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Piloting a mobile app-based campaign as a platform for data collection

Active mobility data collection through a mobile application in Gävle

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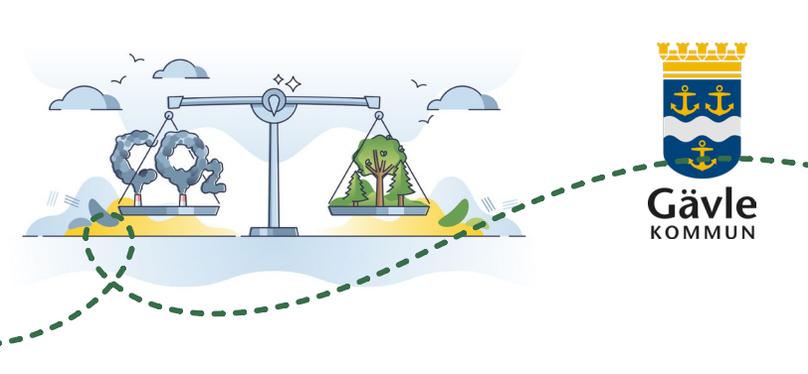


SMART GREEN MOBILITY

SUMPs for BSR



Why Active Mobility Matters



- Active mobility (walking & cycling) **addresses multiple goals at once:**

Climate: Reduces GHG emissions

Health: Improves public health & physical activity

Economic: Lowers infrastructure & congestion costs

Spatial: Better use of urban space

Social: Strengthens equity & quality of life

- Walking & cycling = strategic tools for

Climate neutrality

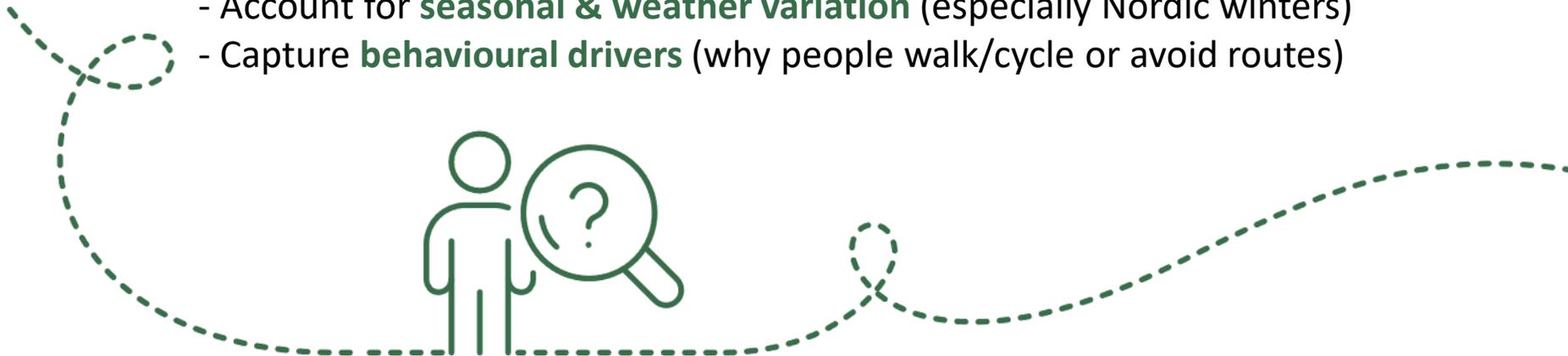
Healthier populations

Sustainable urban development



Why Comprehensive Data is Essential?

- Achieving these goals requires **reliable, comprehensive data**
- Without **measurement** → no effective **management**
- Data transforms vision → implementation → measurable impact
- Key reasons we need good **active mobility data**:
 - **Understand** current travel behaviour
 - Design targeted **interventions**
 - Measure real **impact** of investments
 - Account for **seasonal & weather variation** (especially Nordic winters)
 - Capture **behavioural drivers** (why people walk/cycle or avoid routes)



The Data Challenge for Active Mobility



- Active mobility data lags **far behind motorized transport**
- Key **intertwined hurdles** for municipalities:

- **Sparse & incomplete coverage**

- Short trips (<5 km), walking flows, neighborhood routes, informal paths → often unmonitored
Unlike cars (continuous loop detectors, GPS fleets)

- **Fragmented sources & inconsistent methods**

- Manual counts, bike counters, AI cameras, Strava Metro, surveys, GIS layers → different formats, timeframes, coverage → partial snapshots & blind spots

- **Lack of behavioural & trip-purpose insights**

- Counts show how many, but not why (commute? recreation? school?)
Missing: perceived safety, route attractiveness, weather sensitivity, social norms

Seasonal & climate variability

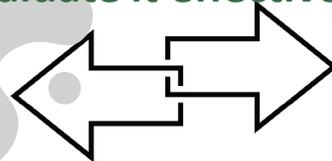
Overall Dilemma

Seasonal & climate variability – especially critical in Nordic cities

- Winter cycling & walking drop sharply (snow, ice, darkness)
- Route choices change dramatically with maintenance
- Most data collected in spring/summer
→ biased baselines → Overestimate potential, underestimate winter maintenance needs, weak resilience understanding

The core paradox:

Municipalities rely on active mobility to reach sustainability & climate goals.....but lack the comprehensive, reliable data systems needed to plan, implement, and evaluate it effectively.



Our Solution: A GPS-Enabled Mobile App Pilot



- No single fix → Needed a **systemic approach** to tackle interconnected data challenges
- Selected method: **GPS-enabled mobile app campaign** for active mobility data collection
- **Why** this approach? Key advantages:

Comprehensive & fine-grained coverage → Captures neighborhoods, secondary routes, short trips, desire lines (missed by fixed counters)

Behavioural & contextual insights → Trip purpose, timing, route choices, modal preferences + participant feedback/rewards for sustainable modes

Seasonal & weather adaptability → Continuous collection → realistic year-round picture (balances summer bias)

Real-time & rapid feedback → Monitor infrastructure impacts quickly (e.g., new bike lane, icy paths)

Public engagement & behaviour change → Dashboards, badges, visual feedback → raise awareness & encourage walking/cycling

Solution Objectives & Broader Value

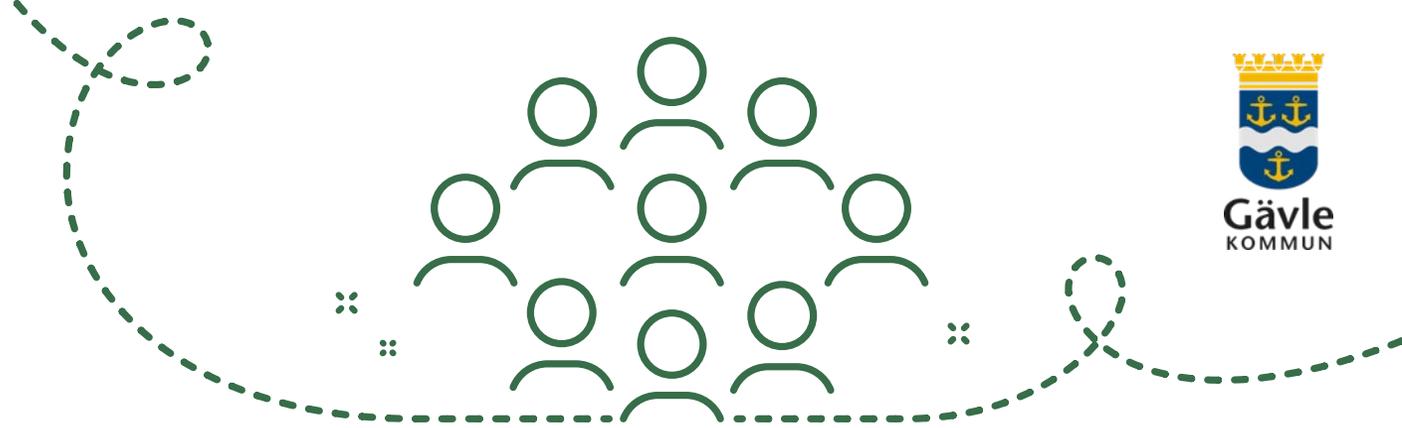


- Additional strong benefits:

Scalability & integration → Combine with municipal datasets for evidence-based planning & prioritization
Targeted policy relevance → Spot short car trips shiftable to active modes → support climate neutrality by 2030
Enhanced engagement → Participants track their impact → fosters awareness & long-term behaviour change

- Overall: Strengthens data-driven planning + engages residents + captures nuances + delivers actionable insights for active mobility & climate goals
- In sum: A practical, digital complement to traditional methods

Implementation



Sequential steps for the pilot rollout:

1. **Planning** – Designed data collection framework + selected key indicators for active mobility
2. **Participant selection** – Targeted employees from companies in Gävle’s Climate Contract (engaged group)
3. **Procurement** – Public tender process → selected & prepared the mobile app
4. **Communication campaign** – Promoted via social media, municipal website, direct mail, printed materials
5. **Phased launch** – Started small with municipal employees to test setup → anonymous tracking (distance, speed, mode)
6. **Validation** – Complementary travel surveys to compare app data vs. traditional methods + assess accuracy/usability
7. **Analysis & evaluation** – Processed data → informed future planning

Implementation: Stakeholders, Engagement & Key Practicalities

Main stakeholders:

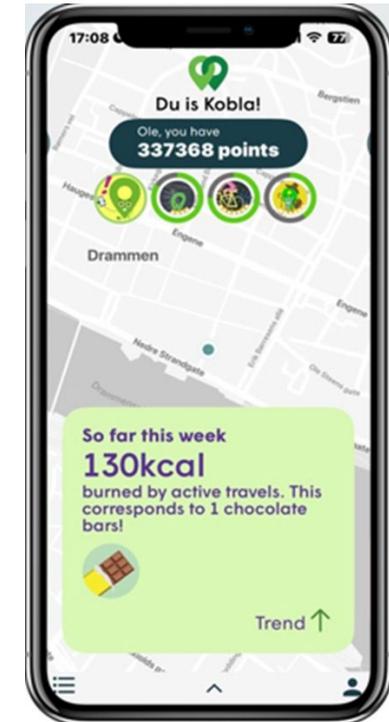
- Employees from Climate Contract companies (participants + intermediaries)
- Municipal project team
- App provider - Kobla (close collaboration for fixes)

Engagement methods:

- Emails, newsletters, digital meetings via company reps
- Informal feedback channels (emails, conversations) → addressed issues like battery drain & trip errors

Important practical notes:

- Early data protection agreement + internal registration (GDPR compliance took extra time)
- Anonymous tracking only → built trust
- Continuous adjustments during pilot based on user input
- Overall: Iterative, collaborative rollout → despite hurdles, generated valuable data & learnings



Results

Participation, Core Data & Key Finding

Pilot Scale & Engagement

647 participants joined by July 2025

Targeted employees from Gävle's Climate Contract companies

Standout Result

57% of all recorded trips were made by **walking or cycling**

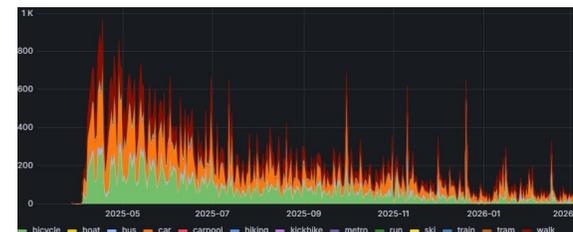
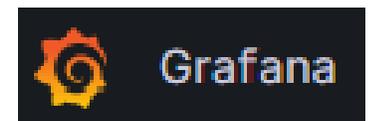
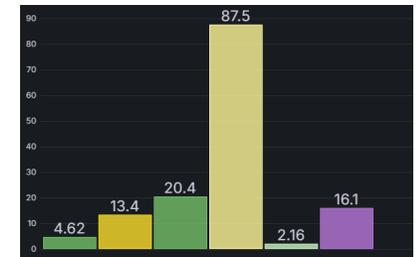
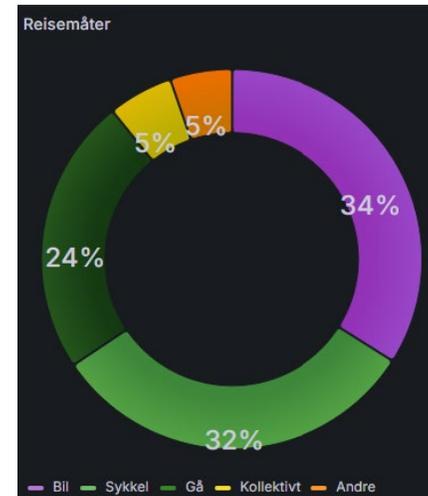
Clear demonstration of strong interest in active mobility among participants

Data Collected & Coverage

Anonymously tracked: distance, speed, mode of transport
Captured fine-grained route details: neighbourhoods, shortcuts, desire lines (missed by fixed counters) Filled major gaps in knowledge of short/local active trips

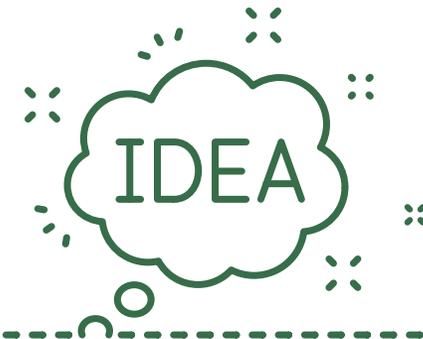
Analytical Outputs

Visualised in **Grafana**, Processed in Microsoft Excel : travel patterns, heat maps of popular routes



Results

Impacts, Insights & Realistic Context



Broader Impacts & Learnings

- Quantitative walking/cycling data → addressed longstanding scarcity
- Deeper understanding of participant perceptions: app monitoring, rewards, gamification
- Strengthened cooperation between municipal departments
- New insights into effective company & individual engagement/communication

Policy-Relevant Value

- Identified potential for shifting short car trips to active modes
- Proved digital GPS tracking complements traditional methods (real-time, behavioural, seasonal insights)
- Valuable proof-of-concept for future campaigns & data-driven planning toward climate neutrality 2030

Honest Limitations

- Modest sample size → direct policy impact limited (experimental nature)
- Served as strong learning exercise → directly informs next steps

Lessons Learned

Technology, Communication & Governance

Technology & Usability

User-friendly, stable app is non-negotiable for trust & sustained participation

Early issues (battery drain, manual trip logging, classification errors, translations, reward system) discouraged users → Thorough pre-launch testing with diverse users is essential

Communication & Outreach

Communication drives participation – needs early, professional, multi-channel planning + ongoing follow-up
Limited municipal capacity significantly reduced engagement → Allocate dedicated communication resources

Stakeholder & Governance

Clear roles & governance (project management, communication, data analysis) are vital for smooth coordination
Company intermediaries varied in commitment → Some prioritised other activities, limiting outreach → Provide ready-made tools/support for partners

Lessons Learned

Messaging, Participation & Overarching Takeaway



Messaging & Perceptions: Sustainability framing must be clear & inclusive → Labelling public transport as “non-sustainable” confused & alienated some participants → Use positive, non-divisive language



Participation & Data Quality:

Representativeness improves value → Broader demographic reach → more relevant data for planning Continuous feedback loops → allow real-time adjustments during the campaign (not just post-pilot)



Administrative & Preparation: Data protection + internal registration → more time-consuming than expected → Build buffer into timelines Initial test group was too small → Scale testing phase realistically



Overarching Lesson: Digital tools have **high potential** for understanding & promoting active mobility... ..but success depends on thorough preparation, broad engagement, adaptive management, and learning from early challenges

Advice for Replicability

Preparation & Execution

Preparation Phase

Conduct extended pre-launch testing with diverse users → Identify & fix technical/usability issues (battery, accuracy, translations, rewards) early

Plan communication comprehensively: professional materials + multi-channel strategy (social media, website, direct mail, employer toolkits)

Participant Engagement

Target broader groups from the start: schools, hospitals, universities, major employers → Achieve representative sample & higher participation

Support intermediaries (companies/organisations): provide ready-made promo templates, internal comms guides, and incentives

Technical & Operational Setup

Procure a robust, user-friendly app: prioritise low battery impact, accurate auto-detection, easy trip editing, responsive provider support

Establish clear governance: dedicate roles (full-time project manager + communicator + data analyst) for smooth execution

Advice for Replicability

Sustainability, Scaling & Final Recommendation

Messaging & Incentives

- Frame sustainability positively & inclusively → Avoid confusing or alienating labels (e.g. on public transport)
- Use gamification + non-monetary incentives (badges, dashboards, retailer partnerships) → Keep motivation high cost-effectively

Data & Evaluation

- Combine app data with other sources (surveys, counters, mobile network data) → For validation, richer insights & robustness
- Build continuous feedback loops → Adjust in real time during the campaign

Sustainability & Scaling

- Secure ongoing budget (license + staff/promotion) & cross-departmental commitment
- Test shorter public campaigns + hybrid approaches → Improve coverage, accuracy & cost-efficiency
- Focus on quick wins: near-real-time monitoring of infrastructure changes (new lanes, winter maintenance)

Final Recommendation

- Start small but structured → Apply lessons iteratively → Digital pilots like this deliver high value for evidence-based active mobility policies, especially in Nordic/municipal contexts



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Thank you!