

Imperial College London

Developing approaches to engage people in air pollution: What works and what doesn't?

Rosie Riley

PhD Researcher

Supervised by:

Dr Audrey de Nazelle, Centre for Environmental Policy, Imperial College London

Dr Laure de Preux, The Business School, Imperial College London

In collaboration with:

Andrew Grieve, Consultant, Kings College London

Dr Gary Fuller, Environmental Research Group, Kings College London

1. Motivations for the project: Why do we need to engage the public in air pollution and encourage behaviour change?
2. Evidence and theory: What does the evidence tell us about how we should communicate air pollution to engage people? What can we learn from behaviour change theory?
3. Developing *Airwaze*: How has this evidence and theory informed the development of our app?
4. Future plans: What's next for the development and evaluation of *Airwaze*?

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Woodcock et al 2009

Rojas-Rueda et al 2013

Rojas Rueda et al 2012



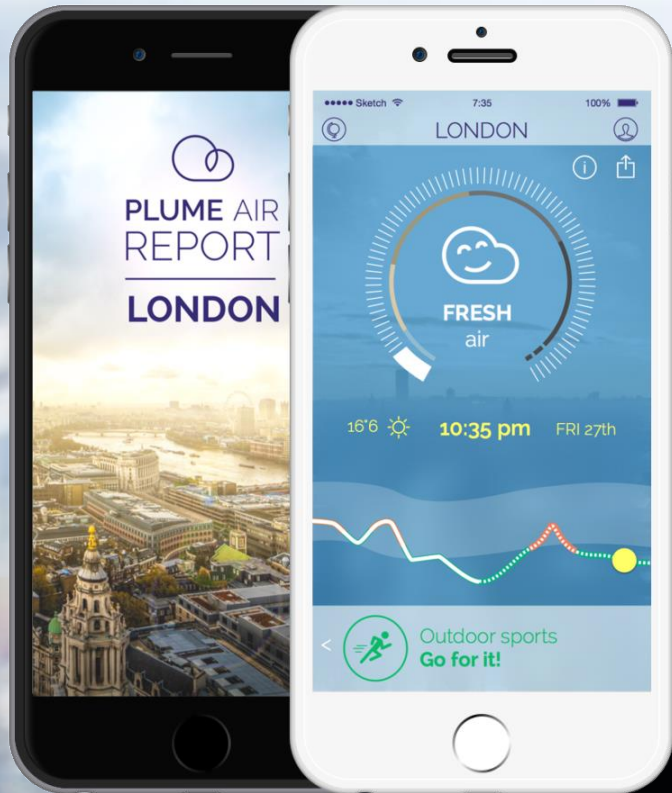
Motivations

Evidence and Theory

Developing Airwaze

Future plans

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Motivations

Evidence and Theory

Developing Airwaze

Future plans

Systematic Literature Review

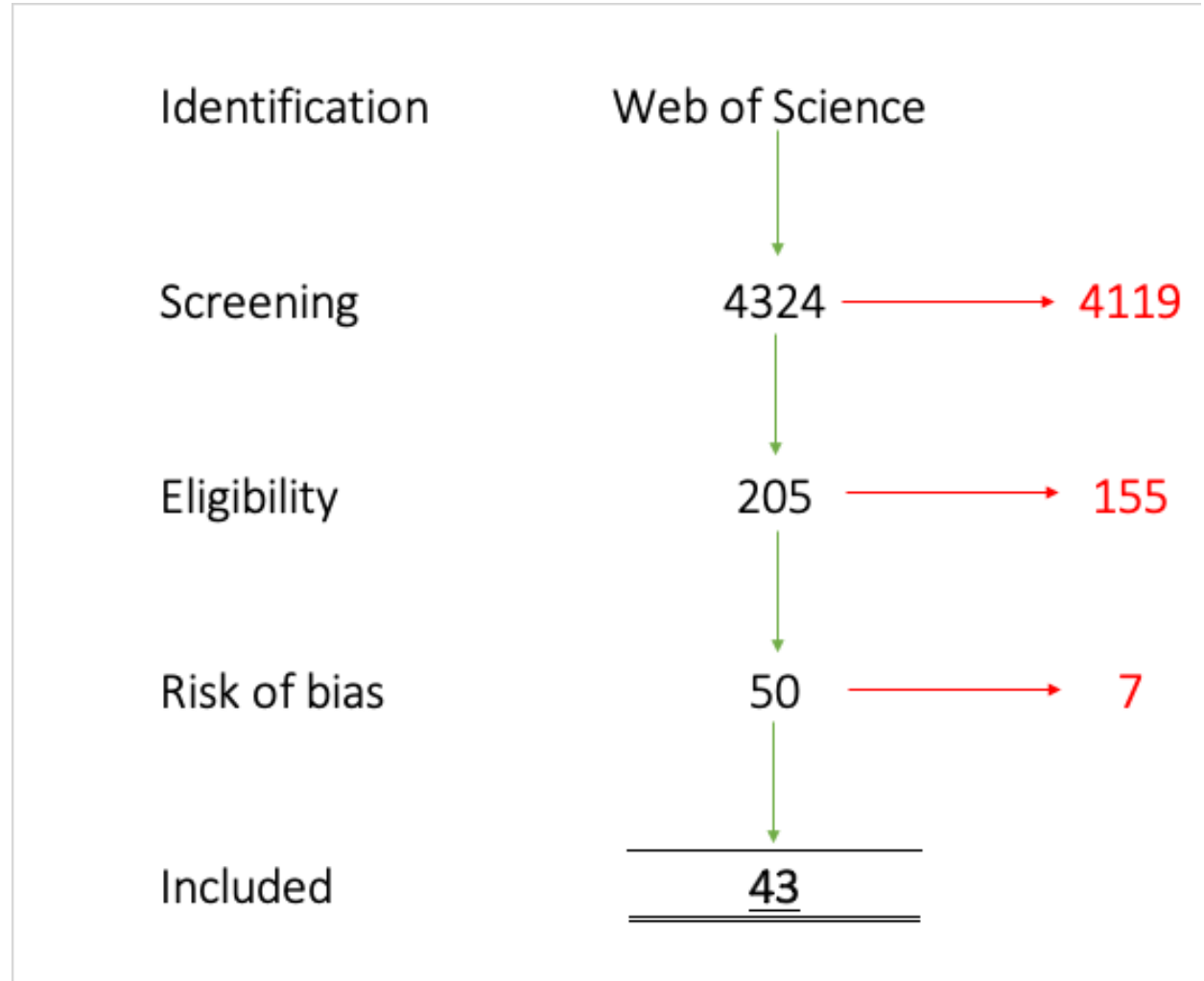
Search Terms

(Soci* OR public*OR citizen* OR resident*
OR city OR cities OR smart cit*)

(behav*)

(awareness OR communicat* OR engage* OR
participation OR perception* OR
intervention*)

(“air pollut*” OR “air quality”)



Systematic Literature Review : findings

- 43 studies
- 25 types of behaviours
 - 1) avoidance, 2) contributing,
 - 3) supportive, 4) protective
- 22 found evidence of change
- Alerts/ advisories during high pollution episodes
- Reduce outdoor activity

Current communication

General & unspecific

Meaningless to people

Lack of harmonisation

Channels - inaccessible

Alarmist

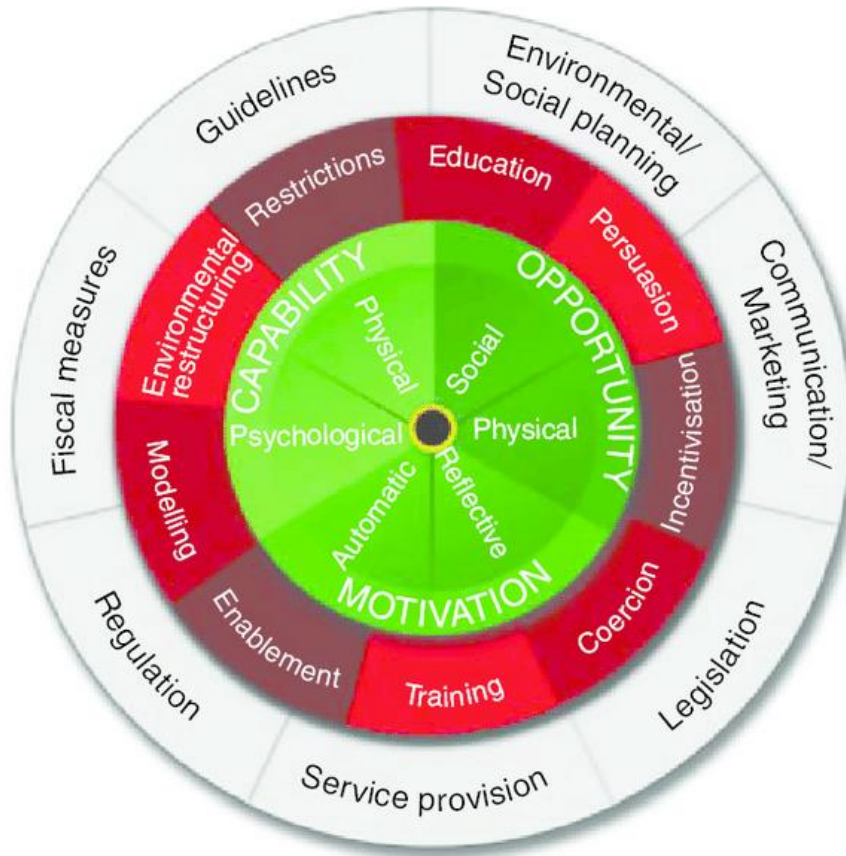
Risk of adverse consequences

Systematic Literature Review : Recommendations

1. Personalised
2. Targeted
3. Local - hotspots and pollution sources
4. Complexity (not too simple)
5. Range of actions

6. Supportive behaviours
7. Positive outcomes and co-benefits (health, environment, social, financial)
8. Context and relatability
9. Beyond data
10. Interdisciplinary collaboration

- Sources of behaviour
- Intervention functions
- Policy categories



Michie et al 2013

What can we learn from behaviour change theory?

Page	Grouping and BCTs	Page	Grouping and BCTs	Page	Grouping and BCTs
1	1. Goals and planning 1.1. Goal setting (behavior) 1.2. Problem solving 1.3. Goal setting (outcome) 1.4. Action planning 1.5. Review behavior goal(s) 1.6. Discrepancy between current behavior and goal 1.7. Review outcome goal(s) 1.8. Behavioral contract 1.9. Commitment	8	6. Comparison of behaviour 6.1. Demonstration of the behavior 6.2. Social comparison 6.3. Information about others' approval	16	12. Antecedents 12.1. Restructuring the physical environment 12.2. Restructuring the social environment 12.3. Avoidance/reducing exposure to cues for the behavior 12.4. Distraction 12.5. Adding objects to the environment 12.6. Body changes
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Motivations

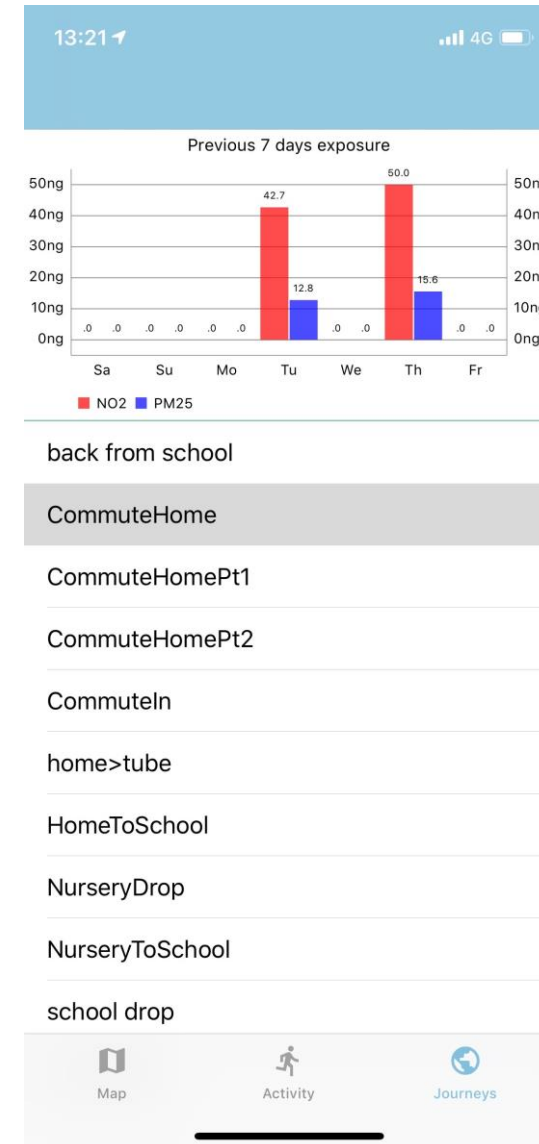
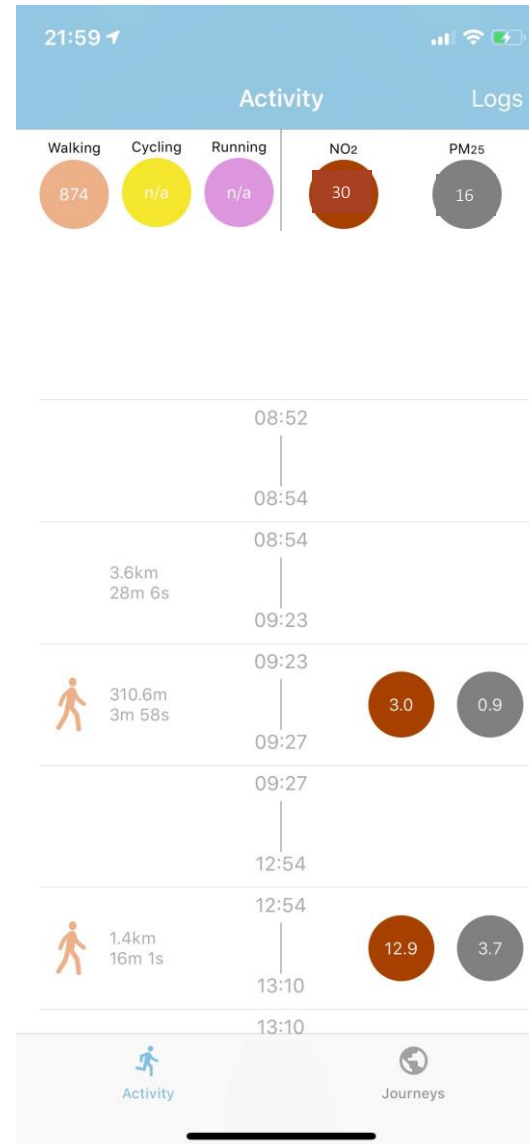
Evidence and Theory

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1. To engage users in air pollution
2. To encourage active travel
3. To reduce exposure during active travel



1. Personalised
2. Targeted
3. Range of actions
4. Local - Local hotspots and pollution sources
5. Complexity (not too simple)
6. Positive outcomes and co-benefits (health, environment, social etc)
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Your life score.

We take into account the physical activity you've done and the air pollution you've breathed in

Your daily physical activity target. It is set at 30minutes

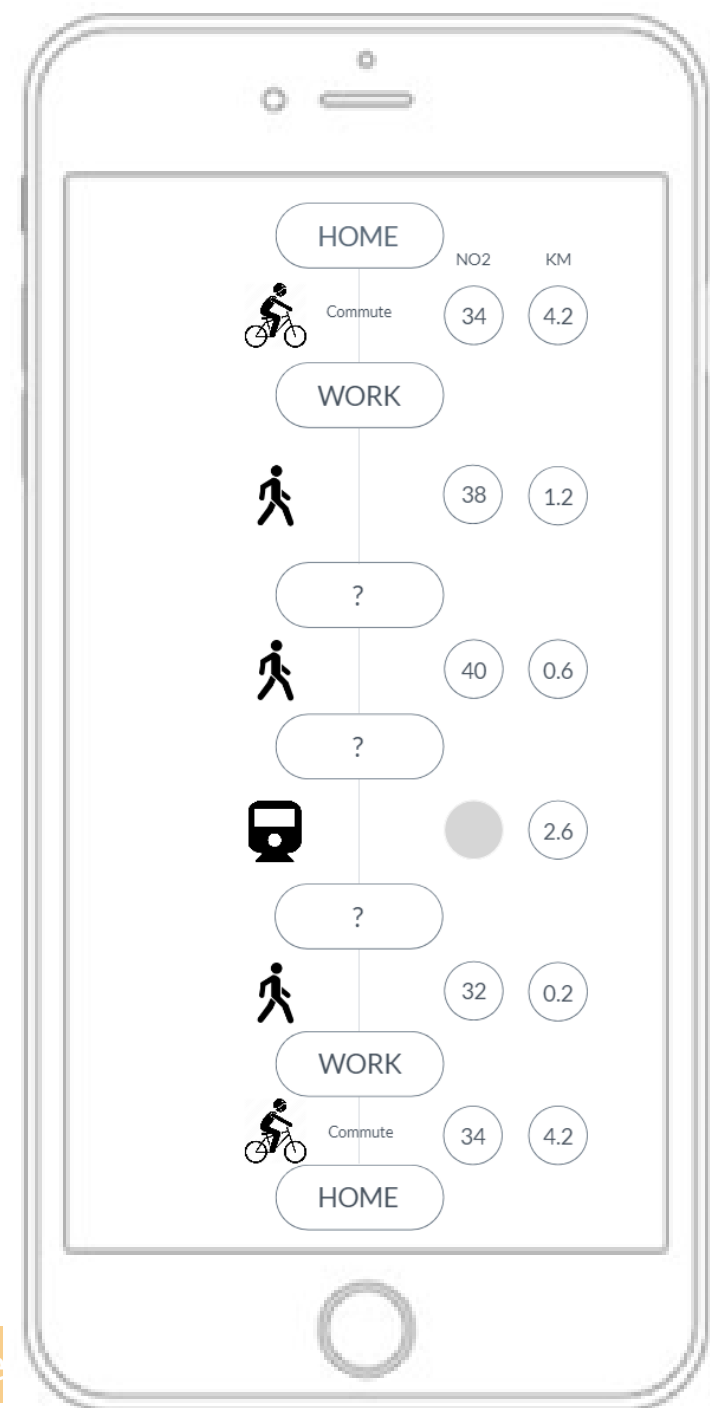
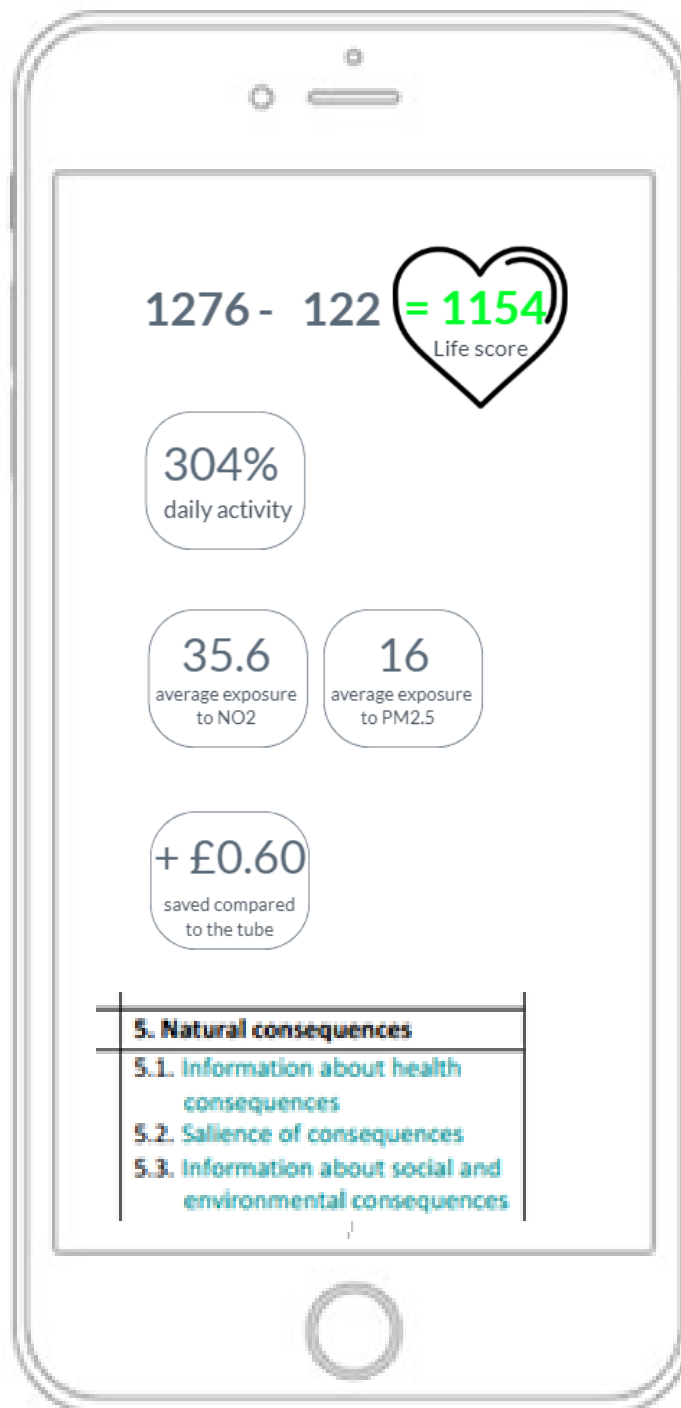
Your average exposure to air pollution during the trips you've walked, cycled and ran today

Personal financial savings compared to the tube for journeys walked

6. Positive outcomes and co-benefits (health, environment, social etc)

Motivations

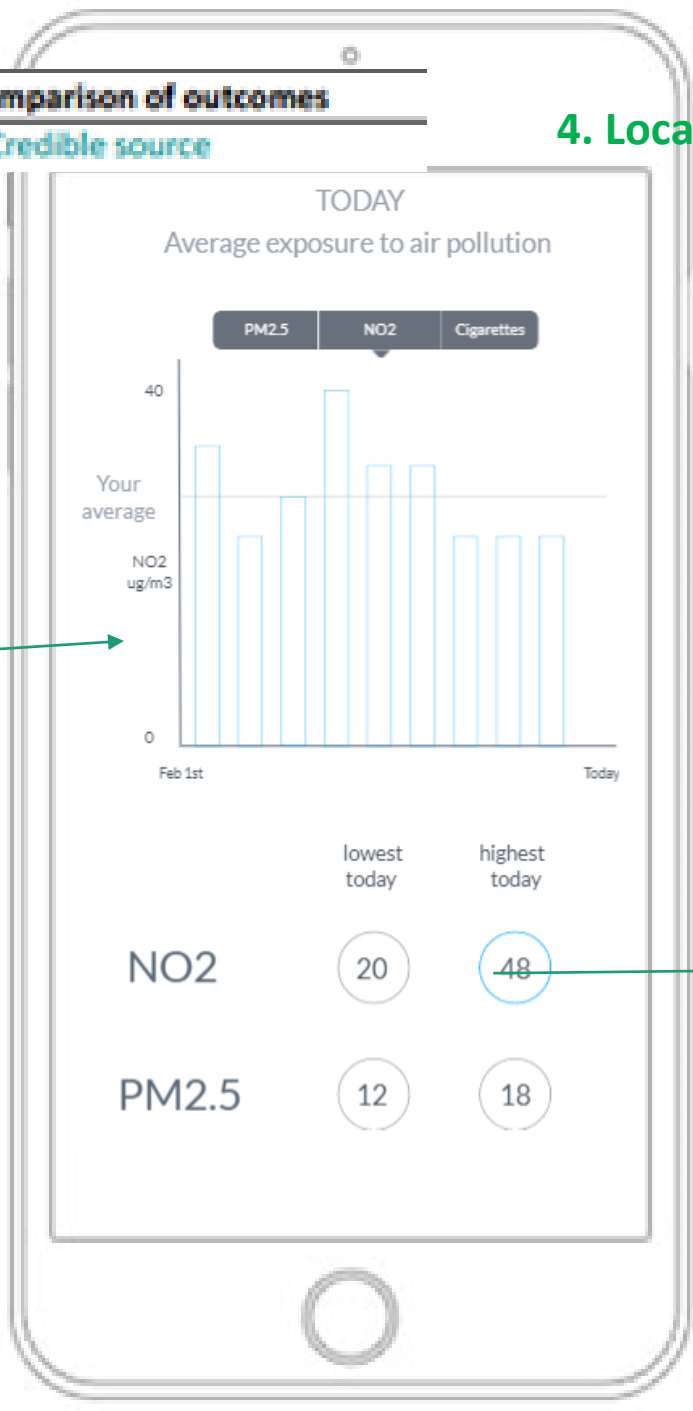
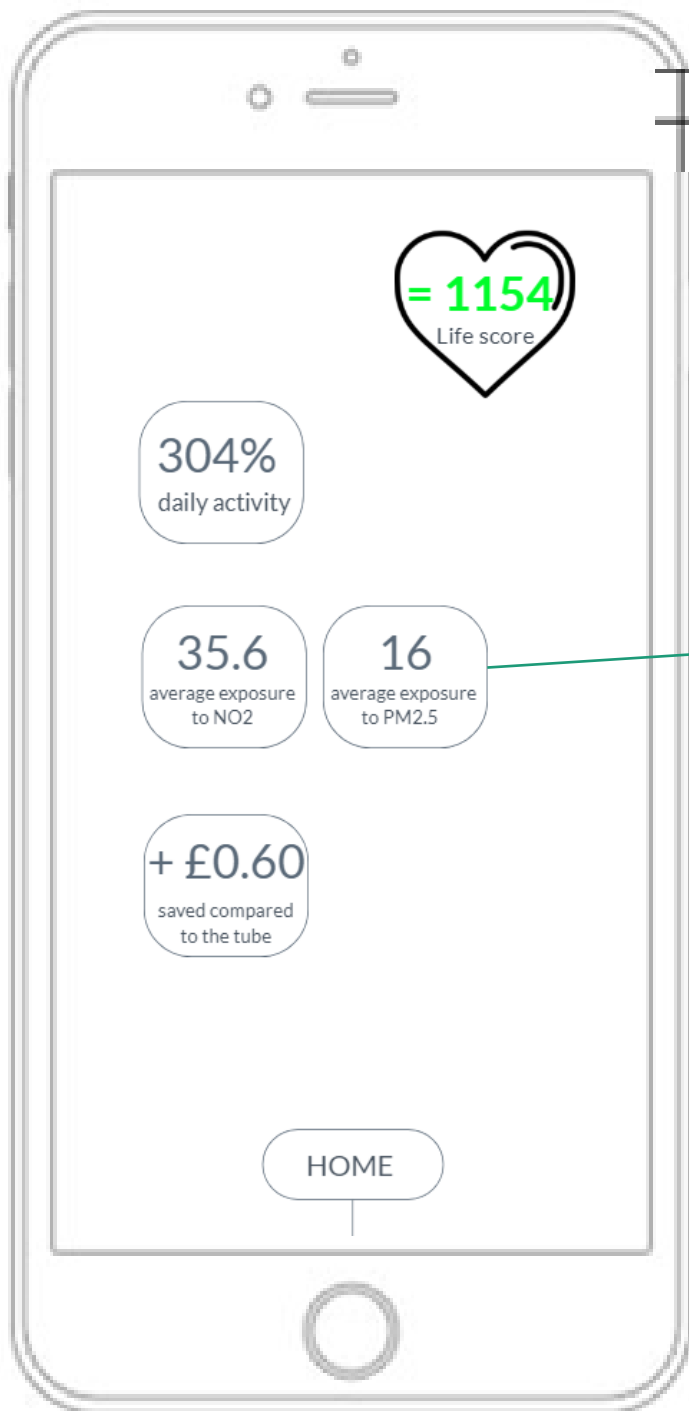
Evidence



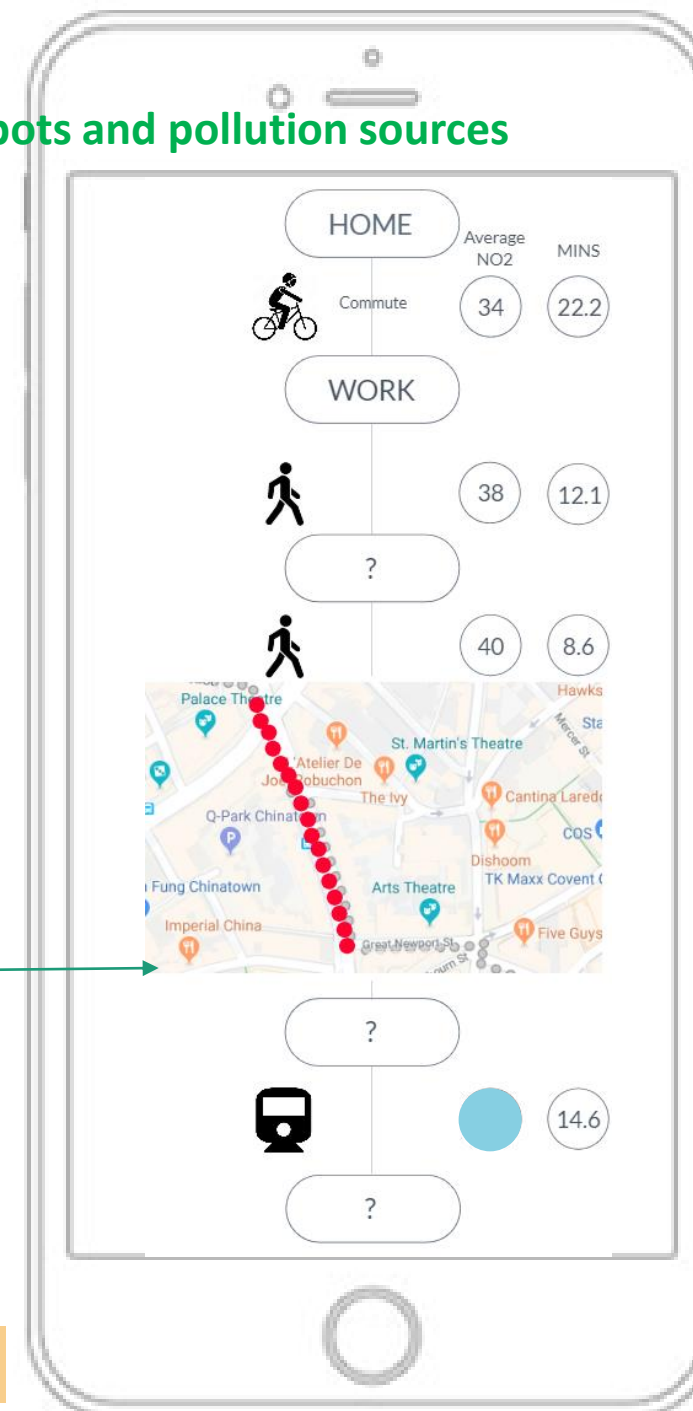
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9. Comparison of outcomes

9.1. Credible source

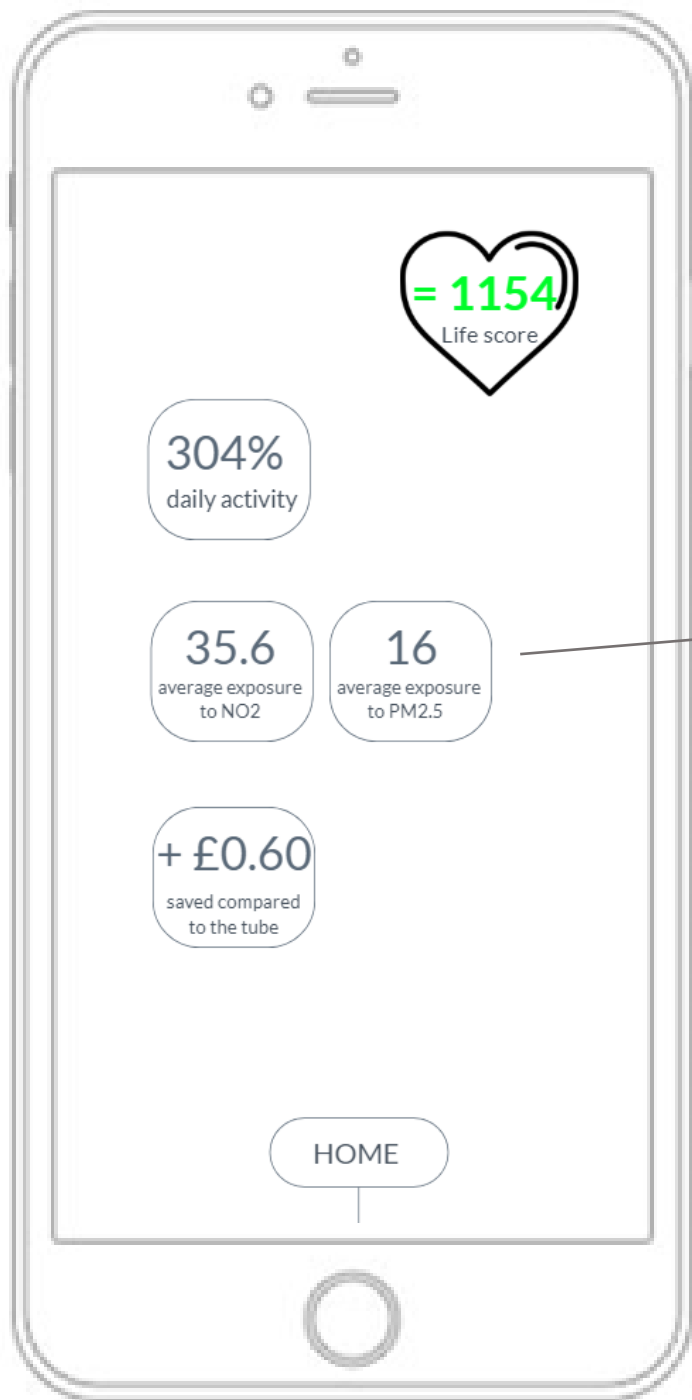


4. Local hotspots and pollution sources

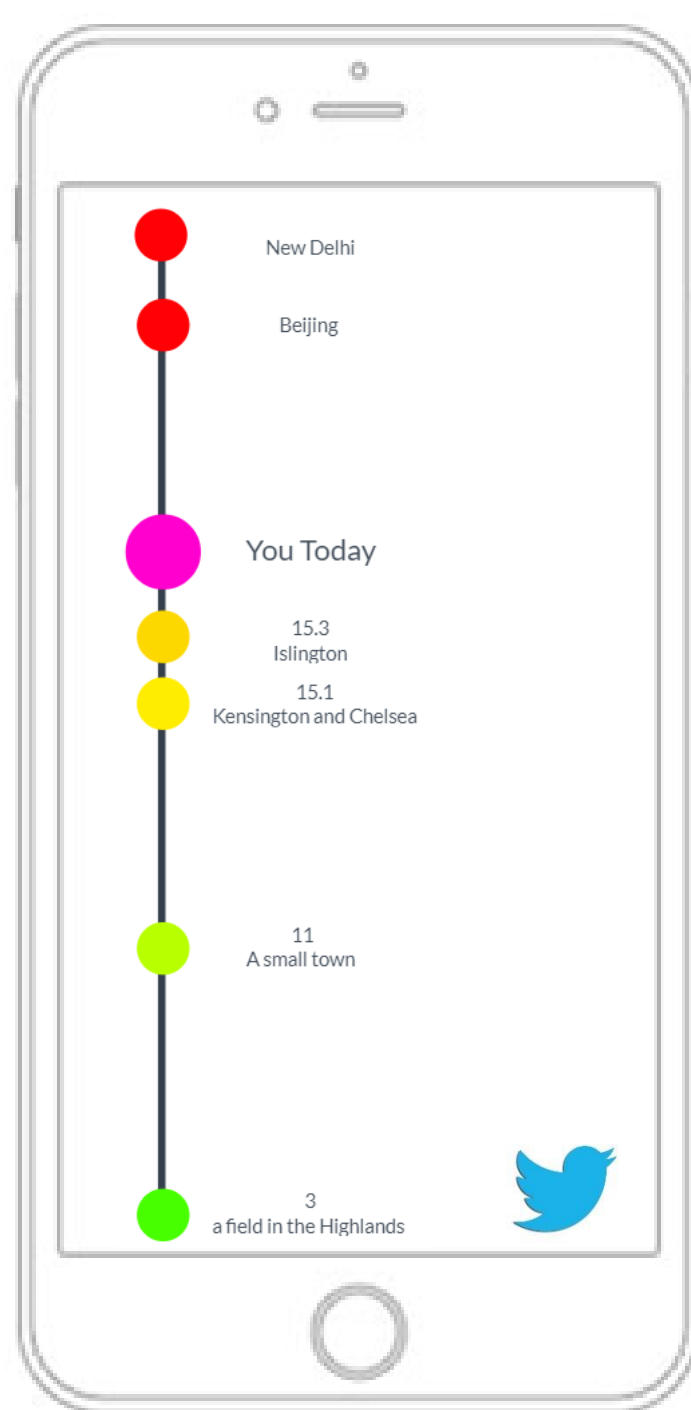


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- 7. Supportive behaviours
- 8. Context and relatability

6. Comparison of behaviour
6.1. Demonstration of the behavior
6.2. Social comparison
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3.1. Social support (unspecified)
3.2. Social support (practical)
3.3. Social support (emotional)

Future plans

5. Natural consequences

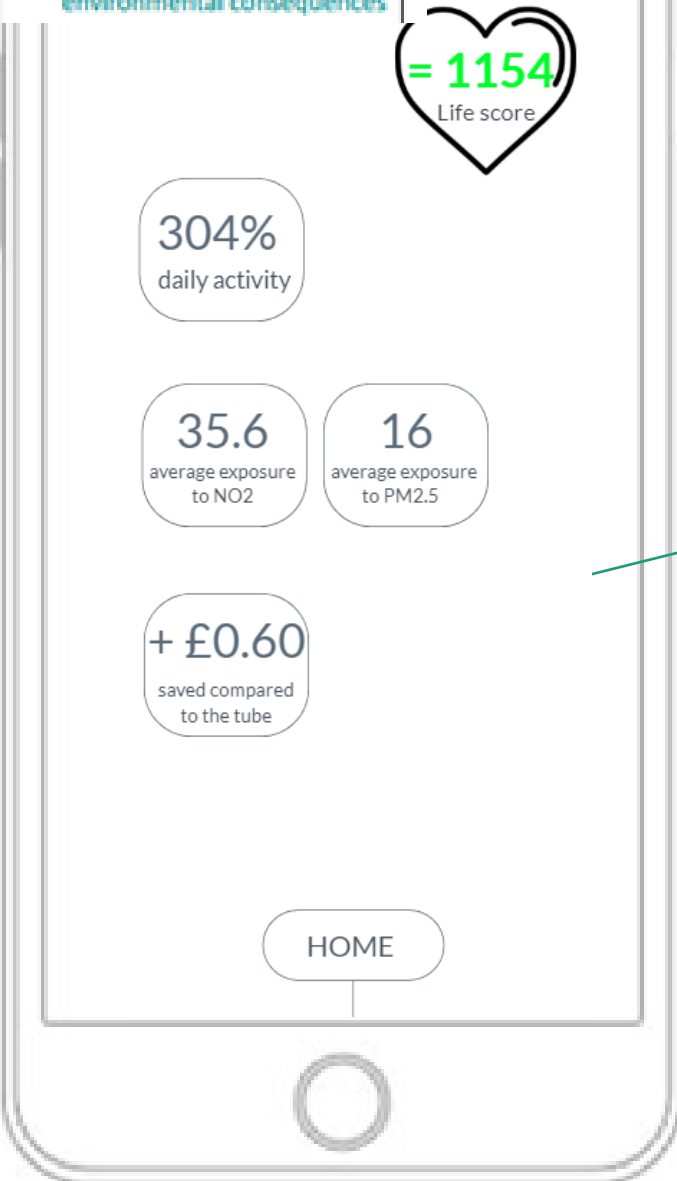
5.1. Information about health consequences

5.2. Sallience of consequences

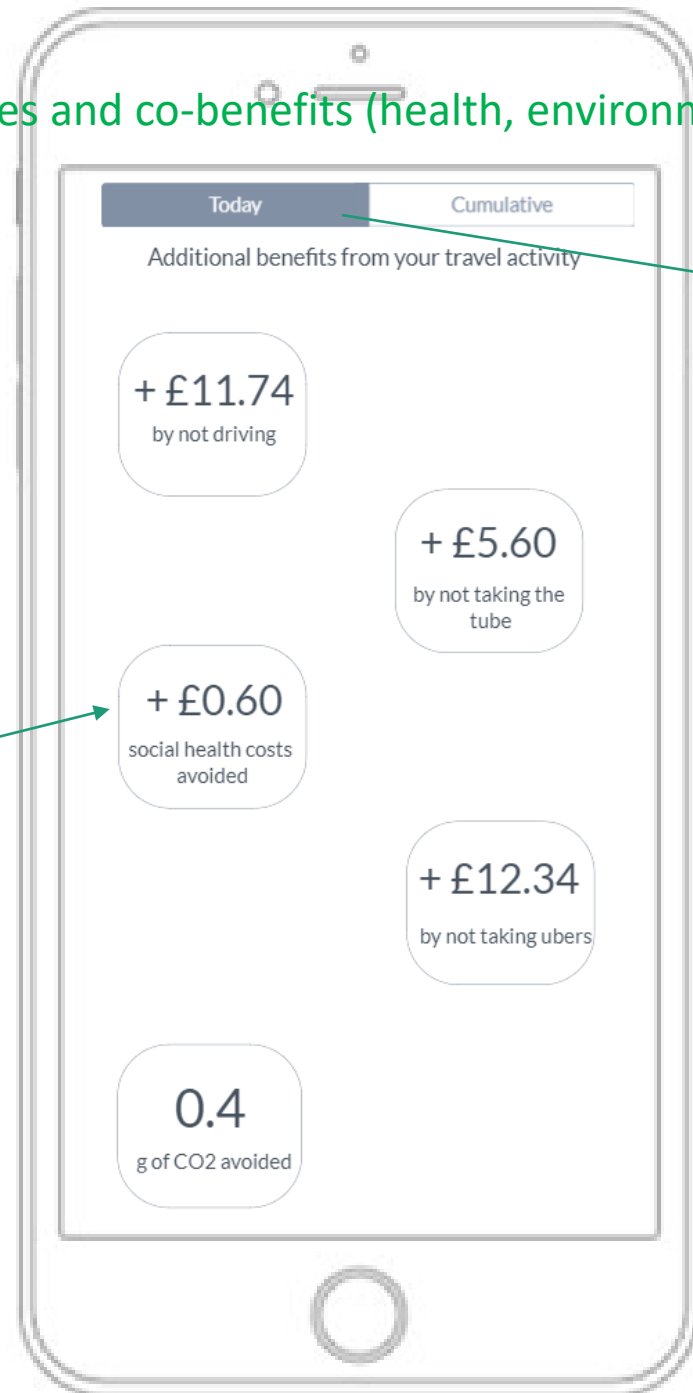
5.3. Information about social and environmental consequences

1. Personal

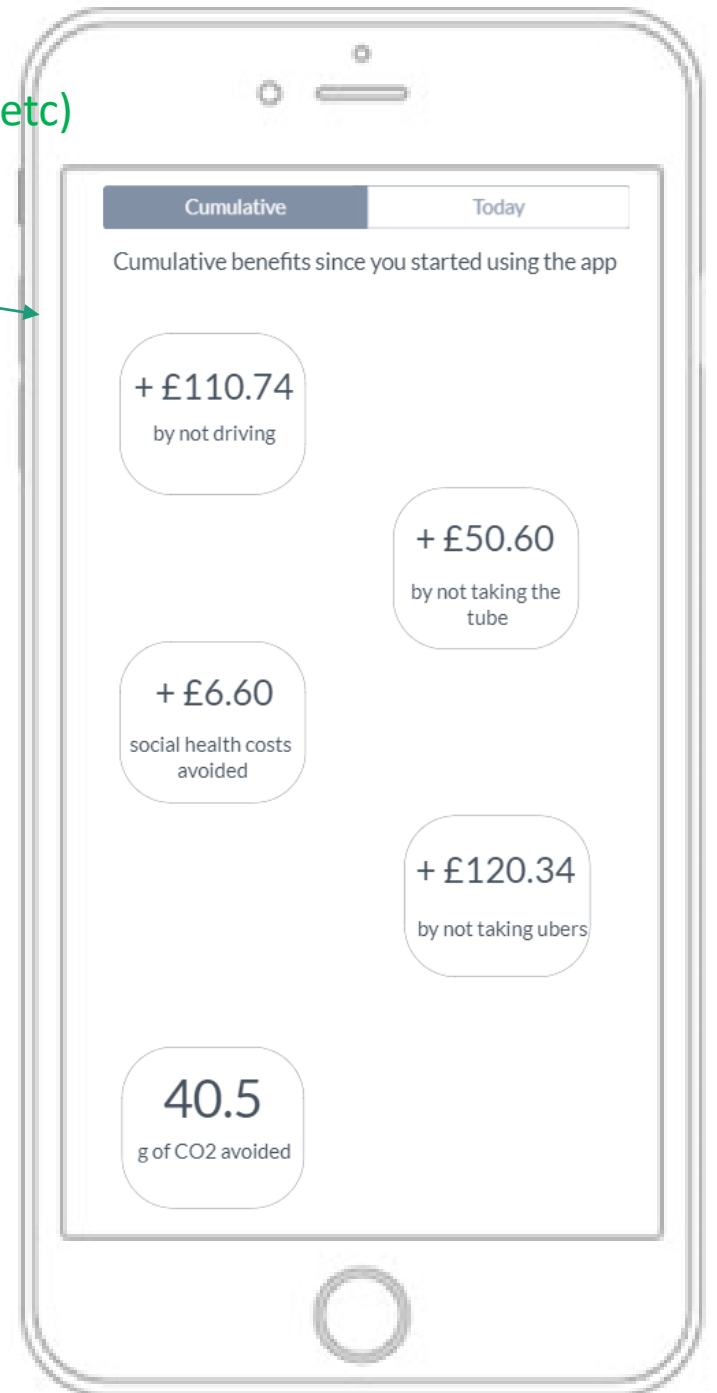
6. Positive outcomes and co-benefits (health, environment, social etc)



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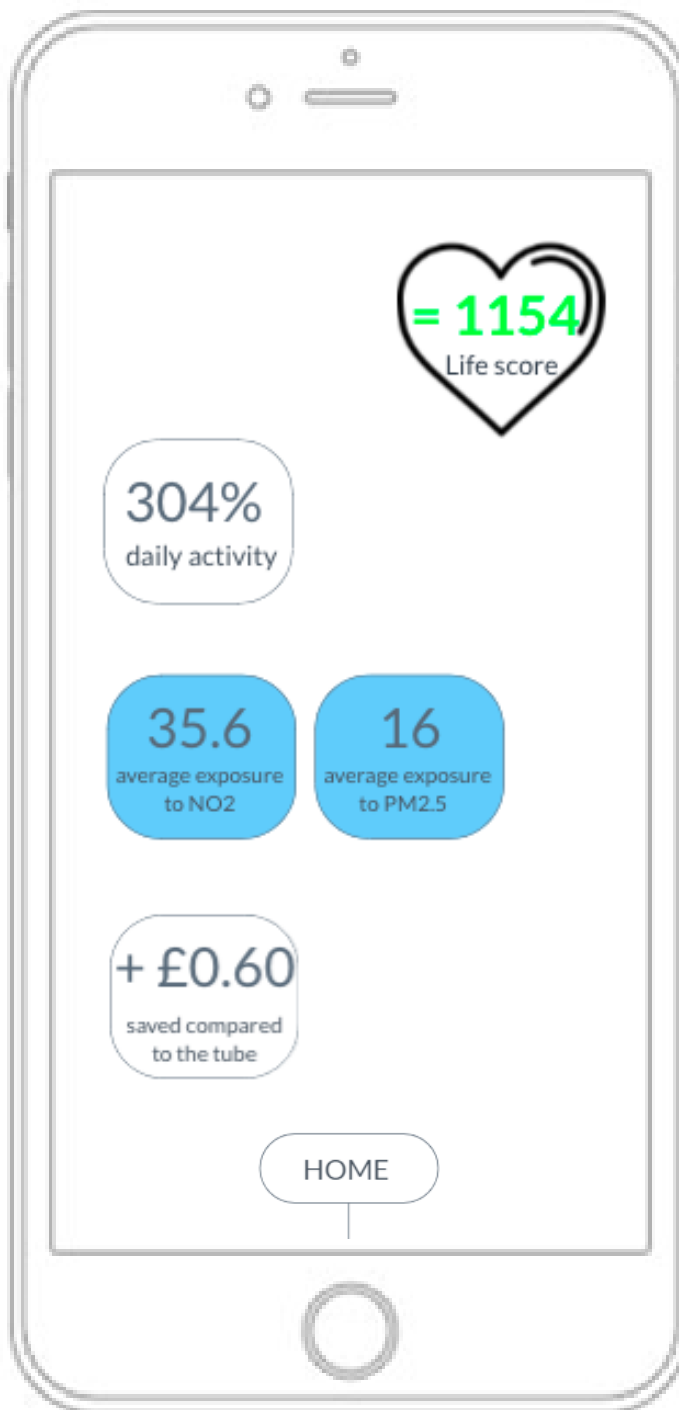
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Future plans: What's next for the development and evaluation of *Airwaze*?

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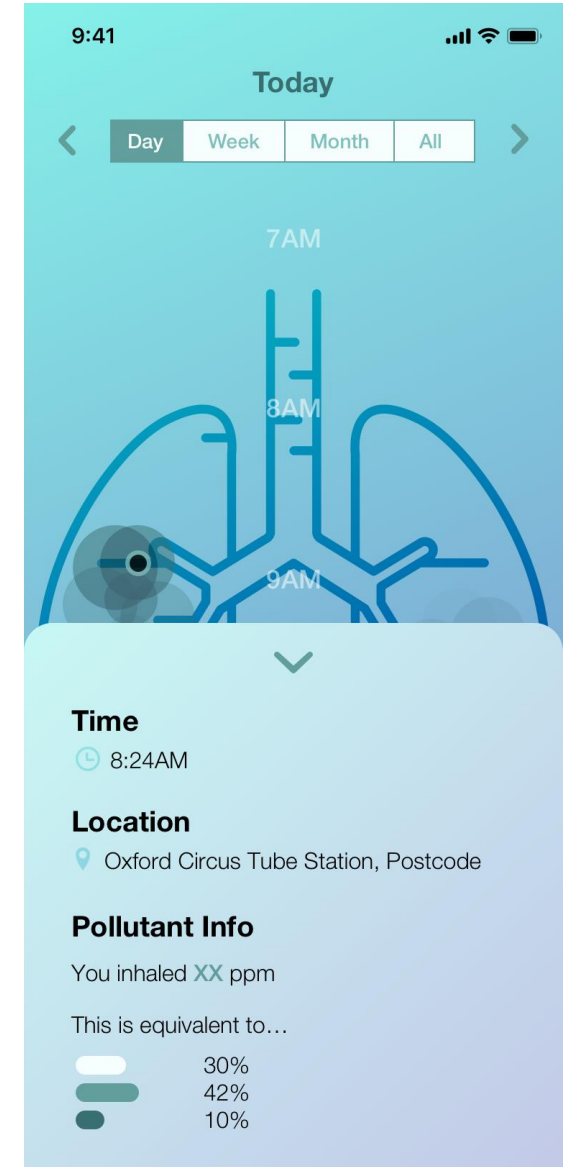
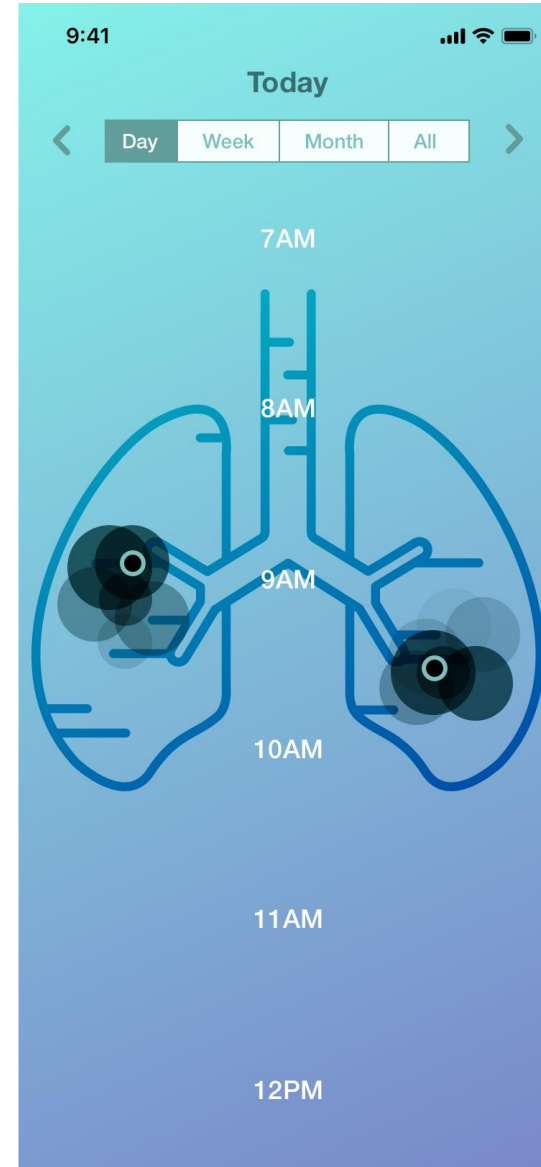
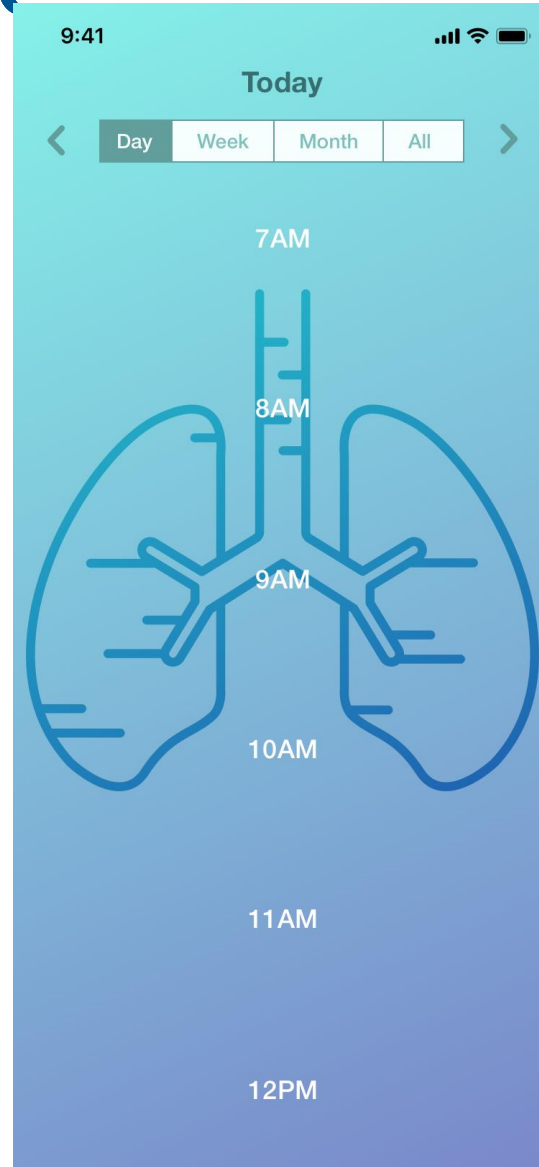
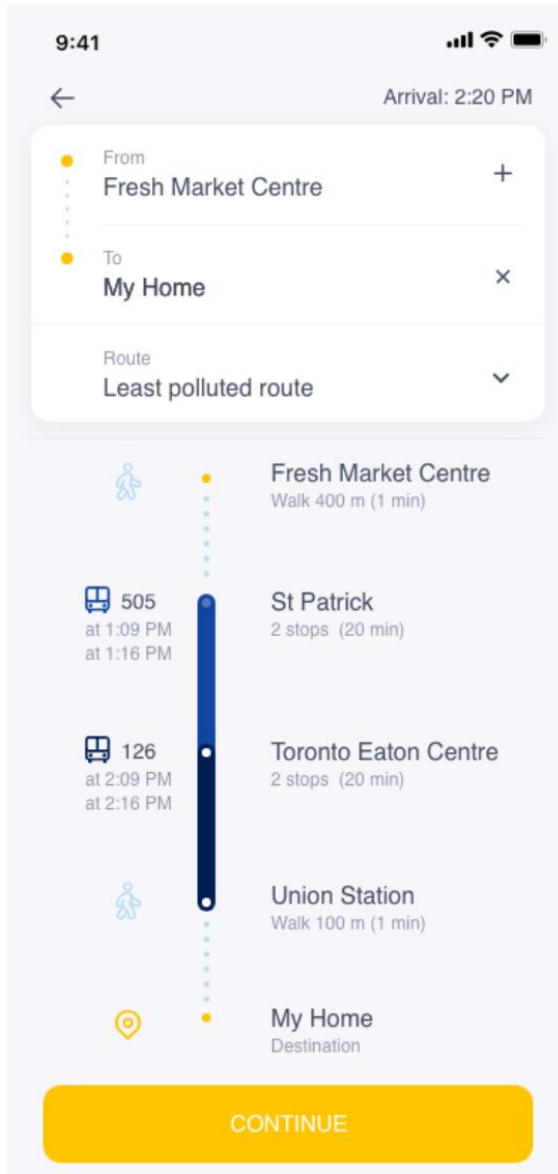
maze?



Motivations

Evidence

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Summary

1. Motivations for the project: Why do we need to engage the public in air pollution and encourage behaviour change?
2. Evidence and theory: What does the evidence tell us about how we should communicate air pollution to engage people? What can we learn from behaviour change theory?
3. Developing *Airwaze*: How has this evidence and theory informed the development of our app?
4. Future plans: What's next for the development and evaluation of *Airwaze*?

hubbub



Rosie Riley,
PhD Researcher,
Imperial College London



Andrew Grieve,
Senior Air Quality Consultant,
Kings College London



Dr Fabiana Lorencatto,
Behavioural Scientist,
University College London



Dr Audey de Nazelle,
Senior Lecturer Air Quality
Imperial College London



Asim Janjua,
Designer, UX / UI,
Brand and Creative Strategy



John Fass, Lecturer,
London College of
Communication, UAL



Imperial College London

Thank you



@_Rosieriley

With thanks to :

Andrew Grieve, Consultant, Kings College London

Dr Gary Fuller, Environmental Research Group, Kings College London

- Woodcock et al. (2009), Public health benefits of strategies to reduce greenhouse-gas emissions: urban land transport, Lancet 374:1930e43.

Motivations for the project: Why do we need to engage the public in air pollution and encourage behaviour change?

Witte 1994

Severity
Susceptibility
Self-efficacy
Response efficacy

‘Air pollution **isn’t really a problem** anyway..’

‘Sure, air pollution affects some people **but my own health isn’t affected**’

‘**there’s nothing I can do** to reduce my exposure to air pollution or improve the air around me’

‘Even if I did reduce the amount I drive **it won’t make a difference**’

D'Antoni et al 2017; Bickerstaff 2004; Bickerstaff and Walker 2002