talent and meaningful contributions to the global blockchain ecosystem. And a deep-seated cultural skepticism toward institutions makes alternative coordination tools feel intuitive and credible. These conditions were reinforced by the timing of major ecosystem events nearby, which lowered the cost of convening global talent in-country.

The residency drew **21 problem statements** from **more than 10 organizations**, spanning public procurement and health logistics, elections and civic participation, municipal budgeting and open data, fintech rails and SME treasury operations, entertainment ticketing and artist royalties, industrial certification, NGO operations, and university credentialing. From this portfolio, participants produced **seven working prototypes** during the second week: **(1)** Teach ID, verifiable credentials for teacher records, diploma verification, and tamper-evident academic competitions; **(2)** Córdobras, onchain procurement records and asset passports for transparent public spending; **(3)** Señalica, a liquid democracy platform for continuous legislative participation using privacy-preserving voting; **(4)** VotAR, WhatsApp-based voting infrastructure designed for low-cost organizational elections; **(5)** MatePlus, a community loyalty system designed to keep value circulating locally and fund neighborhood public goods; **(6)** COTEPAY, a community-owned payment system that channels transaction float into yield for cooperative members; and **(7)** Constellation, a place-based coordination app using escrow and portable reputation to build trust between newcomers and local service providers.

Overall, the residency provided evidence that contextualized, participatory onchain design can meaningfully narrow the gap between blockchain's promise and real-world utility. It is time to produce prototypes grounded in documented, real-world coordination failures rather than speculative use cases. The process also surfaced **clear limitations**. Embedding the program within a broader event ecosystem created attentional trade-offs that competed with deep focus. The two-week format enabled immersion but at a more relaxed pace than a concentrated sprint might allow. Geographic remoteness raised coordination costs and limited institutional participation. Finally, because participants were not compensated to build specific solutions, they retained the freedom to follow their own interests; a deliberate design choice that preserved the collaborative spirit of the residency, but meant that some problem statements were left unaddressed.

The report closes with i**mplications for future iterations**. Narrowing thematic scope and curating smaller, more focused cohorts could strengthen alignment between builders and problem-owners, increasing the likelihood that prototypes address real adoption barriers rather than drifting toward hypothetical use cases. Clearer handoff pathways are equally important: each prototype should conclude with an explicit transition plan defining the decision timeline, required resources, responsibilities, and concrete next steps for moving from demo to pilot. Finally, incentive design remains an open and promising area for experimentation; including funding models that require problem-submitting organizations to commit resources upfront, and mechanisms that give builders a stake in downstream outcomes. Done well, these structures could sharpen alignment and accountability on both sides without sacrificing the exploratory, collaborative character that distinguishes participatory innovation from conventional consulting.

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The residency's organizing team included:

Ori SHIMONY	Blockchain entrepreneur and researcher. Founder of the Ethereum Foundation's Use Case Lab. Creator of Mechanism Institute. Co-founder of dOrg.
Lovisa BJÖRNA	Blockchain communicator and researcher. Initiator of the Governance Module at the Polkadot Blockchain Academy. Head of Platform & Communications at BlockchainGov.
Sofia COSSAR	Blockchain researcher. Ph.D. candidate in blockchain and law (CRNS-CERSA). Researcher at BlockchainGov. Member of the Mechanism Institute.
Ian LEE	Co-Founder of Ultra, Syndicate, and IDEO's Crypto Lab. Advisor to Ethereum Foundation Use Case Lab. Ex Head of Crypto at Citigroup. Education in design, human computer interaction, finance, and business from UC Berkeley and UCLA.
Andrej BERLIN	Organizational developer, product designer, and researcher for digital infrastructure. Founder of the distributed Web3 design studio Deep Work.
Livia DESCHERMAYER	Web3 social systems designer. Token engineering research and governance design for decentralized systems. Former member of Token Engineering Commons and Commons Stack.

We also received indispensable help with institutional outreach and contribution to the programming from:

Milagros SANTAMARÍA	Tech lawyer and Master in Business Law focused on Web3 regulation and ecosystem design. Director of the Regulatory & Legal Department at Crecimiento. Operations and Advisor at Architect Systems Advisory.
Candela FAZZANO	Ecosystem Lead at Devcon (Ethereum Foundation). Founder of SEED Org. Specialized in community growth and ecosystem development within the blockchain and Web3 space.

Fei	Biochemist. Head of Product at Crocante - Fintech sector. Strategy at SEED Org. Startup founder.

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Finally, we are grateful to the **Edge City team** for inviting us to host the residency as part of Edge Patagonia, and to **Peth** and **Anita** from MetaMedia for documenting the experiment in their short film.

I. THE AIM OF THIS REPORT

This report documents lessons learned from the **Argentina Onchain Residency**, a two-week, in-person program held in **San Martín de los Andes** from **1 to 15 November 2025** as part of Edge Patagonia. The residency brought together more than 50 local stakeholders and international blockchain builders and experts to examine the conditions under which blockchain solutions can generate real-world value in Argentina. It was conceived as an experiment in contextualized participatory design; one that deliberately inverted conventional innovation logic by starting from concrete problems and barriers to adoption, and only then assessing whether blockchain solutions were feasible, appropriate, and desirable. The premise was simple: sustainable adoption is more likely when technology is shaped by the needs of its intended users, not the other way around.

The report summarizes the residency's in-person workshops and talks, documents the 21 problem statements submitted by local public, private, and civil society organizations, and describes the 7 prototypes built during the program. It also engages with the question of why blockchain innovation has so rarely translated into durable, real-world impact; and why Argentina in late 2025 offered an unusually fertile context for this kind of experimentation. The broader aim is to offer blockchain builders and funders a replicable framework for designing solutions that are grounded in the concrete problems, opportunities, and constraints of the communities they are meant to serve.

Who this report is for:

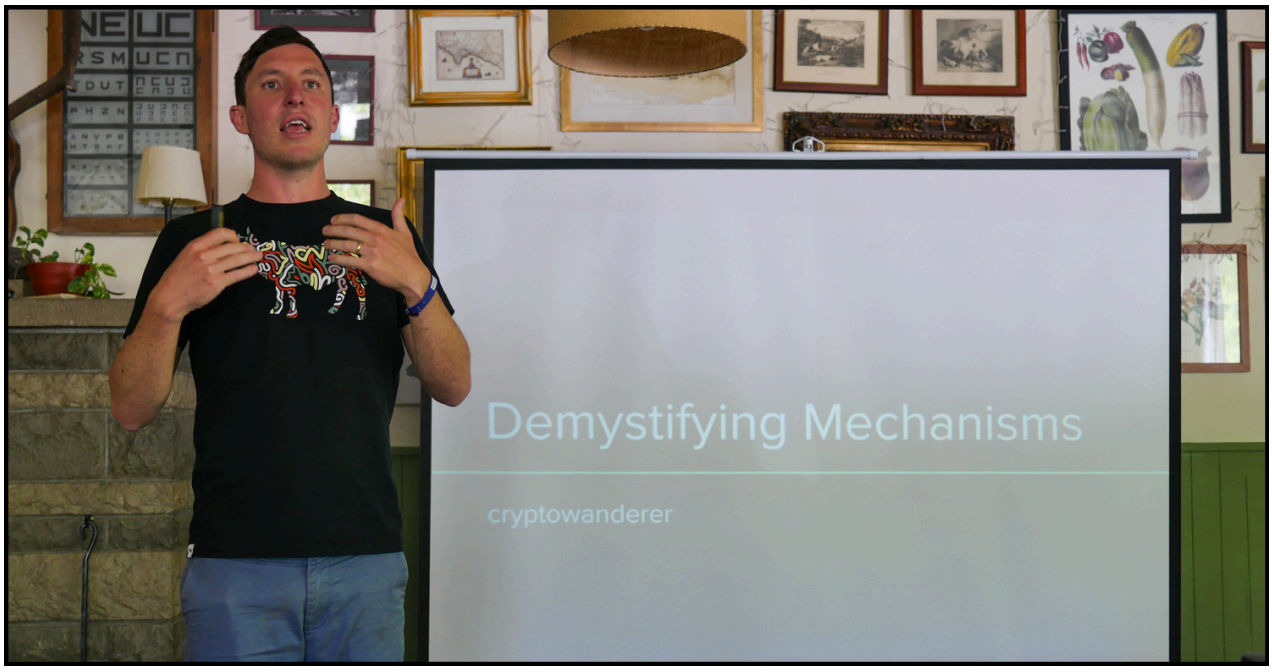
- **Researchers and academics** looking for empirical and methodological insight into participatory, context-sensitive approaches to blockchain innovation and into what Argentina's particular conditions reveal about the prospects for real-world adoption.
- **Blockchain builders and entrepreneurs** interested in how blockchain solutions can be designed around genuine user needs, local constraints, and adoption barriers; rather than built in search of a problem.
- **Public, private, and civil society organizations** exploring whether blockchain could help address their coordination challenges, and what a rigorous, participatory process for evaluating that question actually looks like in practice.

II. A CRITICAL EXAMINATION OF BLOCKCHAIN INNOVATION

> "The gap between blockchain's promise and its impact reflects, in part, a recurring pattern of ideological rigidity and ecosystem-centric design"

Over the past decade, blockchain has been presented as a transformative infrastructure for economic and social coordination. Bitcoin was initially introduced as a peer-to-peer electronic cash system capable of operating without banks or states, offering an alternative to centralized monetary authority (Nakamoto, 2008). A few years later, Ethereum expanded this vision. Its white paper and early community discourse framed blockchains not only as money, but as a general-purpose coordination layer: a way to run organizations, markets, and governance itself through programmable rules rather than centralized control (Buterin, 2014a). These ideas resonated far beyond developer communities. Many scholars and policy advocates adopted the language of decentralization and transparency, presenting blockchains as a foundation for rethinking collective action at a global scale (Swan, 2015; Tapscott & Tapscott, 2016; De Filippi & Wright, 2018; Hewett et al., 2019; Anderberg et al., 2019; Allen et al., 2020).

Substantive efforts have explored blockchain applications in financial inclusion (Ehret & Olaniyan, 2023), decentralized marketplaces and new forms of commerce (Shimony, 2025), verifiable supply chains and industrial certification (Kumar et al., 2024), land registry modernization (Krishnapriya & Sarath, 2020), public procurement (Alotaibi et al., 2025), rights management for artists and creators (Arenal et al., 2024), user-controlled identity systems across education, welfare, migration, and healthcare (Torongo & Toorani, 2023), and decentralized scientific research funding and publishing (Oladimeji, 2025). Despite being technically feasible, outcomes across these domains have largely remained confined to pilots, proofs of concept, or small-scale deployments (Meyers & Keymolen, 2023).



In practice, meaningful adoption has concentrated in a narrow set of crypto-native domains, most notably **decentralized finance (DeFi)**. This gap between blockchain's broad promise and its currently-narrow impact is often attributed to regulatory hostility, resistance from political or economic elites, or technological immaturity (Biju & Thomas, 2023; Al Zoubi, 2023). We argue that these factors matter, but they do not fully account for the persistence of the problem. A recurring issue is that many blockchain solutions have been designed without adequate attention to the institutional environments in which they are meant to operate. Insights from interviews with Argentine public, private, and third-sector organizations point to a consistent set of adoption barriers: legal and regulatory uncertainty around compliance, liability, and responsibility allocation; budgetary constraints related to the difficulty of justifying long-term investment in infrastructure whose benefits are diffuse or hard to measure; socio-cultural factors such as uneven digital literacy, internal resistance to change, and reputational concerns associated with "crypto scams"; and technological challenges tied to the usability, interoperability, and integration of blockchain applications with legacy systems.

Many of these barriers have received limited attention in practice. This is partly a function of the technology's relative youth: blockchain ecosystems are still maturing, and early-stage innovation naturally prioritizes building over deployment. But a more persistent reason is that blockchain design priorities have often been shaped by **ideological rigidity**, meaning strong (and valuable) normative commitments such as "radical decentralization" and "maximal user control," even where these commitments may complicate real-world use. Self-custody illustrates this tension well. Exclusive control over private keys maximizes autonomy but introduces significant usability risks: in conventional self-custodial wallets, losing a private key can mean permanent loss of access. Proposals such as account abstraction and social recovery seek to preserve decentralization while improving recoverability and usability (Buterin, 2021), representing attempts to balance ideological commitments with practical requirements for risk management. Where such compromises are absent, blockchain systems often remain difficult to use and unattractive to mainstream actors.

A second design orientation has pulled blockchain innovation inward, **prioritizing the needs of blockchain-native communities** over those of external users. The evolution of decentralized autonomous organizations (DAOs) illustrates this dynamic well. Early DAO proposals were outward-looking in ambition: they envisioned highly automated organizations capable of transforming how firms, cooperatives, and even governments coordinate, replacing managerial hierarchies with programmable rules and smart contracts (Buterin, 2014b). The exploitation of The DAO in 2016 marked a turning point (DuPont, 2017). In its aftermath, DAO governance design turned increasingly toward challenges internal to permissionless systems themselves: preventing Sybil attacks, addressing the concentration of voting power under token-based governance, and developing mechanisms for funding the shared infrastructure on which these systems depend. These are genuine and important problems, but solving them has absorbed much of the design energy that might otherwise have gone toward understanding how external organizations could meaningfully adopt or benefit from DAO-like structures. That question — whether and how cooperatives, civic organizations, firms, or governments might use these tools — has received comparatively less sustained attention outside academic and policy circles (Mannan, 2018; Tan et al., 2023; Axelsen & Ross, 2024), and efforts to clarify the legal status of DAOs, while advancing, remain incomplete (Collao, 2025). The result is a body of DAO innovation that is growing in internal sophistication while remaining largely illegible and inaccessible to the organizations it was originally conceived to serve.

Taken together, these recurrent design orientations help explain why blockchain innovation has struggled to move beyond pilots and crypto-native use cases, and why **many of the people who stand to benefit most from this technology remain skeptic or disengaged**. The case for blockchain's real-world relevance is strongest precisely where centralized systems fail most visibly: where inflation and capital controls erode the value of savings and restrict access to global markets; where land registries are unreliable, contested, or captured by powerful interests; where artists and creators depend on opaque intermediaries to access audiences and collect royalties; where cooperatives and small producers are excluded from formal financial infrastructure; where public procurement is vulnerable to corruption and citizens lack meaningful tools to hold governments accountable. These are not niche problems. They affect billions of people across a wide range of institutional contexts. And yet, the communities most exposed to these failures have been largely absent from the design process. The following section therefore outlines the methodology through which we propose to address this gap.

III. THE METHODOLOGY: PARTICIPATORY UNBLOCKING OF BLOCKCHAIN USE CASES

The methodology presented here combines how the Argentina Onchain Residency was structured in practice with lessons learned through its execution. It articulates a set of steps that are deliberately grounded rather than novel: intuitive in retrospect, but rarely followed in practice. Unlike typical hackathons, which often optimize for rapid prototyping or technical novelty, this approach prioritizes problem formulation, contextualization, and sustained engagement with the organizations that will ultimately bear responsibility for adoption. The value of formalizing it lies not in originality but in making explicit the minimum conditions required for blockchain experimentation to engage meaningfully with existing governments, businesses, and collectives.

Participatory Unblocking of Blockchain Use Cases is organized into six sequential but interdependent steps, two of which require in-person engagement: establishing shared context and prototyping onchain solutions. Each step involves explicit decisions across structural trade-offs that shape both how the process unfolds and what outcomes are possible. The methodology also assumes three distinct roles: event organizers, local organizations that submit problem statements, and participants who design and prototype solutions. How (and whether) each of these actors is compensated has significant consequences throughout: it affects which problems get prioritized, how solutions are scoped, and whose interests ultimately shape design outcomes.

1. Choose the Place and Scope

The organizing team's first decision is geographical and thematic: where will the intervention take place, and how broadly should it reach? This choice defines the pool of problems, organizations, and participants the residency will engage with. Scope can range from a municipality or province to a national or regional level, and can be multisectoral or focused on a specific industry or domain. **Broader scopes** enable cross-sector comparison and help surface recurring frictions, but limit depth and constrain follow-through. **Narrower scopes** support deeper immersion and more concrete outputs, but reduce generalizability. There is no optimal choice; different scopes produce different kinds of insight, and the decision should reflect the goals of the experiment.

A related but distinct decision concerns the location of the in-person gathering. Venue choice shapes both who can participate and how participants interact. At minimum, the venue should be reasonably accessible to the organizations submitting problem statements. Within this constraint, organizers face a trade-off between connectivity and immersion. **Highly connected urban centers** lower participation costs and increase institutional visibility; **more peripheral or remote venues**, particularly those with distinctive natural or cultural character, can be draws in their own right, encouraging sustained presence and deeper engagement in ways that a conventional conference setting rarely achieves.

2. Understand the Problem(s)

Once place and scope are defined, the next step is structured problem discovery. This phase centers on interviewing relevant stakeholders to identify concrete coordination problems that they themselves experience as pressing and unresolved. Problem discovery can follow two main approaches, each with trade-offs. **Trust-based outreach** through professional networks and referrals tends to limit representativeness but enables deeper engagement, candor, and continuity; particularly in politically or administratively sensitive contexts. **Open calls** for problem submissions may broaden participation, but many organizations are reluctant to publicly disclose internal bottlenecks, breakdowns, or vulnerabilities, meaning that open calls may miss precisely the stakeholders whose problems are most significant.

Interviews should pursue two lines of inquiry. The first documents the problems organizations face that may plausibly benefit from the technological guarantees of blockchain solutions: decentralization, transparency, self-execution, censorship resistance, etc. The second probes why such solutions have not already been adopted, eliciting perceived barriers such as legal uncertainty, risk aversion, budget constraints, or lack of technical literacy. This combination of opportunity and resistance is critical for distinguishing problems with realistic adoption potential from those that are merely technically appealing. Providing interviewees with an initial list of candidate problem areas can help structure discussion, but space should remain for participants to raise issues not anticipated by organizers.

Insights from this phase should be distilled into a set of **design briefs** for the residency's in-person gathering. Each brief should include a concise problem description, its relevance and stakes, known barriers to innovation, prior attempts or partial solutions, and the contact information of at least one representative to be consulted during the prototyping phase.

The presence of **local partners** for collecting and analyzing the data is critical. These can help identify relevant organizations that would not self-nominate, frame questions in context-sensitive ways, and create the conditions for candid disclosure. They also play a key role in interpreting interview material, distinguishing structural constraints from contingent failures, and translating raw accounts into problem statements that accurately reflect institutional realities.

3. Recruit the Talent

The third step is assembling the cohort that will convene in person to prototype onchain solutions. Recruitment should be guided by the goal of productive tension: bringing together people whose different perspectives and expertise will push solutions toward greater feasibility, relevance, and adoptability. The cohort should balance local and international talent across three complementary profiles. First, **technical builders** capable of translating ideas into functioning blockchain solutions and assessing what is technically feasible. Second, **practitioners** with direct experience in the sectors or organizations from which the problem statements originate, who understand existing workflows, incentives, and institutional constraints. Third, **researchers, legal experts, and policy specialists** who can help navigate the regulatory, organizational, and governance barriers that most commonly prevent emerging technologies from being adopted at scale.

4. Develop Common Ground (in-person)

Bringing participants together in person creates conditions for sustained exchange that are difficult to replicate remotely. But physical proximity alone is not enough: heterogeneous groups arrive with different assumptions, vocabularies, and mental models, and these differences can fragment rather than enrich collaborative work if left unaddressed. The initial phase of the in-person gathering should therefore be explicitly dedicated to developing common ground, prioritizing contextualization and shared sense-making before solution design begins.

A key design choice at this stage concerns the degree of structure. **Highly structured agendas** provide clarity, focus, and greater control over what is discussed, but risk limiting participant ownership and constraining reframing. **More emergent agendas** increase buy-in and allow unexpected insights to surface, but can diffuse attention and weaken analytical coherence. Effective programs deliberately balance these modes rather than defaulting to either extreme.

Common ground should be built through talks, workshops, and guided discussions focused on the specific jurisdiction and problem space. Sessions may address relevant historical trajectories, economic conditions, regulatory environments, and socio-cultural dynamics, alongside close examination of the problem statements themselves: their roots, affected stakeholders, and practical constraints. Reviewing prior attempts to address similar problems, including earlier blockchain-based interventions and their failure modes, is equally important: it situates design work within an existing trajectory of experimentation, and helps ensure that participants are building on what has already been tried rather than rediscovering known dead ends.

5. Prototype Onchain Solutions (in person)

With problems clearly framed and common ground established, the gathering moves into a time-bounded design sprint during its second half. The goal of this phase is to make proposed blockchain solutions concrete and testable. In most cases, this takes the form of a functional or semi-functional demo that visually demonstrates how the system would work in practice. Where time, team composition, or technical constraints make a demo unfeasible, prototypes may instead consist of detailed written specifications that clearly articulate how an onchain solution would operate if implemented.

A critical decision at this stage is whether all submitted problem statements must be addressed. This is inseparable from the question of compensation. When **participants are unpaid**, they should retain greater autonomy over which problems to work on; a design choice that preserves the exploratory, collaborative character of the process, but can result in uneven coverage and leave some problem statements unaddressed. When **participants are compensated**, systematic coverage becomes a more reasonable expectation, but this raises further questions about who funds participation and with what influence. If **event organizers bear the cost**, they may legitimately shape priorities, scope, or technical assumptions, including preferred technology stacks aligned with their institutional objectives. If **problem-submitting organizations are expected to fund** participation, involvement becomes contingent on available budgets, potentially excluding actors with the most pressing needs but the least resources. Implementing this methodology requires explicit decisions about incentive structures and a clear-eyed awareness of the trade-offs each model introduces.

Regardless of the funding model, this stage depends on **continuous communication with the designated contact person** for each problem statement, as identified in the design briefs. Teams should engage regularly with problem owners to assess whether emerging designs are operationally, financially, and legally viable. This feedback loop enables early validation of assumptions, surfaces misalignments before they harden, and creates the conditions for scope or design adjustments while they are still easy to make.

6. Connect Users to Builders

The methodology does not end when participants leave. A final and often underinvested step focuses on sustaining the relationships between solution teams and the organizations that articulated the original problem statements. Whether the outcome is a proof of concept or an early prototype, organizers should actively facilitate handoffs that clarify next steps, implementation requirements, unresolved constraints, and questions of governance, resourcing, and ownership. The premise is straightforward but easy to overlook: even the most promising prototype achieves nothing if the relationship that produced it dissolves the moment the gathering ends.

At this stage, organizers must navigate a coordination trade-off. **Close, solution-specific support** strengthens alignment between a given team and its institutional counterpart, but limits cross-project learning. Conversely, **clustering teams and problem owners** enables shared reflection, pattern recognition, and knowledge transfer across projects, at the risk of diluting attention to individual implementation paths. The right balance will depend on the number of prototypes produced and the maturity of each; but in either case, the goal is the same: to ensure that the work done during the residency becomes a starting point rather than an endpoint.

IV. WHY ARGENTINA, WHY LATE 2025

Argentina was selected as the site for the first application of this methodology for both logistical and structural reasons. In late 2025, the country attracted an unusually dense concentration of blockchain ecosystem actors due to the convergence of major international events. Most notably, Devconnect (the “Ethereum World's Fair”) took place in Buenos Aires in November 2025, while Edge Patagonia was scheduled to run immediately beforehand, from 18 October to 15 November in San Martín de los Andes. This alignment significantly lowered coordination costs: international builders were already traveling to Argentina during the same period, making the conditions for an intensive in-person program unusually favorable. The Argentina Onchain Residency was ultimately held as part of Edge Patagonia, from 1 to 15 November 2025.

Beyond favorable timing, Argentina presents a compelling environment for context-sensitive blockchain innovation in its own right. The country has long been shaped by chronic inflation, currency instability, and recurring capital controls; conditions that have normalized the use of stablecoins and other blockchain financial tools across a broad segment of the population. Since 2023, Argentina’s legal and regulatory framework has shifted toward greater openness and formalization of blockchain-related activities. The country also combines high levels of digital connectivity with a deep pool of technical talent, a longstanding skepticism toward institutional intermediaries, and strong traditions of grassroots organization and civic experimentation. Argentines have made sustained and recognized contributions to the global blockchain ecosystem. The sections that follow examine each of these dimensions in turn.

Economic Context

Argentina's economy has long been shaped by structural inflation, currency volatility, and recurrent capital controls (Kehoe & Nicolini, 2022), creating sustained demand for alternative financial tools. Since the mid-twentieth century, inflation has been persistent, including hyperinflation peaking at 3,079% in 1989 (INDEC, 1989) and an annual increase in consumer prices of 211.4% in 2023 (INDEC, 2023). Exchange-rate instability has been equally pronounced, with sharp peso devaluations following the 2002 collapse of the currency board and again during the 2018 crisis (Tobar & Kraul, 2002). Capital controls imposed between 2011–2015 and from 2019 until April 2025 ("cepo cambiario") restricted access to foreign currency, contributing to the emergence of a persistent parallel exchange market ("blue dollar") that became a reference point for pricing, savings, and informal transactions (Fowler, 2023).

These conditions have coincided with high crypto adoption. Argentina ranks second in Latin America and 20th globally by transaction volume (Chainalysis, 2025), with stablecoins widely used as savings and payment instruments. By 2025, up to five million Argentines reported regular crypto use not only for investment, but for everyday transactions including rent, groceries, wages, and remittances (rankingslatam, 2025). Adoption has recently extended into traditional sectors like oil and gas, with companies such as YPF exploring crypto payments (Coinchange Financials, 2025; Bitwage, 2025; La Nación, 2025).

Legal and Political Context

Argentina's legal framework has historically enabled crypto activity through the constitutional "principle of reserve" (Article 19), under which private conduct is lawful unless explicitly prohibited. This baseline allowed crypto markets to expand without a dedicated licensing regime, subject instead to general rules on taxation, consumer protection, and AML; distinguishing Argentina from more restrictive jurisdictions. Between 2014 and 2022, under Kirchnerista administrations, state engagement was cautious: the BCRA and UIF issued warnings on non-legal-tender status and AML risks (El Cronista, 2014; UIF, 2014), and Ley 27,430 brought crypto gains under income tax despite the absence of a formal asset definition. External pressure, particularly from the IMF during debt restructuring, pushed regulators toward restriction in 2022–2023, culminating in BCRA Comunicación "A" 7506, which barred banks and later payment service providers from offering crypto services (IMF, 2022; BCRA, 2022).

Since late 2023, Argentina has entered a phase of openness paired with formalization under President Javier Milei. DNU 70/2023 reinforced contractual freedom regarding currency choice, while Ley 27,739 (2024) formally defined virtual assets and VASPs and established a mandatory registry under the CNV. Subsequent CNV resolutions (994/2024, 1058/2025, 1069/2025, 1081/2025, 1087/2025) expanded compliance obligations and created a structured tokenization regime for real-world assets and securities, combining regulatory oversight with a sandbox approach that signals a more mature and stable environment for onchain innovation.

Socio-Cultural Context

High digital connectivity, strong technical capacity, and a crisis-hardened civic culture make Argentina highly receptive to blockchain experimentation. Internet penetration reaches roughly 90% of the population, with mobile connections exceeding population size due to multi-SIM usage, and connectivity levels sufficient to support fintech and onchain services nationwide (Kemp, 2025; International Trade Administration, 2025). The country also benefits from near-universal literacy and a robust public higher-education system anchored by institutions such as the University of Buenos Aires, producing a large, export-oriented pool of engineers and software developers integrated into global technology markets (World Bank Group, 2025; Kratri, 2024; Globy, 2025). Beyond infrastructure and talent, Argentina's history of economic crises has fostered deep skepticism toward centralized institutions and a pragmatic embrace of tools that reduce reliance on banks or state intermediaries, making decentralization an experiential response rather than an abstract ideal (Ethereum, 2025). This ethos of civic experimentation extends to governance, as seen in initiatives such as Partido de la Red and DemocracyOS, which explored digitally mediated political participation well before blockchain's rise (Grimson, 2018; Polimeni, 2017).

Argentine Contributions to the Blockchain Ecosystem

Argentina has also made sustained, concrete contributions to the global blockchain ecosystem, which directly informed the residency's design (Geode Labs, 2025). The country hosts ventures across critical layers of the stack: core protocol tooling and security through projects like OpenZeppelin and the Nomic Foundation (Hardhat); mass consumer adoption via platforms such as Lemon Cash and Ripio; deep technical R&D from firms like Lambda Class and the Wonderland collective contributing to Ethereum and Optimism; and influential social and civic primitives including Decentraland, POAP, Democracy Earth Foundation, and Kleros. In parallel, Argentina has served as a testbed for public-sector experimentation, from Córdoba's 2018 blockchain-based archival integrity project (Comercio y Justicia, 2018), and, more recently, the City of Buenos Aires' integration of the QuarkID decentralized identity system into its miBA platform in October 2024. Together, these contributions position Argentina not only as a high-adoption market, but as an active producer of the infrastructure and applications that make real-world blockchain experimentation possible.

V. THE PROBLEM STATEMENTS

The Argentina Onchain Residency was structured around 21 problem statements submitted by more than 10 organizations spanning the public sector, private industry, and civil society. These included national ministries, provincial and municipal governments, businesses in finance, entertainment, oil and gas, and retail, as well as universities, cooperatives, foundations, and regional NGOs. Each problem statement synthesizes perspectives gathered through interviews with local stakeholders, complemented where relevant by additional literature to contextualize the structural constraints and barriers to adoption that organizations identified.

Argentina Onchain Residency - Problem Statements		
Public Sector	**Private Sector**	**Third Sector**
Governmental bodies at the national, provincial, and municipal levels	Businesses in the oil and gas, finance, entertainment, and retail sectors	Regional NGO, local cooperative, grassroots collective, publicly-funded university
National Ministry of Human Capital **Problem 1:** Teacher Workforce Planning IERAL **Problem 2:** Public Works Budgeting and Adjudication	Argentine Fintech Chamber **Problem 9:** Crypto Integration with National Payments Systems **Problem 10:** SME Crypto Treasuries **Problem 11:** Earning Yield on Dollars via Crypto	Women Who Inspire Foundation **Problem 16:** Securing Reliable Funding for NGO Internal Operations TECHO **Problem 17:** Fragmented Volunteer and Beneficiary Data Systems

Problem 3: Public Health Supply Chains

Legislature of Buenos Aires City
Problem 4: Electoral Participation
Problem 5: Welfare Payments and Public Service Delivery
Problem 6: Recycling Incentivization

Municipality of Jesús María
Problem 7: Public Budgeting and Planning
Problem 8: Use of Public and Open Data

Khemlabs
Problem 12: Ticketing Resale in the Entertainment Industry
Problem 13: Copyright and Revenue Distribution for Artists

Commercial Argentina
Problem 14: Verification of Industrial Safety Certifications

Various Retail SMEs in San Martín de los Andes
Problem 15*: Community Loyalty Rewards

National University of Córdoba
Problem 18: Alumni Credentials Verification
Problem 19: Faculty Credentials in Academic Competitions

COTESMA
Problem 20*: Cooperative ISP Growth and Diversification

BIT
Problem 21:* Platforms for Digital Nomads

*While most problem statements were collected before the in person gathering in San Martín, some were gathered on site as participants engaged directly with local organizations like COTESMA/BIT.

Public Sector

Problem 1: Teacher Workforce Planning (National Ministry of Human Capital)

Argentina lacks a reliable, timely, and standardized system for managing teacher workforce needs across provinces. Data on teaching positions, retirements, qualifications, and candidate availability is fragmented across jurisdictions, inconsistently formatted, largely paper-based in some regions, and rarely shared between provincial and national authorities. As a result, the State struggles to ensure the availability of qualified teachers across compulsory education levels, particularly in rural and non-metropolitan regions. This fragmentation undermines educational equity and leads to inefficient allocation of public resources across the country's largest public-sector workforce.

Structural barriers to technological innovation include federal fragmentation of standards, frequent political transitions that disrupt administrative continuity, and low trust between levels of government that inhibits data sharing. These challenges are compounded by broader labor conditions (e.g., declining teacher salaries and reduced attractiveness of the profession) which mean that improved data infrastructure, however necessary, cannot resolve workforce planning challenges on its own. Complementary policy interventions will be required.

Problem 2: Public Works Budgeting and Adjudication (IERAL[1])

Public works contracting in Córdoba Province is vulnerable to manipulation at key stages: tender design, bid evaluation, contract awarding, and post-award cost adjustments. Documentation is fragmented across systems and often editable, creating conditions that may enable favoritism, inflated budgets, and opaque modifications that are difficult to audit. Given the scale of public works spending, these weaknesses generate significant fiscal waste and erode public trust in government institutions.

Reform is constrained by procurement regulations designed for paper-based processes, which create legal uncertainty around digital experimentation, and by internal organizational resistance rooted in limited technical understanding, fear of disrupting established workflows, and concern over personal legal liability. Together, these factors have blocked the adoption of more transparent and auditable procurement infrastructure, despite the clear fiscal and democratic case for reform.

[1] IERAL stands for the Institute for Studies on Argentine and Latin American Reality (in Spanish: Instituto de Estudios sobre la Realidad Argentina y Latinoamericana). It is a specialized economic research organization created by the Fundación Mediterránea in Argentina, dedicated to full-time research, analysis, and forecasting of economic, social, and political issues in Argentina and the surrounding region.

Problem 3: Public Health Supply Chains (IERAL)

Public health supply chains for medicines, diagnostic kits, and medical equipment cannot be tracked end-to-end with tamper-resistant records across procurement, delivery, storage, and use. Reliance on manual logs, paper records, and siloed databases makes it difficult to verify provenance, monitor cold-chain compliance, or trace batches during recalls or emergencies. This exposes patients to health risks, enables fraud and financial leakage, and increases legal liability for provincial authorities.

Innovation is constrained by regulatory frameworks designed for ex-post paper auditing, fragmented responsibilities across procurement and logistics units, and weak incentives for cross-institutional data sharing. Together, these conditions reinforce reactive oversight rather than preventive control — even where the inefficiencies are well understood and the costs of inaction are clear.

Problem 4: Electoral Participation (Legislature of Buenos Aires)

Voter turnout in recent legislative elections in Buenos Aires fell to 53.3%, well below the city's historical average, reflecting political fatigue, diminishing sense of electoral stakes, and declining trust in representative institutions. Persistently low participation undermines democratic legitimacy, weakens representation, and increases vulnerability to polarization and disinformation.

Efforts to address this challenge face several constraints: limited fiscal capacity for sustained innovation, complex and overlapping electoral regulations that restrict experimentation, and institutional cultures characterized by hierarchy, risk aversion, and uneven digital capacity. Even where legal authorization and funding exist, increasing participation requires more than new tools: it requires rebuilding the perception that electoral processes are meaningful and that votes produce real consequences.

Problem 5: Welfare Payments and Public Service Delivery (Legislature of Buenos Aires)

Welfare budgeting and public service delivery in Buenos Aires city are consistently undermined by inefficiency, limited transparency, and weak alignment with actual social needs. Fragmented execution leads to duplicated programs, underuse of allocated funds, and gaps between policy design and on-the-ground impact. This situation erodes public trust and reinforces the perception that resources do not reach those who need them most.

Structural barriers to innovating in public service delivery include the division of responsibilities between national program design and subnational implementation, frequent in-year budget adjustments driven by inflation and macroeconomic shocks, and high political leadership turnover tied to electoral cycles. These dynamics hinder multi-year planning, weaken institutional memory, and slow the adoption of digital tools; compounded by limited staff training, weak incentives for reform, and concern among officials over personal legal exposure.

Problem 6: Recycling Incentivization (Legislature of Buenos Aires)

Despite formal recycling goals, differentiated waste infrastructure, and legal mandates such as Ley de Basura Cero, a large share of recyclable waste in Buenos Aires continues to enter general waste streams. While approximately 46% of residents separate waste at source (Milgro, 2025), inconsistent participation and disposal of separated waste alongside general refuse limit recovery rates significantly. This undermines circular economy objectives, increases landfill dependence, and erodes public confidence in recycling systems; particularly when residents who do comply see no visible difference in outcomes.

Key barriers to innovation include weak behavioral incentives, limited feedback to citizens on the impact of their participation, uneven service quality across neighborhoods, and complex coordination challenges between collection services, Green Centers, and informal recycling networks. Together, these factors constrain the effectiveness of existing infrastructure and make sustained civic engagement difficult to maintain.

Problem 7: Public Budgeting and Planning (Municipality of Jesús María)

The Municipality of Jesús María operates through five secretariats coordinated by the Treasury and the Mayor's office, yet budgeting and planning remain weakly integrated across the administration. Formal instruments exist, including a Municipal Strategic Plan, Annual Operating Plans, and budget execution data, but budgeting is rarely data-driven in practice, and is seldom linked to objectives, performance indicators, or specific projects. Documentation practices vary widely across secretariats, prior reports are seldom reused, and significant portions of municipal activity go unrecorded. These gaps hinder effective decision-making and accountability.

The constraints are as much cultural as economic. The core problem is not a shortage of funding but limited human capacity, short political time horizons, and divergent work cultures that make consistent data practices difficult to sustain. Some areas work extensively with data while others rely on ad hoc approaches, reflecting uneven institutional capacity across the administration. Ongoing digitalization efforts require significant behavioral change among staff, and fiscal uncertainty, uneven digital inclusion, and resistance to process change further limit reform. Technical systems alone will be insufficient without sustained organizational transformation.

Problem 8: Use of Public and Open Data (Municipality of Jesús María)

The Municipality of Jesús María has expanded public access to information through dashboards and open datasets, improving transparency and the availability of data for internal decision-making. Citizen use of this data, however, remains limited. It is constrained, among other things, by uneven data literacy and the absence of clear pathways for applying open data to civic oversight, research, or local entrepreneurship. As a result, investments in open data generate limited public value, weaken accountability feedback loops, and risk deepening existing digital divides.

Finding solutions to this problem are further constrained by budget limitations that restrict outreach and training, and by organizational cultures that treat data publication as a compliance obligation rather than an instrument for civic engagement. Without complementary strategies to support use and interpretation, publishing data is not enough; it does not, on its own, translate into participation or impact.

Private Sector

Problem 9: Crypto Integration with National Payments Systems (Argentine Fintech Chamber)

Argentina has developed advanced national payment infrastructure, including real-time transfers and interoperable QR systems, but stablecoins do not operate natively within these rails. Crypto payments via QR currently require a mediated process involving exchanges, peso conversion, and settlement through traditional intermediaries, introducing friction, fees, and delays that undermine the peer-to-peer logic of cryptocurrency. Critical payment categories such as rent, taxes, and utilities remain inaccessible to native crypto settlement, forcing users and businesses to maintain parallel financial infrastructures and reinforcing dependence on incumbent intermediaries that add cost without adding value.

Integration faces two distinct but reinforcing barriers. The first is regulatory: compliance constraints prevent banks and payment service providers from settling stablecoins within national payment rails, creating a hard structural limit on native crypto integration. The second is cultural: banks and payment providers operate under logics of centralized control, ex ante authorization, and institutional risk minimization, while crypto systems are designed around permissionless access, ex post verification, and user self-custody. These divergent assumptions complicate collaboration, slow technical integration, and entrench institutional reluctance, even in cases where the technical pathway to integration is well understood.

Problem 10: SME Crypto Treasury Custody and Operations (Argentine Fintech Chamber)

Persistent inflation creates strong incentives for Argentine SMEs to preserve working capital in dollar-denominated instruments, yet most cannot hold or manage crypto assets on their balance sheets in a safe and compliant manner. Businesses lack clear guidance and tooling for custody models, wallet governance, internal controls, auditability, and risk management, while financial service providers offer no standardized solutions for crypto-integrated treasury custody, payments, accounting, or reporting. As a result, SMEs must choose between informal arrangements that carry significant operational and legal risk, or foregoing adoption altogether.

Other barriers hinder adoption: regulatory ambiguity around corporate crypto holdings, persistent reputational concerns associated with crypto, and limited internal technical literacy. Taken together, these factors leave a large and financially motivated segment of the Argentine business community without a viable path to compliant crypto adoption.

Problem 11: Deployment and Yield on Dollar-Denominated Crypto Assets (Argentine Fintech Chamber)

Even when firms or individuals hold dollar-denominated crypto assets, they lack compliant pathways to put that capital to work. Argentina offers few regulated USD yield instruments domestically, and while onchain protocols provide interest-bearing stablecoin products, access remains constrained by technical complexity, custody risk, and regulatory uncertainty. Most capital holders are unable to evaluate smart contract risk, ensure compliant participation, or determine how yields should be classified and taxed. Financial intermediaries provide no compliant bridges to DeFi, forcing actors to choose between holding idle assets or participating informally through offshore structures.

High and complex tax burdens further weaken incentives: formal crypto adoption can increase compliance costs and audit exposure without corresponding gains in revenue or operational efficiency. Together, these barriers limit capital efficiency, suppress reinvestment in the productive economy, and restrict DeFi participation to a narrow, technically sophisticated minority, leaving the broader potential of onchain finance largely untapped in a country where demand for dollar-denominated yield instruments is exceptionally high.

Problem 12: Ticketing Resale Transparency and Control (Khemlabs [2] – Entertainment Industry)

[2] Khemlabs is an Argentine software development firm specializing in custom digital and blockchain-enabled solutions for clients in entertainment, media, government, health, and education, headquartered in Buenos Aires. Ticket resale markets in Argentina operate with limited transparency and weak traceability. Existing platforms provide no auditable ownership records, resale attribution, or mechanisms for downstream revenue sharing, enabling scalping, duplicate tickets, inflated prices, and high intermediary fees. Artists and event organizers cannot monitor secondary sales, enforce pricing rules, or capture value from resale activity. Fans, meanwhile, face unreliable access and significant price volatility.

These conditions persist for structural reasons. Economic volatility and thin margins limit the ability of venues and organizers to invest in new resale infrastructure, while existing digital alternatives impose high usability costs. Systems that require wallet management, transaction signing, or cryptographic literacy introduce friction that most audiences are unwilling to tolerate for a one-off purchase. As a result, intermediaries remain entrenched despite widespread dissatisfaction, and confidence in fair, reliable access to events continues to erode.

Problem 13: Copyright and Revenue Distribution for Artists (Khemlabs – Entertainment Industry)

Revenue distribution in Argentina's music industry is opaque and intermediary-driven, limiting artists' visibility into how royalties are generated, calculated, and paid. Usage data and rights metadata are controlled by platforms and collective management organizations, introducing delays between consumption and remuneration and obscuring

the relationship between audience engagement and income. Artists lack independent means to verify payments across streaming, broadcasting, live performance, and licensing contexts; a structural disadvantage that is felt most acutely by emerging creators with limited leverage over the terms of their contracts.

These conditions are reinforced by several converging barriers. Economic instability and irregular income streams reduce artists' capacity to experiment with alternative rights management or revenue models. Existing technical tools for direct attribution and payment remain difficult to use, and solutions that require continuous wallet interaction, cryptographic key management, or complex onboarding create adoption friction for both artists and their audiences. As long as these barriers persist, transparency and fair remuneration will remain out of reach for the majority of Argentine musicians, regardless of the technical solutions available.

Problem 14: Verification of Industrial Safety Certifications (Comercial Argentina 3 - Oil and Gas Sector)

Industrial safety certifications in Argentina's oil and gas sector are largely paper-based or stored in fragmented databases, leaving them vulnerable to loss, duplication, or falsification and difficult to verify at scale. Energy companies must manually audit large volumes of health, safety, and environmental credentials from multiple providers, increasing compliance costs and delaying operations. The absence of a standardized verification mechanism exposes firms to legal and safety risks and slows project timelines.

These inefficiencies are not purely technical. Entrenched information asymmetries enable rent extraction by gatekeepers who benefit from discretionary control over certification validation, generating active resistance to modernization, even in the absence of meaningful technical or regulatory barriers to reform.

Problem 15*: Community Loyalty Rewards (Collection of Retail SMEs in San Martín de los Andes)

Local small businesses in San Martín de los Andes depend heavily on tourism and short-term visitors, yet lack a shared system to reward repeat consumption, coordinate ncentives, or build lasting relationships with tourists, remote workers, and residents Existing loyalty programs are fragmented, platform-controlled, and limited to individua shops, preventing value from circulating locally or aligning incentives across the town Without interoperable infrastructure, local businesses cannot compete with national chains and global platforms that capture customer data, attention, and loyalty at scale.

Blockchain-based loyalty tools have not taken hold here for several reinforcing reasons: thin margins and limited technical capacity leave little room for experimentation; existing crypto solutions carry a level of complexity that neither merchants nor customers are willing to absorb for everyday purchases; and reputational concerns around crypto raise the perceived risk of adoption for business owners whose livelihoods depend on community trust. Without a local technical ecosystem to support implementation, there is no obvious entry point for outside builders, and no gap that market forces alone are likely to close.

Third Sector

Problem 16: Securing Reliable Funding for NGO Internal Operations (Fundación Mujeres que Inspiran - Mining Sector)

This NGO is focused on promoting the economic empowerment, professionalization, and scaling of women-led entrepreneurial ventures and businesses, including in the mining industry. However, it lacks a stable administrative infrastructure or predictable funding. This instability has direct consequences for the entrepreneurs it serves: in the absence of sustained organizational capacity, suppliers lack reliable access to compliance support, certification pathways, and market-readiness services required to meet procurement standards. The problem is structural: philanthropic funding models systematically prioritize program outputs over organizational capacity, undermining long-term sustainability. Regulatory complexity in mining supply chains compounds these challenges, particularly for rural women entrepreneurs.

Blockchain-based funding tools have not emerged as a solution despite the evident need, for several reinforcing reasons: regulatory constraints on NGO fund management introduce legal uncertainty around onchain instruments; and the limited digital literacy of NGO workers and beneficiaries makes technically complex solutions a non-starter.

Problem 17: Fragmented Volunteer and Beneficiary Data Systems (TECHO - Housing Development)

TECHO, a regional NGO operating across multiple countries and geographic chapters to offer housing solutions for vulnerable populations, accumulates substantial data on volunteers across its regional chapters but lacks the systems and processes to act on this data meaningfully. Former volunteers who have demonstrated commitment to TECHO's mission represent a significant and largely untapped resource for future campaigns, field work, advocacy, and skills-based contributions. Without a coherent infrastructure for tracking longitudinal engagement and targeting reactivation, this potential dissipates: volunteers cycle out of active participation with no systematic pathway back in, and the organization must continuously recruit from scratch rather than building on existing relationships.

Blockchain solutions have not been adopted for several reinforcing reasons. Economically, TECHO operates with liquidity constraints, dependence on a small number of donors, and limited long-term financial sustainability; leaving little capacity to invest in new technical infrastructure. Culturally, internal resistance to change, informal organizational structures, and limited digital capacity among staff and volunteers make adoption of complex systems difficult to sustain. Perhaps most importantly, there are genuine social concerns: the digital divide among TECHO's volunteer and beneficiary base means that modern participation tools risk excluding the most vulnerable; and there is a legitimate fear that digitization could erode the personal relationships and community closeness that define TECHO's model.

Problem 18: Alumni Credentials Verification (National University of Córdoba)

Universities in Argentina predominantly issue diplomas and certificates on paper or store them in closed institutional systems, requiring slow, manual verification processes that generate administrative costs and significant fraud risk. Employers, graduate programs, and licensing bodies often wait weeks or months for verification, creating hiring and admissions bottlenecks, while alumni face friction when applying for jobs or further education; particularly abroad. Universities bear ongoing verification workloads that divert staff from core educational functions, and paper-based systems remain vulnerable to loss, tampering, and forgery.

Blockchain-based credentialing has not gained traction despite the evident fit, for various reasons. Blockchain's association with cryptocurrency and fraud creates immediate resistance among administrators and decision-makers. Moreover, blockchain expertise remains absent from most relevant university curricula, creating a relative shortage of human capital needed to implement and audit onchain systems. Additionally, the cost of using public blockchain infrastructure discourages experimentation, and progress has depended heavily on public-private consortia such as Blockchain Federal Argentina, which have helped unblock implementation but remain insufficient in scale.

Problem 19: Faculty Credentials in Academic Competitions (National University of Córdoba)

Academic hiring and promotion processes in Argentina rely on SIGEVA, a system that allows faculty candidates to edit or remove credentials during and even after evaluation periods. The absence of a tamper-evident audit trail prevents evaluators from verifying whether records remain unchanged throughout competitions, creating vulnerabilities to manipulation and strategic credential adjustment. This undermines fairness, increases verification burdens on evaluators, and exposes institutions to reputational and legal risks when appointments are later contested. Over time, perceptions of procedural opacity discourage participation and erode trust in merit-based academic governance. The barriers to blockchain-based solutions mirror those identified in the previous problem statement.

Problem 20: Cooperative ISP Growth and Diversification (COTESMA)

COTESMA is a member-owned cooperative based in San Martín de los Andes, originally focused on telephony and municipal services. Over time it has expanded into internet service provision and local connectivity infrastructure. This cooperative plays a central role in providing services in a region marked by difficult terrain, dispersed populations, and uneven last-mile connectivity. Rising deployment costs and limited economies of scale constrain long-term growth, while reliance on a narrow set of core connectivity services limits financial sustainability. Although these cooperatives benefit from strong local legitimacy and committed member bases, they often lack structured ways to identify, test, and coordinate new lines of service provision or expansion strategies beyond basic internet access.

Blockchain-based tools for cooperative coordination and service diversification have not gained traction here for several reinforcing reasons. Technical teams are lean and focused on network infrastructure; and blockchain expertise falls well outside their core competency. Geographic isolation and dispersed populations already stretch operational capacity, making the adoption of unfamiliar technology a low priority relative to maintaining existing services. Cooperative governance structures, which tend to require member consensus for major decisions, can slow the evaluation and adoption of new technical infrastructure. And in remote Patagonian communities, exposure to blockchain use cases relevant to cooperative operations remains limited.

Problem 21: Platform for Digital Nomads (BIT COTESMA)

BIT, Base de Innovación Tecnológica, is an initiative by COTESMA that operates as a space for innovation, training, and support for entrepreneurs, small businesses, and technology projects, with a focus on local productive development, the knowledge economy, and coordination between the cooperative, public, and educational sectors. San Martín de los Andes has strong potential to attract digital nomads, remote workers, and early-stage founders, but the current experience of arriving, settling, and building is fragmented and unreliable. Newcomers face uncertainty in finding trusted housing, services, workspaces, and professional or social networks, while existing initiatives such as BIT's entrepreneurial hub lack a unified system to help digital workers integrate and contribute over time. Limited and uneven housing and service supply, diverse visitor needs, and the importance of respecting local community dynamics further complicate coordination. Without a coherent platform that surfaces verified options, supports social and professional integration, and aligns incentives for longer stays, San Martín struggles to convert short-term visits into sustained economic activity, local job creation, and durable contributions to the regional economy.

Blockchain tools to attend to this problem have yet to surface. On the supply side, BIT and COTESMA have the motivation but lack the technical capacity to design, build, and maintain onchain infrastructure. On the demand side, digital nomads are generally more technically sophisticated, but local service providers such as housing hosts, workspace operators, and small businesses may lack the digital fluency to participate in onchain systems reliably, creating a potential mismatch between the two sides of the platform. Bridging this gap requires not only technical development but deliberate onboarding design and local ecosystem support of the kind that BIT is well-positioned to provide, but has not yet attempted.

VI. THE WORKSHOPS AND TALKS

With problem statements collected and participants recruited, builders, researchers, and experts convened in person in San Martín de los Andes for the first of two weeks. The opening week was designed to establish common ground before participants moved into applied design and prototyping: working through the layers of context, constraint, and prior experimentation that any credible onchain solution would need to navigate. Each day addressed a distinct dimension of the adoption challenge: Argentina's socio-technical context **(Day 1)**; institutional incentives and constraints across the private, public, and third sectors **(Day 2)**; legal and sociopolitical experiments **(Day 3)**; commercial and financial experiments **(Day 4)**; usability and impact-driven design **(Day 5)**; and a keynote discussion with high-level institutional Argentine representatives **(Day 6)**.

Day 1: Argentina and Technology

The first day set a shared contextual baseline by a member of **BlockchainGov** by situating technology within Argentina's history and specific legal, political, social, cultural and economic realities. The sessions combined a country-level overview delivered by the residency organizers with a metapolitical framing of technology that emphasized infrastructure as a site of power, governance, and institutional design rather than a neutral tool, shared by a member of the **Polkadot Blockchain Academy.** This lens was then grounded through two ecosystem perspectives: **SEED Latam** mapped the Argentine Web3 landscape, highlighting active projects and cross-sector experimentation, while **Lemon** provided a practice-oriented account of crypto adoption, focusing on how stablecoins and consumer-facing platforms are used at scale in response to inflation, currency controls, and financial exclusion. Together, the talks established a common analytical vocabulary and contextual grounding that shaped how participants approached subsequent problem statements and design challenges.

Day 2: Institutions and Incentives

The second day focused on how technological innovation interacts with existing institutions, incentives, and organizational cultures in Argentina. The sessions began with an overview by a member of **BlockchainGov** of the problem statements collected in Phase I, emphasizing sector-specific constraints and the non-technical barriers that shape onchain adoption. This was followed by industry perspectives from **YPF** and **Comercial Argentina**, which highlighted concrete challenges in issuing, verifying, and auditing health, safety, and environmental certifications in the mining, oil, and gas sector. Reflections from an **Edge City** co-founder framed the residency itself as an institutional experiment, arguing that pop-up cities function as "legitimacy factories" by concentrating credible human capital in ways that resonate with local institutions. Additional practitioner insights were provided by **Think & Dev**, drawing on experience implementing blockchain solutions in Argentina and emphasizing design practices suited to local organizational realities. The day concluded with a conceptual intervention by **Onchain City**, which explored alternative forms of sovereignty and the role of blockchain in enabling new territorial and institutional configurations beyond the nation-state.

Day 3: Sociopolitical Experiments

The third day examined sociopolitical and legal experiments that use onchain systems to reconfigure governance, participation, and collective decision-making. The sessions combined a strategic overview by the residency organizers on legal engineering approaches to blockchain adoption with a regulatory perspective from **Crecimiento**, outlining Argentina's current legal landscape for onchain technologies. Case-based explorations followed: **Vocdoni** presented privacy-preserving onchain voting systems and the tensions they face when interfacing with real-world institutions; **Kleros** led a workshop on decentralized dispute resolution, highlighting how protocolized arbitration redistributes authority and challenges traditional notions of legitimacy and enforcement; and **GainForest** concluded the day with an examination of blockchain-enabled environmental governance, emphasizing both the potential for accountable coordination in commons management and the risks of oversimplifying complex social and ecological systems through technical abstraction.

Day 4: Commercial Experiments

The fourth day focused on commercial and market-driven experiments, examining how onchain systems intersect with existing platforms, payment infrastructure, and user expectations. The sessions highlighted that adoption in commercial contexts is shaped less by technical feasibility than by user experience, taxation, reputational risk, and the ability to outperform entrenched intermediaries on concrete pain points. **Slice** opened the day by contrasting Web2 commerce with onchain commerce, emphasizing that composability and decentralization only matter if paired with seamless UX, incentive alignment, and minimal user exposure to crypto complexity. A fireside chat with **MassMarket** reinforced this perspective, stressing that marketplaces are layered systems and that successful entry requires targeting specific infrastructural bottlenecks rather than competing head-on with incumbents.

The day concluded with insights from **World**, whose live payments experiment in San Martín de los Andes illustrated how high card fees and foreign payment friction can drive merchant adoption, and how Argentina's regulatory gray zones around stablecoins, far from inhibiting experimentation, often function as a culturally normalized space for testing new financial tools.

Day 5: Building for Impact

The fifth day focused on what it takes to build onchain systems that achieve real-world impact, shifting attention from feasibility to usability, adoption, and evaluation. The sessions emphasized that successful systems are those users actually engage with, and that design, incentives, and measurement are as decisive as technical architecture. The day opened with a talk and workshop by the co-founder of **IDEO coLab** and **Syndicate**, introducing UX prototyping as a core methodology for innovation and stressing the importance of identifying a clear "hero moment" where users immediately experience value. This was followed by a session from **Lava VC**, which examined onchain mechanism design, arguing for simplicity, clarity of intent, and careful consideration of how small design choices encode social and economic behavior. The day concluded with parallel workshops led by the **Mechanism Institute** and **Ethereum Foundation** on the onchain design space, a former **Token Engineering Commons** contributor on distinguishing heuristic from mechanic tasks, **Gardens Metrics** on impact design and evaluation, and **DeepWork** on building client-facing design practices and the central role of UX in ecommerce.

Day 6: Keynote Discussion and Synthesis

The final day concluded Week 1 with a public keynote and synthesis discussion that brought together perspectives from key Argentine public institutions and ecosystem organizations. The panel featured **Victoria Picchio** from the National Ministry of Human Capital, **Augusto Ardiles** from the Government of the City of Buenos Aires, **Diego Díaz** from the Argentine Fintech Chamber, and **Milagros Santamaría** from Crecimiento. The discussion addressed participants' questions around institutional engagement with blockchain, practical obstacles to real-world implementation, and the perceived tensions between hierarchical public institutions and decentralized technological systems. Beyond debate, the session served to test the residency's emerging insights against institutional realities, situating the week's work within active policy, regulatory, and operational discussions on digital transformation, financial infrastructure, and institutional modernization in Argentina.

VII. THE ONCHAIN PROTOTYPES

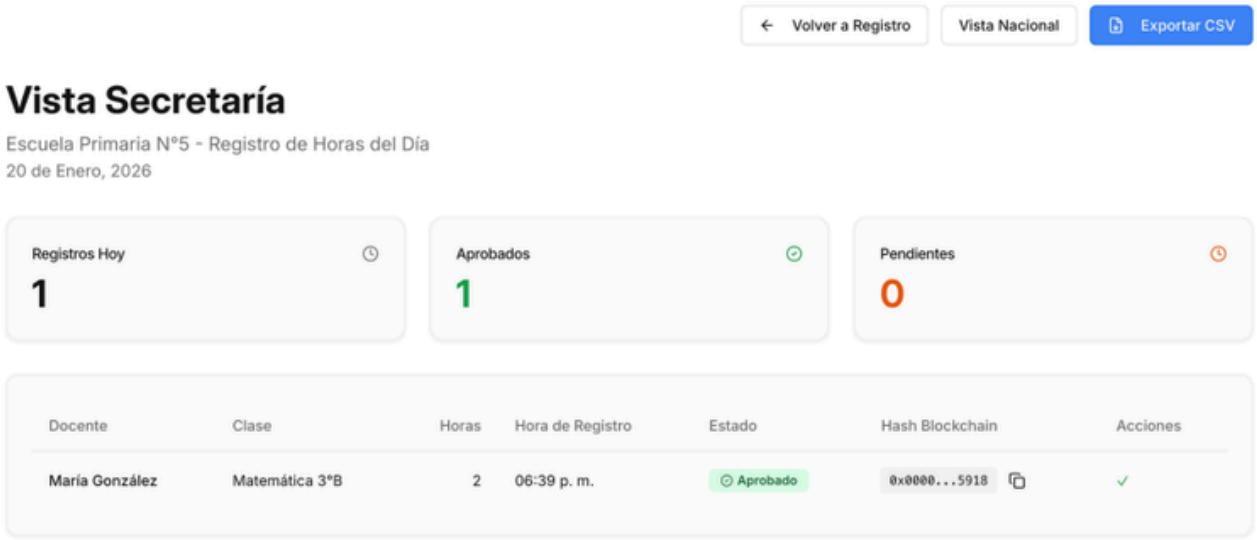
During the second half of the in-person meeting, the Argentina Onchain Residency's participants developed 7 onchain solutions tied to one or more problem statements submitted by local stakeholders. The demo apps were presented to the general public on the last day of the residency.

Teach ID	Córdobras	Señalica	VotAR
An Identity Solution for Academic and Workforce Records	A Verifiable System for Public Spending and Asset Traceability	A Liquid Democracy Platform for Legislative Participation	A WhatsApp Based Voting Application for Organizations
Problem 1, 18 & 19	**Problem 2 & 3**	**Problem 4**	**Problem 4**

MatePlus	COTEPAY	Constellation
A Community Loyalty System for Strengthening Local Businesses	A Community Owned Payment System	A Place-Based Platform for Local Value Exchange
Problem 15	**Problem 20**	**Problem 21**

Teach ID: An Identity Solution for Academic and Workforce Records

Related to **Problem 1** -Teacher Workforce Planning (National Ministry of Human Capital); **Problem 17** - Alumni Credentials Verification (UNC); and **Problem 18** - Faculty Credentials in Academic Competitions (UNC).



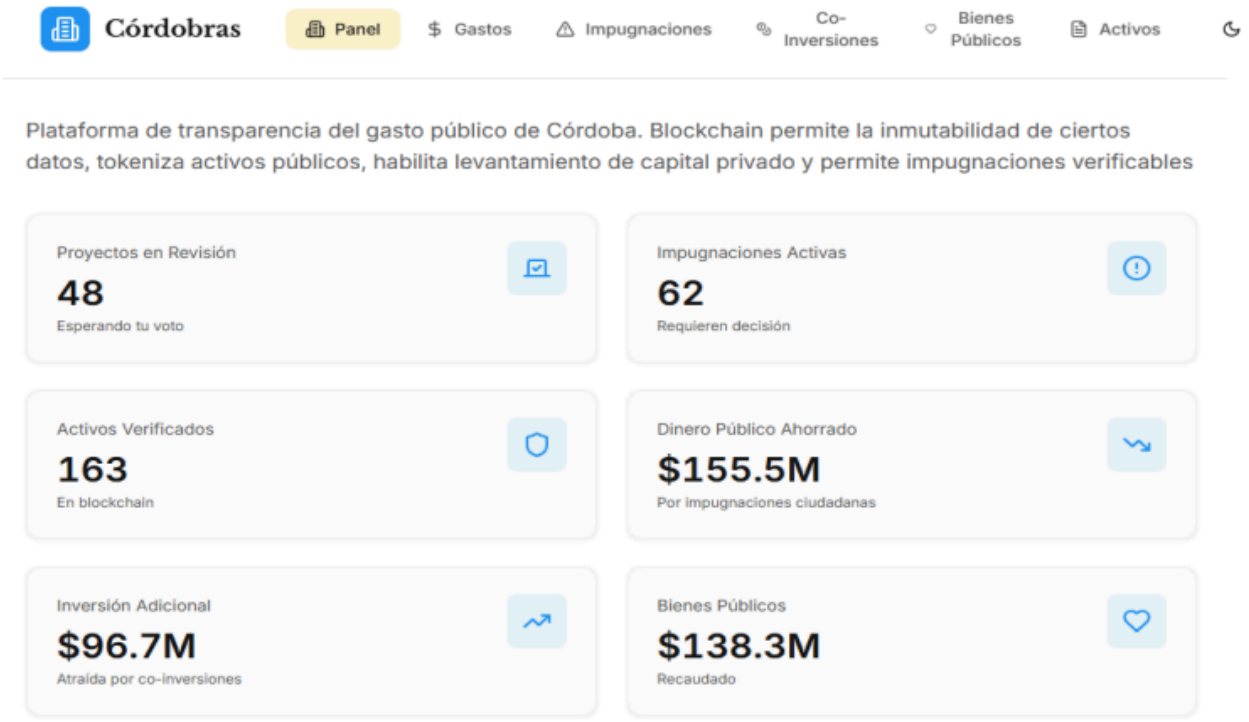
How can we create a tamper proof, interoperable credentialing system that simplifies everyday education administration while producing trustworthy workforce and academic records across jurisdictions?

Teach ID is a verifiable digital identity system designed to address three interconnected challenges in Argentina's education sector: fragmented teacher workforce data, manual alumni diploma verification, and the vulnerability of faculty competition records to post-submission modification. Rather than treating these as separate problems, the team identified a common underlying pattern: the absence of tamper-proof, interoperable credentialing infrastructure. Teach ID applies verifiable credentials and self-sovereign identity principles to an immediate, everyday pain point, teacher hour registration across schools and jurisdictions, creating a single digital work identity through which schools cryptographically attest employment records. This teacher-first, bottom-up approach responds directly to resistance toward new platforms by simplifying existing administrative workflows instead of adding reporting layers. As a byproduct, the system generates standardized, real-time workforce data usable for local, provincial, and national planning without requiring politically sensitive data centralization. The same architecture is transferable to academic diplomas and faculty evaluations, demonstrating how cryptographic attestations can improve integrity, reduce administrative burden, and support workforce planning across educational and employment contexts while remaining compatible with Argentina's federal structure.

Team: Micaela BELLI, Franco BOSIO, Santiago CAMMI, Gabriel Coronel LAVECCHIA.

Córdobras: A Verifiable System for Public Spending and Asset Traceability

Related to **Problem 2** - Public Works Budgeting and Adjudication (IERAL) and **Problem 3** - Public Health Supply Chains (IERAL).



How might we design a transparent, accessible system that helps citizens understand how public money is budgeted, contracted, and spent, while improving accountability and trust?

Córdobras is a public transparency and financing layer that anchors fingerprints of key procurement and budgeting records onchain to prevent retroactive edits and make public spending auditable in real time. Instead of relying on fragmented, editable documents spread across agencies, it records core procurement data onchain, including tender terms, awarded contracts, budget allocations, change orders, and delivery milestones. It also tracks public assets across their lifecycle through "onchain asset passports" for goods such as medical equipment or medicine batches, linking procurement to delivery, use, maintenance, and recalls or decommissioning. In parallel, Córdobras opens new financing paths by documenting certain public works as verifiable onchain assets, enabling co-investment through instruments tied to future cash flows like tolls or service fees. For projects that function as pure public goods, the same transparency layer supports public goods funding mechanisms that incentivize citizen contributions. Because all records and flows are verifiable, citizens, journalists, auditors, and civil society organizations can monitor execution, challenge budgeting decisions, and flag inconsistencies without relying solely on internal audits.

Team: Jonathan ACCELNORM.

Señalica: A Liquid Democracy Platform for Legislative Participation

Related to **Problem 4** – Electoral Participation (Legislature of Buenos Aires)

Link to Demo Site

How can we create a more meaningful, trusted, and accessible voting system-one that protects privacy, maintains strict neutrality, and rebuilds participation to strengthen democratic legitimacy?

Señalica is a hybrid digital democracy platform acting as a continuous civic participation infrastructure, allowing citizens to vote directly on legislative bills while binding elected representatives to enact the outcomes. It implements a liquid democracy model in which users can vote bill by bill or delegate voting power by policy area, addressing the practical limits of time, expertise, and trust identified during interviews. The platform emphasizes legislative transparency and accountability by presenting bills with structured arguments for and against, enabling mobile-first voting, and displaying real-time participation and outcomes to close the feedback loop between citizens and lawmakers. Technically, Señalica combines a centralized, user-friendly interface with a cryptographically verifiable voting backend built on Vocdoni's anonymous voting protocol, which uses zero-knowledge proofs anchored on a public blockchain to ensure one-person-one-vote, ballot secrecy, and public auditability. Identity verification relies on a hybrid approach that bridges existing government digital identity systems with pseudonymous onchain eligibility commitments, prioritizing institutional legibility and privacy over full decentralization.

Team: Livia DESCHERMAYER, Jordi PAINAN, Ori SHIMONY.

VotAR: A WhatsApp Based Voting Application for Organizations

Related to **Problem 4** - Electoral Participation (Legislature of Buenos Aires)

Link to Demo Site

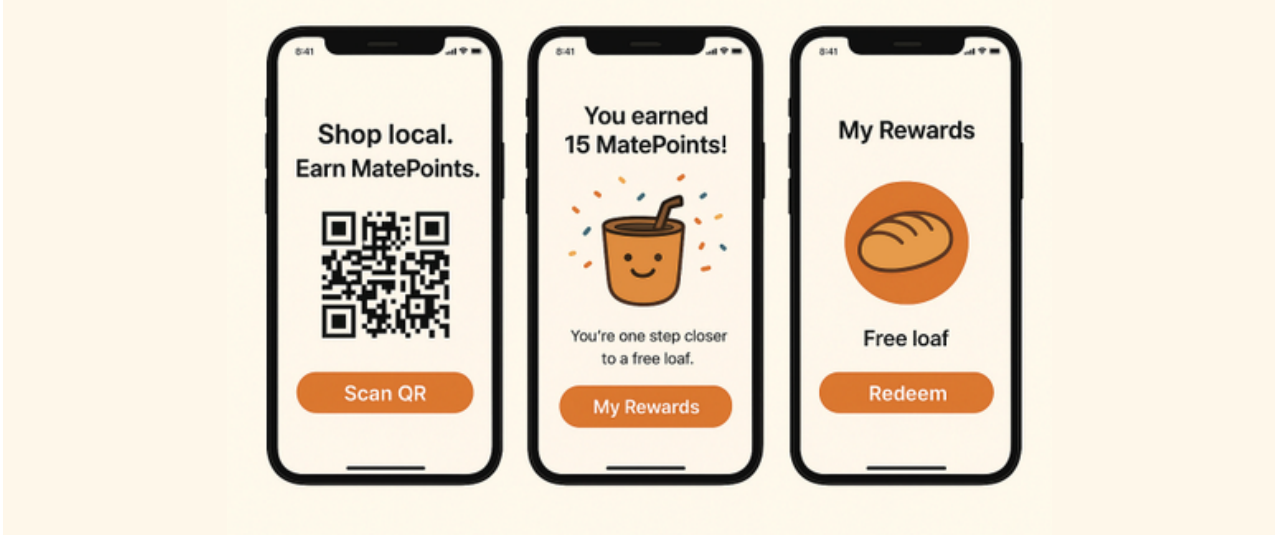
How can we make organizations reach decisions faster without losing accuracy?

VotAR is a low-cost, verifiable voting infrastructure designed to operate entirely through WhatsApp, leveraging Latin America's most widely used communication platform to eliminate adoption friction. Rather than requiring new applications, wallets, or blockchain interfaces, voters receive proposals directly via WhatsApp, cast their vote through standard chat interactions, and view results that are cryptographically verifiable. Its primary value proposition is economic: by removing physical polling infrastructure and manual vote counting, VotAR targets per-participant costs below USD 1, enabling large-scale elections at a fraction of traditional costs. This cost-efficiency proved more compelling to institutional stakeholders than abstract transparency claims, reflecting sector-specific incentive structures. The system is optimized for organizations with limited budgets and frequent voting needs, such as labor unions, cooperatives, universities, municipal associations, and neighborhood assemblies, where regulatory flexibility allows experimentation. Technically, VotAR combines a centralized WhatsApp-based interface with a hybrid authentication model and Vocdoni's privacy-preserving voting protocol, anchoring zero-knowledge proofs on a public blockchain for auditability.

Team: Mitch OZMUN, Eduardo SACCO.

MatePlus: A Community Loyalty System for Strengthening Local Businesses

Related to **Problem 15** – Community Loyalty Rewards



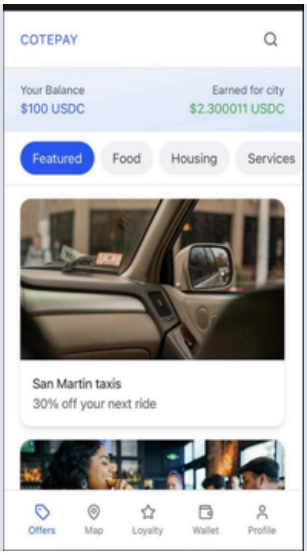
How might we design an onchain loyalty system that rewards tourists, remote workers, and residents for supporting San Martín, strengthens local businesses, aligns community incentives, and unlocks new experiences and benefits at both local and regional scales?

MatePlus is a community loyalty and rewards platform that strengthens local commerce in San Martín de los Andes by turning everyday purchases into shared economic and civic value. Residents and visitors earn instant, point-based rewards by scanning QR codes at participating stores, with no wallets or crypto knowledge required. Points can be redeemed directly at merchants or circulated within neighborhood alliances of businesses that cross-honor rewards, keeping value local rather than extracting it to external platforms. A small share of each transaction feeds a community pool that funds collective projects chosen through lightweight voting, linking consumption to visible neighborhood outcomes. While blockchain infrastructure underpins transparency, portability, and optional NFT-based badges, the user experience abstracts these elements entirely, prioritizing immediacy, simplicity, and tangible benefits over technological novelty.

Team: Mac BUDKOWSKI, Maki N, Martin, Diego RIVERA, Domenico MACELLARO.

COTEPAY: A Community Owned Payment System

Related to **Problem 20** - Cooperative ISP Growth and Diversification (COTESMA)



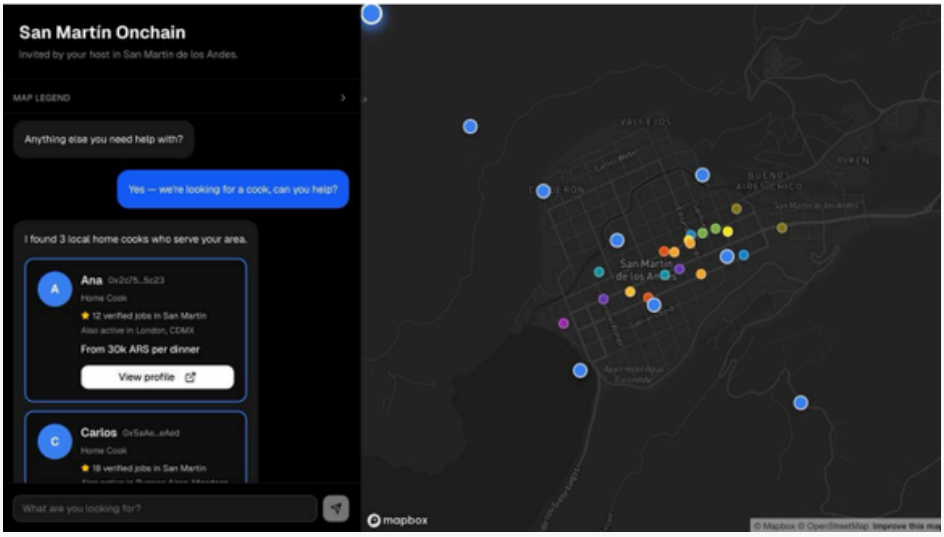
How might we design a participatory system that enables Cotesma members to help shape service expansion, strengthen last-mile connectivity, and unlock meaningful benefits for contributing to the cooperative's growth?

COTEPAY is a community-owned payment system for San Martín de los Andes. The platform enables residents and visitors to pay at over 100 local merchants while generating returns for Cotesma's 10,000 cooperative members through DeFi lending protocols. Unlike extractive payment platforms capturing fees for external shareholders, COTEPAY channels financial value back to the community that owns the infrastructure. Visitors receive an initial deposit by scanning a QR code at the airport, onboarding them immediately into the payment system. They then make purchases at participating merchants, and while funds await withdrawal, they deploy into DeFi lending protocols, generating yield that accrues to the cooperative. This transforms everyday payment activity into community wealth generation, where tourism spending directly strengthens local economic capacity. The technical architecture integrates standard payment interfaces requiring no blockchain knowledge with backend smart contracts managing allocation between available reserves for immediate payments and capital deployed for yield generation.

Team: Ian LEE.

Constellation: A Place-Based Platform for Local Value Exchange

Related to **Problem 21** - Platforms for Digital Nomads (BIT)



How might we design an experience and platform that attracts builders to San Martín and supports them to live, work, and build long enough to create companies and strengthen the regional economy through trusted housing, services, community, and cooperative networks?

Constellation is a place-based coordination platform designed to help digital nomads, remote workers, and visiting builders integrate economically into San Martín de los Andes through lightweight trust infrastructure. It works by mapping real time service offers and requests in San Martín de los Andes, allowing users to discover housing, services, and work opportunities through a shared map and chat interface. Users connect peer to peer, reserve services by placing cryptocurrency in escrow, and release payment upon completion, creating mutual commitment without banks or credit cards. Reputation and reviews are attached to user profiles through portable attestations, so trust accumulates across interactions rather than staying locked in a single platform. By combining lightweight payments, verifiable reputation, and geographic visibility, Constellation lowers the friction for digital nomads and builders to integrate economically while giving local providers confidence that agreements will be honored, enabling faster and more scalable economic integration without requiring blockchain literacy.

Team: Andrej BERLIN, John HOOPES, Andrea MARTINS, Billy TETRUD.

VIII. REFLECTIONS & CONCLUSION

As blockchain technology matures and regulatory frameworks stabilize across jurisdictions, the central challenge shifts from demonstrating technical feasibility to designing adoption pathways that align technological affordances with the needs of governments, businesses, and civil society. The **Argentina Onchain Residency** offers both a proof of concept and a set of cautionary lessons for this evolving landscape. Its core contribution lies in showing that such alignment is achievable, but only through sustained commitment to participatory, context-sensitive design, careful curation of participants and problems, and realistic expectations about what time-bounded experimental formats can accomplish.

The Argentina Onchain Residency marked the first full-scale test of a participatory methodology designed to unblock real-world blockchain use cases by grounding them in institutional realities rather than abstract technological promise.

- Over two weeks, the residency facilitated sustained interaction between builders, researchers, and representatives from public, private, and third-sector organizations. This process resulted in **eight prototypes** that responded directly to documented coordination failures and institutional bottlenecks, rather than speculative or purely technical opportunities.

- Beyond the immediate outputs, the residency generated durable relationships. Several connections between solution teams and problem-submitting organizations have continued beyond the event, with multiple projects advancing toward early implementation discussions. In parallel, elements of the methodology developed during the residency are already being adapted for blockchain workshops in other jurisdictions, led by members of the organizing team.

These early signals suggest that contextualized, adoption-oriented design processes can help bridge the persistent gap between blockchain's theoretical potential and its practical impact. At the same time, the residency surfaced **important limitations and areas for refinement:**

- Embedding the program within a broader event ecosystem, including Edge Patagonia and the lead-up to Devconnect, provided logistical benefits and visibility but introduced attentional trade-offs. Participants were often pulled toward parallel programming, networking, and social activities, which fragmented sustained focus on collaborative problem-solving.

- Similarly, the two-week format supported relationship-building and contextual immersion, but diluted intensity. A more compressed schedule with higher daily density may better preserve momentum and deepen engagement.

- Geographic immersion in a distinctive natural setting proved effective for attracting international participants and fostering informal exchange. However, it also increased coordination costs and constrained participation by stakeholders unable to travel or commit extended time. These trade-offs highlight the need to balance experiential value with accessibility and institutional involvement.

- A more fundamental challenge concerned alignment between submitted problems and developed solutions. Despite structured design briefs and facilitated introductions, many problems were left untreated. Additionally, participant-led prototyping occasionally drifted toward pre-existing interests or technically appealing directions rather than the specific constraints articulated by the local organizations. This tension reflects a core difficulty of participatory innovation: when builders contribute voluntarily, intrinsic motivation must be actively engaged and aligned with external problem definitions.

Looking ahead, the **organizing team** plans to continue developing onchain solutions for several problem areas that were not fully addressed during the residency, while renewing efforts to more tightly couple builders with end users and institutional stakeholders.

Future iterations of this methodology should consider the following:

- Narrowing thematic scope may increase alignment between curated participants and curated problems, ensuring that those who attend are genuinely motivated by the specific challenges at hand. Smaller, more focused cohorts organized around a defined sector or problem cluster may generate stronger chemistry between builders and organizations, increasing the likelihood that prototypes address real adoption barriers rather than hypothetical use cases.

- Establishing clear handoff pathways is equally critical. Each prototype should conclude with an explicit transition plan that defines the decision timeline, required resources, responsibilities, and the concrete next steps needed to move from demo to pilot.

- Incentive design and program financing is a concrete design space for future experimentation, including funding models that require problem-submitting organizations to commit resources upfront, and mechanisms that give builders a stake in downstream outcomes. These approaches could strengthen alignment and accountability on both sides while preserving the exploratory, collaborative character that distinguishes participatory innovation from conventional consulting

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