FinEst Centre
for Smart Cities

SMART CITY CHALLENGE 2025

Solution idea for the city challenges

Solution Idea Title – **Smart citizen engagement platform**

Planned pilot project duration – 24 months

Main contact – Markku Mehtälä, markku.mehtala@superhood.com, +358505911444, Superhood Oy, Finland

1. Which urban challenge or problem are you planning to provide a solution to?

- This solution addresses the "Digital Citizen 360°" challenge from Bağcılar Municipality, Istanbul, Turkey (Happy City category). The core problem is that municipal services, cultural events, sports facilities, and social assistance programs fail to reach the right citizens at the right time due to a "one-size-fits-all" approach. Citizens often remain unaware of opportunities that match their needs and interests, leading to underutilization of services, increased social isolation risks, and missed opportunities for personal growth.
- **Why his challenge matters:** Modern municipalities collect vast amounts of citizen interaction data but struggle to transform it into personalized, proactive service delivery. This challenge represents a fundamental shift from reactive service provision to proactive citizen empowerment. The solution has immediate applicability to any municipality seeking to strengthen social cohesion, reduce isolation, maximize service utilization, and build meaningful connections with citizens.

2. The solution you are proposing

- **Solutions overview:** We propose a two-layer Smart citizen engagement platform combining Superhood's community engagement technology with a to be developed AI-powered personalization engine. This hybrid architecture delivers a community-driven platform with personalized municipal service recommendations while maintaining citizen privacy and data sovereignty.
- **Architecture Components**
    - **Layer 1: Superhood community hub** – A privacy-first interactive social platform serving as the citizen-facing interface. Superhood provides location-based news feeds, event calendars with automatic reminders, municipal service quick links, crowdsourced feedback mechanisms, and multi-language translation (~100 languages), among other social media-like features. Unlike traditional social media, Superhood does not require mandatory registration, does not track users, does not hide local information with algorithms, and keeps local information publicly accessible rather than siloed. Superhood provides the local communities with a safe space to interact with the neighbors, local businesses, and city organizations, while getting convenient access to municipal information and services.
    - **Layer 2: AI Personalization engine** – A municipality-hosted machine learning system that analyzes citizen interaction patterns from Superhood (geographic location, interests, service usage, event attendance, usage patterns, feedback submissions, etc) and other sources to generate personalized recommendations and service palettes for the citizens. The engine operates with explicit citizen consent, full transparency, and compliance with Turkish Personal Data Protection Law (KVKK) and GDPR principles. The AI personalization engine would be developed by TalTech in cooperation with the participating cities and Superhood.

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- **Key Features**
    - **Predictive service matching**: Identifies citizen needs based on the interaction patterns and proactively suggests relevant services or activities nearby
    - **Intelligent opportunity discovery:** Recommends new hobby classes, sports facilities, or community groups based on demonstrated interests and neighborhood proximity
    - **Contextual service nudges:** Provides timely reminders for tax payments, renewal deadlines, or registration opportunities through Superhood's notification system
    - **Transparent citizen dashboard:** Allows citizens to view their digital profile, manage data consent preferences, and customize recommendation sensitivity
    - **Multi-language accessibility:** Automatic translation of all content ensures immigrant and expat populations receive equal access to services and opportunities
- **How It solves the challenge:** Current solutions rely on generic broadcasts (websites, SMS, social media) that create information pollution without personalization. The proposed solution transforms municipal communication from broadcast to precision targeting while respecting privacy. Bağcılar's existing "Bağkart" integrated data infrastructure provides the foundation, the to-be-developed personalization engine adds the intelligence layer, and Superhood provides the citizen-friendly social interaction layer that has been missing.

  Unlike commercial platforms that exploit user data, the proposed architecture keeps sensitive data within municipal control. Superhood handles public engagement without personal data collection, while the AI engine processes user patterns behind the municipality's firewall. Citizens maintain full visibility and control over their data usage.

3. Innovation and piloting of your pilot solution.

- **Current solutions and their limitations:** Existing smart city platforms typically offer either project-based community engagement (Maptionnaire, CitizenLabs, etc) or service portals (311 systems), but not an integrated life assistant with personalization. Commercial social media solutions (Nextdoor, Citizen, etc) sacrifice privacy for personalization, while public sector solutions prioritize privacy but lack intelligence and long-term interactivity. No current solution combines privacy-first community engagement with AI-powered service matching at the municipal scale.
- **What the City needs for piloting – Technical requirements**:
    - API access to existing municipal data systems (event calendars, service registrations, facility bookings)
    - Cloud infrastructure for AI engine hosting (municipality-controlled environment)
    - Integration endpoints for Superhood platform deployment
- **What the City needs for piloting – Organizational Requirements**:
    - Dedicated municipal project coordinator
    - IT staff for system integration support
    - Communications team for citizen onboarding campaigns
    - Legal review for data protection compliance
- **Pilot implementation plan**
    - **Phase 1 (Months 1-6): Foundation** – Deploy localized Superhood platform with basic features (news feed, event calendar, service links). Establish data integration pipelines and develop the AI personalization engine. Begin citizen onboarding with a target of 10,000 active users.

- **Phase 2 (Months 7-12): Intelligence layer** – Activate AI personalization engine. Train initial recommendation models on 6 months of interaction data. Begin delivering personalized service suggestions to consenting users.
- **Phase 3 (Months 13-18): Optimization** – Refine ML models based on citizen feedback and engagement metrics. Expand feature set based on usage patterns. Scale to 50,000+ active users.
- **Phase 4 (Months 19-24): Evaluation and transfer** – Comprehensive impact assessment. Documentation of lessons learned. Preparation for production deployment and potential transfer to other municipalities.

- **Research and development team capabilities:** The solution leverages Superhood's commercial technology (operational in Finland and Germany), combined with university research expertise in AI, privacy-preserving computing, and human-computer interaction. Superhood provides the production-ready community engagement platform and implementation support. The academic partner contributes cutting-edge research and development in ML/AI and smart city governance frameworks. This combination ensures both practical feasibility and research innovation.

4.Expected impact of your pilot solution.

- **Impact on citizens**
  - **Reduced social isolation**: Proactive connection to community activities and social opportunities
  - **Increased life satisfaction**: Better access to personal development resources and hobbies
  - **Enhanced service awareness**: 40-60% increase in utilization of municipal facilities and programs
  - **Immigrant integration**: Multi-language support ensures equal access for non-native speakers
- **Impact on city environment**
  - **Optimized resource allocation**: Data-driven insights reveal which neighborhoods need which services
  - **Reduced facility underutilization**: 30-50% improvement in sports center, cultural venue, and community space usage
  - **Sustainable mobility**: Event attendance recommendations can encourage public transport usage
  - **Stronger social fabric**: Increased participation in community activities builds neighborhood resilience
- **Impact on city governance**
  - **Evidence-based policy making**: Comprehensive analytics on service gaps and citizen needs
  - **Budget optimization**: Eliminate redundant programs, expand high-demand services
  - **Citizen trust**: Transparent data practices and visible service improvements strengthen government-citizen relationships
  - **Scalable innovation**: Framework applicable to municipalities of any size, creating potential for regional or national deployment
- **Sustainability and long-term impact**: The solution supports UN Sustainable Development Goals 11 (Sustainable Cities and Communities), 10 (Reduced Inequalities), and 3 (Good Health and Well-being). By reducing social isolation and improving access to municipal services, the solution contributes to both individual well-being and community resilience. The privacy-first approach establishes a template for ethical AI deployment in public sector contexts, demonstrating that personalization and privacy can coexist.