Empowering Urban Cyclists with Citizen Science

ECIU Smarter Project

Summary of the Kick-Off Workshop

13 May 2022

Institut de Ciències i Tecnologies Ambientals (ICTA)
Universitat Autònoma de Barcelona

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Executive Summary

On 12-13 May 2022 we held the kick-off meeting of the citizen science project on urban cycling funded by the ECIU SMART-ER program[1]. The meeting consisted of an internal strategic planning session for the research teams from Aveiro, Barcelona, Dublin, Tampere and Twente. On Day 2 of the workshop, we organised a design thinking workshop with stakeholders (n=25) to help define stakeholder needs and receive feedback on initial ideas about the collaborative platform. The workshop assessed three realms of data collection and citizen science collaboration: (1) cycle path infrastructure, (2) bicycle parking and theft, (3) citizen empowerment and engagement. Results show that stakeholders are most interested in information about cycle routes and cycling infrastructure. As a next step, the research teams will consider organising a similar workshop in their respective contexts. We anticipate making important decisions about the scope of the collaborative platform and its development in an online strategic planning meeting in June 2022. Our aim is to have a functioning pilot platform in the Autumn 2022.

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[1] Project name and website are still under discussion. Candidate names include Bicizen, Citicycle, etc..

Problems of urban cyclists

🟧 Bicycle lanes   🟥 Safety   🟧 Parking & theft   🟥 Others

Others
18%

Bicycle lanes
38%

Parking & theft
20%

Safety
24%
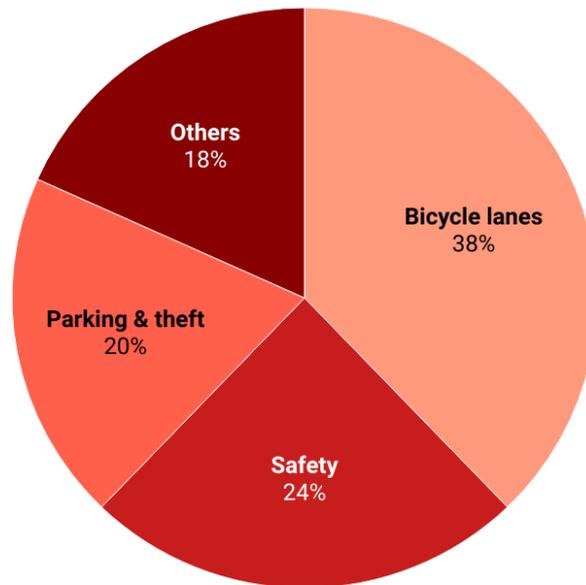
May 2022 workshop at ICTA-UAB
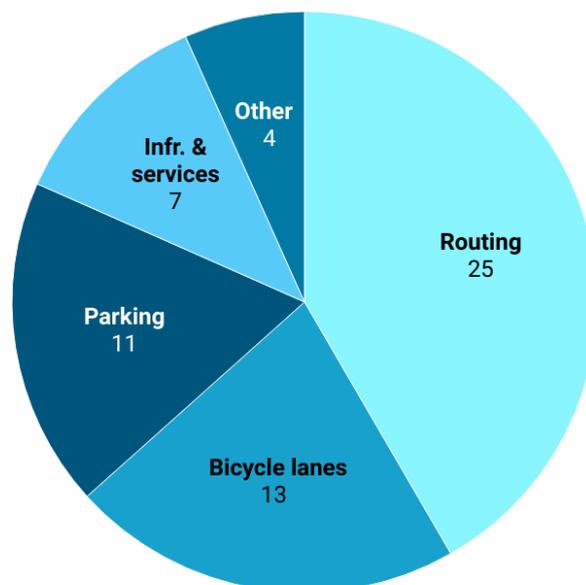Source: Self collected • Created with Datawrapper

Information useful for urban cyclists

🟦 Routing   🟦 Bicycle lanes   🟦 Parking   🟦 Infr. & services   🟦 Other

Other
4

**Infr. &
services**
7

Routing
25

Parking
11

Bicycle lanes
13

May 2022 workshop at the ICTA-UAB
Source: Self collected • Created with Datawrapper

infr: infrastructure

Design Thinking Workshop

The workshop was structured in four blocks:
  I.   Workshop Welcome and Aims
  II.   Part 1: Problem Statements and Scoping
  III.   Part 2. Information and Data Needs
  IV.   Part 3. Feedback on Proposed Functions

Participants (N=25) included members of the cycling community, researchers, journalists, active transportation activists, and the private sector.

Part I: Problem Statement and Scoping

What are common conflicts, discomforts or issues that arise when travelling by bike in your city? What are the primary problems and pain points for urban cyclists?
- Bicycle lanes (**31**):
  - Quality (**9**)
  - Discontinuity (**6**)
  - Connectivity with other means (**5**)
  - Insufficient or inadequate cycling infrastructure (**4**)
  - Coverage (**4**)
  - Obstacles (**2**)
  - Congestion (**1**)
  - Maintenance(**1**)
  - Lack of information about bicycle lanes(**1**)
- Safety (**20**):
  - Road safety (**9**)
  - Respect Harassment (**5**)
  - Routing issues (**3**)
  - Problems with cars (**3**)
- Parking and theft (**16**):
  - Lack of parking (**7**)
  - Theft (**4**)
  - Safe parking (**3**)
  - Storage (**1**)
  - Lack of information about bicycle parking(**1**)
- Others (**15**):
  - Intermodality problems (**4**)
  - Signalling (**3**)
  - Traffic lights (**3**)
  - Sporty devices (**2**)
  - Lack of information (**2**)
  - Space negotiation issues (**2**)

Write one or more succinct problem statements related to urban cycling.

- Unequal space distribution (**4**)
- Lack of information about infrastructure (**4**)
- Traffic lights (**2**)
- Parking unsafety (**2**)
- Habits (**2**)
- Improvement of rules (**2**)
- Tool to report problems (**2**)
- Lack of safety (**1**)
- Intersections (**1**)
- Cyclists feel like they don't belong (**1**)
- Mental barriers (**1**)
- High motor vehicle density in central city (**1**)
- Slow routes (**1**)
- Each city has its own problems (**1**)

Part II: Information and Data Needs

2.1. What sort of information do urban cyclists need to improve their cycling experience?
- Routing (**25**)
  - Road information (**11**)[2]
  - Good routing (**8**)
  - Bikeability map (**6**)
- Bicycle lanes and areas (**13**)
  - Location of bicycle lanes and blackouts (**8**)
  - Bicycle routes across municipalities / Larger distances (**3**)
  - Connection between bicycle lanes and public transport (**1**)
  - Areas with low number of cars where you can cycle (**1**)
- Bicycle Parking (**11**)
  - Parking availability (**8**)
  - Where to park safely/theft map (**3**)
- Bike Infrastructure and bike services: Existing & planned (**7**)
  - Infrastructure general (**3**)
  - Pump and fix stations (**1**)
  - Services, shops (**1**)
  - Signalling (**1**)
- Other (**4**)
  - Road signals (**2**)
  - Rights and oughts (**1**)
  - Public transport rules with bicycle (**1**)

2.2. Reflect on the problem statements you wrote or discussed with the group. Describe how data sharing among cyclists could help address or mitigate the problem identified.

- Info on cyclist routes can be used to improve infrastructure (**6**)
- Warn users of dangerous and safe spots (**6**)
- Critical mass (**3**)
- Sharing routes (**3**)
- Alternative routes when bike lane ends (**2**)
- Warn about parking availability (**2**)
- Municipalities interconnection (**1**)
- Convince non cycling users (**1**)

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[2] Weather, road material, air quality, traffic, disruptions, separators and inclination.

- Stolen bikes (**1**)
- Map with services (**1**)
- Cycling tips (**1**)

2.3. As a cyclist planning your trip, what sort of information would you appreciate learning about from other cyclists? How might cyclists share information and collaborate? How might a citizen science project in cycling be useful for you?

- Information:
  - Secure routes (**6**)
  - Witch streets have bike lane, bike lane ends and direction (**5**)
  - Problematic points (**4**)
  - Streets safe for kids (**1**)
  - Cool places to go (**1**)
  - Infrastructure review (**1**)
  - Organise bicibus for adults (**1**)
- Format:
  - Real time data (**2**)
  - Similar to: Wikiloc, cyclocat (**1**)
  - Other cyclists opinions (**1**)
  - Share and participate in exercises to define priorities of interventions (**1**)

2.4. What are the essential data needs for cities and municipalities to improve the management of cycling infrastructure? What sort of open data might you need to advance the cyclists cause?

- Information about cyclists(**10**):
  - Know where cyclists live and where they go (**5**)
  - Travel surveys (**2**)
  - Safety perception of collectives (**2**)
  - Participant of cyclists(**1**)
- Incidents (**8**):
  - Crashes and near crashes (**6**)
  - Bicycle parking pressure (**1**)
  - Bike thefts (**1**)
- Others (**7**):
  - Data relevant to planning and maintenance (**5**)
  - An actualized google street view for cycling (**2**)

Part III: Feedback on our Proposed Ideas

Bike theft and parking (summary by Luca & Jordi)

- When you park your bike, you are usually stressed, and you do not have the time to add data to an application. You are at the end or beginning of your trip, making it an inconvenient time to engage with technology because you need to be somewhere.
- It is really annoying to have your bicycle vandalised.
- Doing a qualitative study about why people are parking in a concrete parking spot would be interesting.
- Consider allowing the reporting of informal parking.
- Link the use of the application to local associations. They have a lot of enthusiastic people that can help with the data recollection. BACC (Marta)
- How can it be useful for users to upload information?
- Link the project to the cycling campaign in March: 30 days by bike
- Gamification + W/campaign
  - Prizes
  - Flayers
  - Stickers
- Off street safe parking
- Does the perception of risk of bike theft match the reality of bike theft?
- Why are you focusing the research on bicycle parking? When there are other different typologies of barriers to cycling?

Cycle paths (summary by Kirsi & Jouni)

Throughout the workshop, we both found that the theme of cycle paths (including maintenance, conflicts, safety & comfort) was strongly emphasized by the participants, beginning from stage 1 where many took up these issues spontaneously. At the last stage, where we asked for reflections on our initial ideas, it was already clear to everyone that the themes are relevant. What we ended up discussing a bit more in depth were the following topics, including preliminary ideas on the platform from the citizen-sharing and policy impact perspectives:

1) **Functionality of cycling routes and connectivity between places.** These issues seem to concern urban cycling in many contexts, from smaller historical towns to metropolitan regions to modern cities based on car-dominated planning. Those who cycle regularly between certain places often learn by heart the most functional routes and how to deal with obstacles in them; they are annoyed by the dysfunctionality that they face on a daily basis and have plenty of experiential knowledge related to the topic. Those who do not cycle so often tend to struggle with the lacking information on functional routes and the constant disruptions that make cycling dangerous and distressful when trying to reach their target destinations. Based on these experiences, both groups could benefit from:

   a. **Sharing information between citizens** to disseminate knowledge on well-functioning and safe routes across the urban fabric, as well as update

information on disruptions and changes that affect routes on the ground. On an open platform, this sharing would occur between different kinds of cyclists (across differences in age, gender, ability and experience level). Overall, this could encourage people to cycle more in a safer and more comfortable manner.

b. **Policy impact** is another key goal of using an open citizen-science platform to give feedback and build pressure on public administration to develop the city also from the cyclists' perspectives. A functional network of cycling routes is of utmost importance both for heavy-users and occasional bikers.

2) **Identification of different cyclists.** People who cycle have different capabilities, interests, resources, opportunities, and preferences. Sporty able-bodied adult cyclists differ from very young and very old bikers, families moving around with children, and people who use bikes carts for selling goods for instance. All have rather different perspectives on what is relevant in the biking infrastructure and on how cycling lanes are used. The encouragement of cycling among all urban citizens thus means that the variety of cyclists is acknowledged without privileging some and downplaying others.

a. **Considerate cycling culture** is an important aim in the development of urban cycling, where a common platform for sharing knowledge can be helpful in forming an 'urban cycling community' that brings together different people and pluralizes the idea of urban cycling. It should allow people to introduce new issues that could be built into initiatives by the cycling citizens, toward policy impact.

b. **Adequate and multi-from infrastructures and policies** are needed to encourage more people into cycling. Through the open platform different people can find ways to be heard in the cyclists' communities and by public administration and policymakers. Responsiveness to citizen feedback was strongly emphasised: people's motivation to act as active citizens is strongly dependent on responsiveness to their concerns. Hence, the platform should include a dynamic element through which the city can communicate the impact to the citizens.

3) **Weather conditions and nature as part of the city.** Different times of the year and different moments of the day can create challenges for urban cycling everywhere, even if in different ways. Noticing that nature is part of the city is hence important in the development of urban cycling conditions. Extreme weather conditions (e.g., snow, heat, wind) can make cycling difficult and exhausting, whereas nature elements (trees, waterways, flowers) can make cycling more pleasant and inviting.

a. **Knowledge about the impact of current weather conditions** would be helpful for all cyclists, i.e., the sharing of on-spot and on-time information about weather conditions that impact bikeability. Sharing place-specific up-to-date information among the urban cyclists' community would be key

here. **Knowledge about pleasant biking routes** could, instead, be done through long-term sharing. A map where cyclists could add qualitatively relevant information would be welcome here (e.g., shady routes during hot days, beautiful routes for unhurried cycling, non-hilly routes for easy going travel).

b. **Policy impact** similar to the other points; the platform/map should be connected to relevant sections of the municipality so that the citizen-provided information could be used in immediate and long-term actions for route maintenance and development.

4) **Gamification and compensation.** Citizen activities can also be motivated by making participation fun and/or rewarding. In both cases, the city should see that as they benefit also money-wise from citizen's knowledge-sharing, they can use a bit of money to support these activities.

a. **Pokemon-inspired formats.** The Crowdchupa model from Tampere seemed interesting to some of the participants who saw it as a motivating factor among certain citizen-groups.

b. **Discount for services related to cycling.** The city could offer active citizens rewards as compensation for their time and effort used for improving cycling. This could be vouchers to shops that sell cycling-related products, to services for bike maintenance/repair, etc.

Citizen Engagement (summary by Theo)

A broad view of citizen engagement was discussed where citizen engagement goes beyond data collation to design, and support of a broader planning cycle. It can include monitoring and evaluation of planned activities as well as citizens suggesting potential interventions. Johannes outlined how their interactive mapping tables might be used to stimulate discussion/consensus building/sensemaking.

The participants provided examples of citizen engagement in Barcelona around Superblocks and other district initiatives using the Decidem[3] software system (https://www.decidim.barcelona/, unfortunately only in Spanish/Catalan). Ideas were proposed by a community, the authorities would weed out infeasible proposals, and then a shortlist would be presented back to a community to vote and select. Because infeasible proposals were cut, the authorities had no basis not to proceed with implementation of selected initiatives.

Early engagement with authorities and stakeholders is important for buy-in. When proposals didn't have early engagement, they did not get traction. Authorities need to understand how citizens can best inform their agenda. Another idea proposed was a citizen working group for an initiative that worked alongside a research group. The superblocks experience was cited where the initial proposals were less popular due to lack of stakeholder involvement but later

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[3] Konstantinos said decidem was open source and used by Stavanger and UAB, however he had reservations of it as a system.

co-designed proposals were much more adopted. Other modes of citizen engagement discussed were competitions, proposal hackathons, data hackathons and school workshops/projects. Hackathons for kids or how to make the city more playable would be interesting. Mark mentioned the 10/20/30 initiative implemented in Amsterdam.

The need for an expanded perspective was raised again i.e. that citizen engagement needed to expand beyond cyclists to a wider perspective on urban mobility that combined modes of transport and reflected a wider transport system and joined up thinking. For example, there is a need to discuss changes or proposals with car drivers and non users too. Again, most people are multimodal. Considerations of cycle lane traffic flow and non-cycle lane flow are important.

There was a question about whether authorities are open to citizen engagement/feedback? One participant noted that EU regulations or other legal requirements were often useful to drive engagement e.g. noise level interventions. The response may not be as extensive as citizen lobbyists hope. A key question was "what are the drivers for cycling interventions?". Another question raised was whether citizen science/engagement platforms can trigger advocacy/activism?

Representativeness of citizen engagement participation was also raised as an issue. While the debate function was seen as important, there was a perception/fear that the people who participated in citizen engagement may be the same voices. Online platforms may potentially exclude older and more vulnerable parts of society. Accordingly, participant recruitment and community moderation were important functions to plan for to have a healthy active online community.

There is a tension between different levels of stakeholders e.g. cycle lanes may be funded at city level but other initiatives, e.g. cycling activation, at district/neighbourhood level. This requires coordination. Most people make decisions for their neighbourhoods or personal motivations which may surface as tension between cycling community vs government/municipal authority vs neighbourhood/local level.

Having feedback mechanisms to other platforms was also important including government platforms and Google maps was also important.