Project Concept Note

Resilient Digital Infrastructure for Municipal Innovation

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Ämne: Funding Request - CivicBase Infrastructure for TAK-405 & Swedish Municipal Resilience

Datum: December 29, 2025

> **In Brief:** We submitted **TAK-405 "Regionens Nervsystem"** to Region Stockholm (December 2024)—a concrete pilot integrating psychological resilience into public transit infrastructure, addressing **3+ billion SEK in annual stress-related costs** while meeting MCF's totalförsvar requirements. We're seeking Vinnova funding to build **CivicBase**—the underlying resilient digital infrastructure that enables TAK-405 implementation and creates reusable, crisis-ready platform for Swedish municipal innovation that functions even during internet disruptions.

THE STRATEGIC CONTEXT: DIGITAL VULNERABILITY

> **The Critical Dependency:** Swedish municipalities are 100% dependent on American cloud servers (AWS, Azure, Google). During a crisis—whether cyber attack, sabotage of undersea cables, or geopolitical de-platforming—civil society's digital functions collapse completely.
>
> **Recent Precedent:** November 2024 undersea cable cuts in Baltic Sea demonstrated infrastructure vulnerability. Current municipal systems would cease functioning entirely during such disruptions.

MCF's Challenge (Totalförsvar 2024:1032): How do we maintain societal functions when centralized internet infrastructure fails?

Our Answer: Build municipal infrastructure that continues operating offline, syncing when connectivity returns.

VALIDATION STRATEGY & TARGET ENVIRONMENTS

We are pursuing a dual-track validation strategy to demonstrate CivicBase infrastructure versatility across municipal contexts:

> **Track 1: Transit Resilience**

> **Track 2: Crisis Coordination**

Region Stockholm (TAK-405)

Proposal submitted December 2024. Integrates psychological resilience into public transit infrastructure, addressing 3+ billion SEK in annual stress-related costs while meeting totalförsvar requirements for offline-capable systems.

Upplands Väsby

Prototype ("Stuga") developed for municipal crisis coordination context. Enables neighborhood resource sharing during infrastructure failures. In dialogue with beredskapsamordnare regarding pilot validation.

Civil Society Integration: Civilförsvarsförbundet targeted for volunteer coordination logic, ensuring the "10% buffer" of active citizens can be mobilized during infrastructure failure. Aligns with totalförsvar doctrine's emphasis on whole-of-society resilience.

Why Dual-Track: Demonstrates CivicBase supports both wellbeing innovation (TAK-405) and civil defense resilience (crisis coordination), proving infrastructure is reusable across municipal priorities rather than single-purpose technology.

TAK-405: IMMEDIATE APPLICATION CONTEXT

TAK-405 demonstrates concrete municipal demand for resilient infrastructure:

- **Privacy-preserving activity tracking** (earning Hearts for walking—GDPR-compliant)
- **Verifiable citizen contributions** (academic research requires data integrity)
- **Offline resilience** (totalförsvar requirement: must function during internet disruption)
- **Data sovereignty** (data stays in Sweden, not on American servers)
- **Rapid deployment** (traditional municipal IT procurement takes 18-24 months)

Commercial platforms create dependency on foreign infrastructure vulnerable to disruption. **Traditional municipal IT** cannot function offline and is too rigid for innovation pilots.

What's needed: Open-source, offline-capable infrastructure that municipalities can deploy without dependence on centralized internet services.

THE SOLUTION: CIVICBASE

CivicBase provides resilient digital infrastructure—a distributed platform for municipal operations that maintains functionality during network disruptions and eliminates dependency on foreign cloud services.

Technical Architecture

- **P2P Foundation:** libp2p-based distributed networking (no single point of failure)
- **Offline-First:** Local data storage with sync when connectivity returns
- **Privacy-Preserving:** Agent-centric architecture; no central identity database

- **Data Sovereignty:** All data stays on Swedish infrastructure
- **Modular Design:** Reusable components for diverse municipal applications

Immediate Application: TAK-405

- Hearts currency mechanism for Friskvårdspunkter incentives
- Verified activity tracking for pilot evaluation (GPS + step counter)
- SL-app integration interface
- Anonymous data aggregation for academic partnerships (KI/KTH/SU)
- **Crisis-ready:** System continues functioning during network outages

Enabling Democratic Infrastructure

CivicBase provides the foundation for resilient civic applications:

- **DPOP (Democratic Party Operations Platform):** Political parties can continue organizing during crises—offline-capable meeting coordination, decision-making, and internal communication
- **DiDiS (Distributed Digital Identity System):** Secure, privacy-preserving identity management that doesn't depend on centralized servers vulnerable to disruption
- **Emergency Coordination:** Neighborhood-level crisis response networks operating on mesh principles

> **Why This Matters for Totalförsvar:**
> During the 2024 Baltic cable disruptions, organizations dependent on cloud infrastructure lost functionality. CivicBase-enabled systems would have continued operating locally, syncing when connectivity returned. This is exactly the resilience MCF's totalförsvar doctrine requires.

Future Applications Beyond TAK-405

CivicBase infrastructure enables entire class of crisis-ready municipal applications:

- **Democratic Party Operations (DPOP):** Offline-capable political organizing that continues functioning during network disruptions or de-platforming.
- **Distributed Identity (DiDiS):** Municipal digital identity that doesn't depend on foreign cloud providers.
- **Care Economy Tracking:** Privacy-preserving ledger for mutual aid and care work coordination. Addresses demographic aging without expanding municipal payroll.
- **Emergency Coordination:** First responder communication that functions via mesh networks when centralized systems fail.
- **Decentralized Food Logistics ("Den Digitala Ladan"):** Distributed inventory system connecting local producers (farmers, REKO-rings, urban growers) directly to civil defense distribution points during supply chain breakdowns, bypassing vulnerable Just-in-Time logistics. Addresses MCF concern: "food exists on farms but cannot reach urban populations during infrastructure collapse."

- **Circular Economy:** Local economic networks resilient to global supply chain disruptions.
- **Ecological Restoration:** Verifiable climate adaptation tracking that doesn't depend on continuous connectivity.

> **Regulatory Innovation Opportunity:** Food logistics application requires exploring crisis exemptions for småskalig livsmedelsförsäljning (small-scale food sales). Potential "testbädd" (regulatory sandbox) approach where municipalities trial pre-authorized crisis distribution protocols.

WHY THIS MATTERS: GLOBAL CONTEXT

> **G20 Global Inequality Report (November 2025):**
> • 83% of countries face high inequality affecting 90% of global population
> • Inequality driven by policy choices (neoliberal deregulation, privatization, austerity)
> • Recommended solutions include: **valorizing unpaid care work** and **expanding public investment**

> **Peer-Reviewed Science (Nature Food, 2024):**
> "Dietary change interventions must be coupled with **economic system transformation** to achieve meaningful climate impact."
> → Behavioral shifts fail without structural mechanisms (Hearts currency provides this)

Swedish Strategic Context

- **MCF Totalförsvar (2024:1032):** Requires resilient infrastructure for societal functions
- **Digital Sovereignty:** Reduce dependency on foreign (primarily American) cloud infrastructure
- **Municipal Budget Pressure:** Need for cost-effective innovation through open-source reuse
- **Demographic Aging:** Care gap traditional systems cannot fill
- **Infrastructure Vulnerability:** Baltic cable cuts demonstrated need for offline-capable systems

FUNDING REQUEST: MVP DEVELOPMENT

> **Timeline:** 12 months (Q1 2026 - Q1 2027)
> **Project Start:** February 1, 2026
> **Budget Request:** 2,500,000 SEK
> **Deliverable:** Functional MVP enabling TAK-405 alpha testing and demonstrating offline resilience

Development Phases (12 months)

- **Months 1-4 (Core Infrastructure):** P2P networking foundation with libp2p, offline-first data layer, GDPR-compliant architecture, initial Hearts currency implementation. Includes recruitment of distributed systems consultant.

- **Months 5-9 (Application Integration):** TAK-405 components (SL-app interface, verified activity tracking, municipal dashboard), Hearts currency finalization, academic research platform setup.
- **Months 10-12 (Testing & Documentation):** Offline resilience testing (simulated cable cuts), security audit, technical documentation for municipal adoption, preparation for TAK-405 pilot.

Budget Allocation

- **800K SEK:** Distributed systems consultant (P2P expertise, 4 months @ 200K/month)
- **600K SEK:** Lead developer time (12 months)
- **400K SEK:** Security audit and penetration testing
- **300K SEK:** Municipal integration and documentation
- **200K SEK:** Testing infrastructure and pilot coordination
- **200K SEK:** Administration and reporting

Success Criteria

- Functional offline-first infrastructure demonstrated in simulated network disruption
- MVP enabling TAK-405 alpha testing with 50 early adopters
- Technical documentation for other municipalities
- Published architecture specifications (open source)
- Security audit confirming GDPR compliance and resilience to common attack vectors

STRATEGIC ALIGNMENT WITH VINNOVA

Resilient Digital Infrastructure

Directly addresses Vinnova's call focus: offline-capable systems, P2P architecture, elimination of single points of failure.

Digital Sovereignty

Open-source (no vendor lock-in), data stays in Sweden, agent-centric privacy model, reduces foreign cloud dependency.

Social Innovation

Valorizes unpaid care work, enables citizen participation in welfare provision, creates reusable civic infrastructure.

Dual-Use Readiness

Civilian wellness applications (TAK-405) + totalförsvar preparedness, crisis-ready offline capability, democratic infrastructure resilience.

WHY NOW

Window of Opportunity:

- Baltic cable disruptions (Nov 2024) demonstrated infrastructure vulnerability
- MCF funding cycle aligns with our external funding strategy
- EU digital sovereignty initiatives actively seeking infrastructure alternatives

- TAK-405 demonstrates concrete municipal demand
- Growing awareness of cloud dependency risks

> **Risk of Delay:** Without resilient infrastructure, TAK-405 implementation delayed even if Region Stockholm approves. Every quarter lost = **750+ million SEK** in continued stress costs. More critically, delay means continued dependence on vulnerable centralized infrastructure during increasing geopolitical tensions.

NEXT STEPS

We would welcome the opportunity to:

1. Present detailed technical specifications (45-min technical review including offline resilience demonstration)
2. Share the full TAK-405 proposal (submitted to Region Stockholm)
3. Demonstrate CivicBase architecture and its role in enabling DPOP/DiDiS applications
4. Discuss integration with existing Vinnova-funded municipal innovation initiatives
5. Explore partnership models (funding, technical support, dissemination)

> **In Summary:** We have proven demand (TAK-405 submitted to Stockholm, Väsby coordination prototype in dialogue), identified funding strategy (MCF/EU), and clear infrastructure need. CivicBase provides the resilient foundation Swedish municipalities require—offline-capable, data sovereign, crisis-ready. Vinnova support would build reusable infrastructure that transforms TAK-405 from a single pilot into a platform for Swedish municipal resilience leadership.
>
> **The choice:** Build resilient infrastructure once, enable countless municipal innovations. Or continue dependence on vulnerable centralized systems during increasing geopolitical uncertainty.

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