

# **INTERACT** A COMPREHENSIVE URBAN INTERVENTION RESEARCH FRAMEWORK FOR HEALTHY AND SUSTAINABLE CITIES

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**Our postal code is a  
powerful predictor of  
our health.**

**Urban form** influences:

- Physical activity, social participation, wellbeing
- Socio-geographic inequalities

[Levasseur et al, 2015; Richard et al, 2013; Halpern, 2014, McCormack et al, 2014]





## **Investments:**

**The Canadian government is investing \$180 billion on infrastructure over the next 12 years. What impact will these investments have on population health and health equity?**

# Call to action:

**“Unravelling the complexity of the impact of the built environment on population health lies in precision public health, which uses data to guide interventions to benefit populations more effectively.”**



**Dr. Theresa Tam, CPHO**

**Designing Healthy Living: Report on the State of Public Health in Canada 2017**

**INTERACT**

# FOUR PROJECTS IN FOUR CITIES

1

**AAA Cycling Network**  
Victoria, BC

2

**Arbutus Greenway**  
Vancouver, BC

3

**Bus Rapid Transit**  
Saskatoon, SK

4

**Montréal durable 2016-2020**  
Montreal, QC

## AIMS

- 1. Understand context of urban interventions.**
- 2. Measure change in urban form and in population health.**
- 3. Analyze impact of interventions on health, wellbeing, and related inequalities.**
- 4. Mobilize knowledge to guide future decision-making.**





Figure 3. Conceptual Framework for the INTERACT Research Program

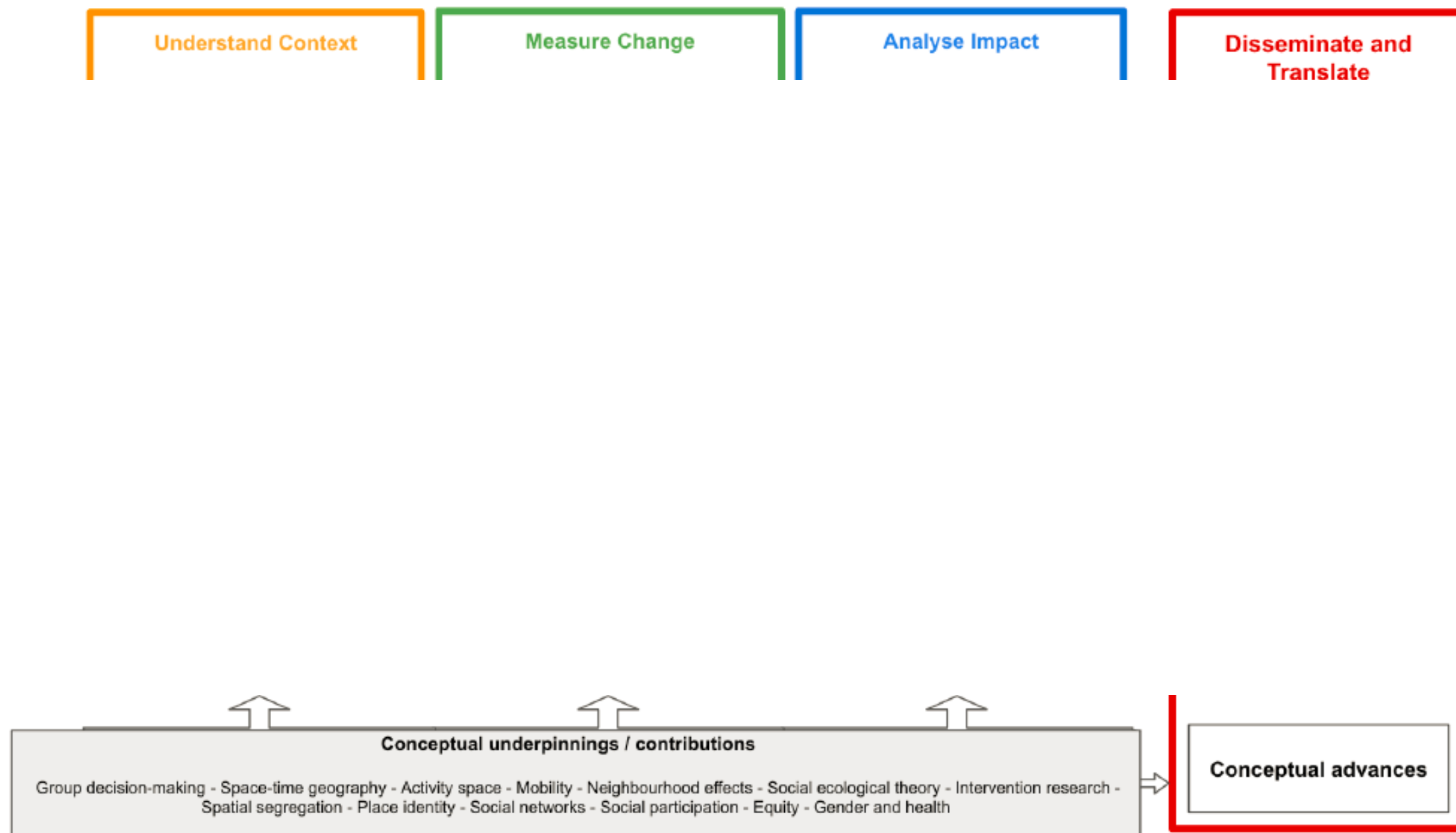


Figure 3. Conceptual Framework for the INTERACT Research Program

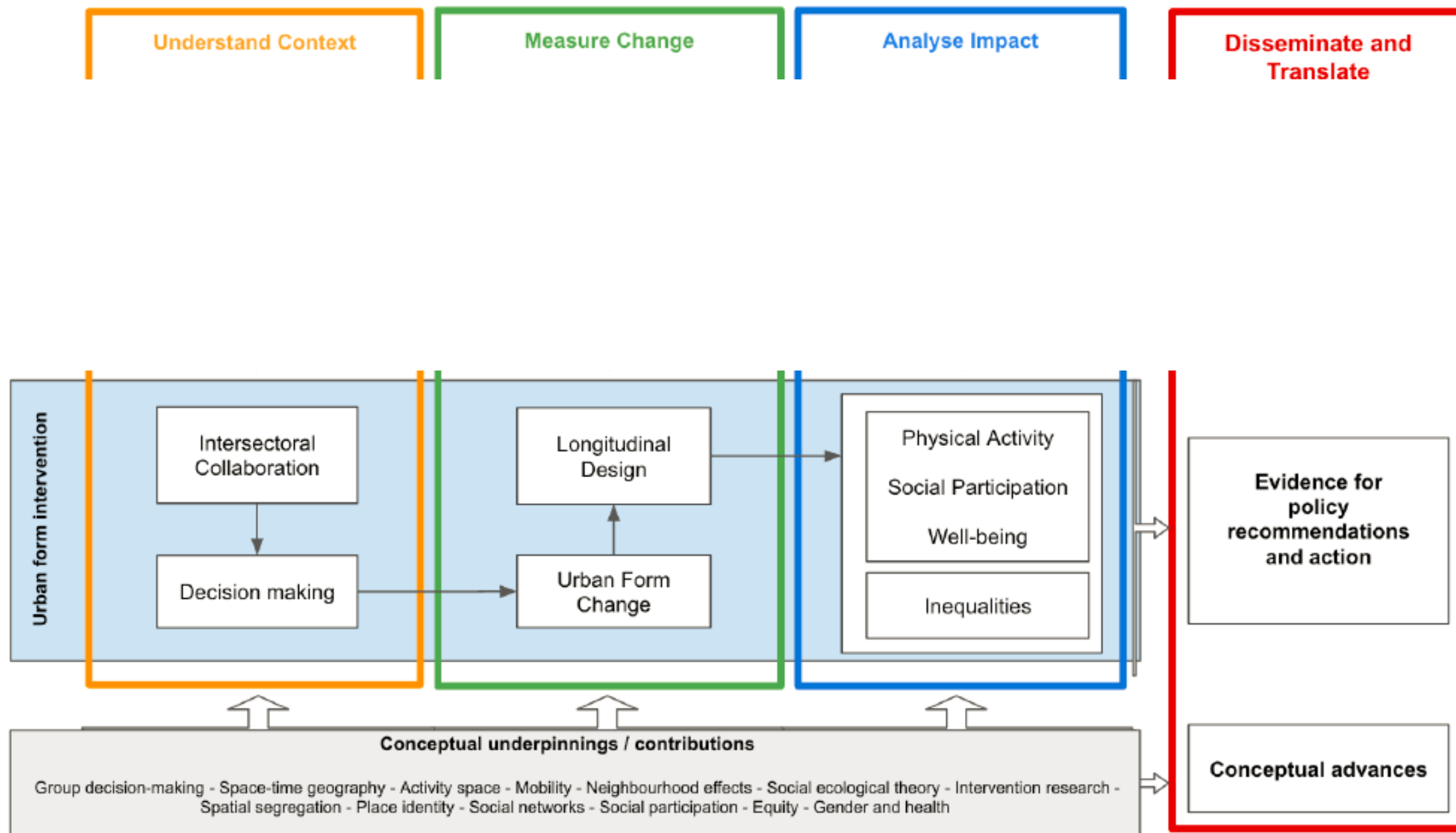
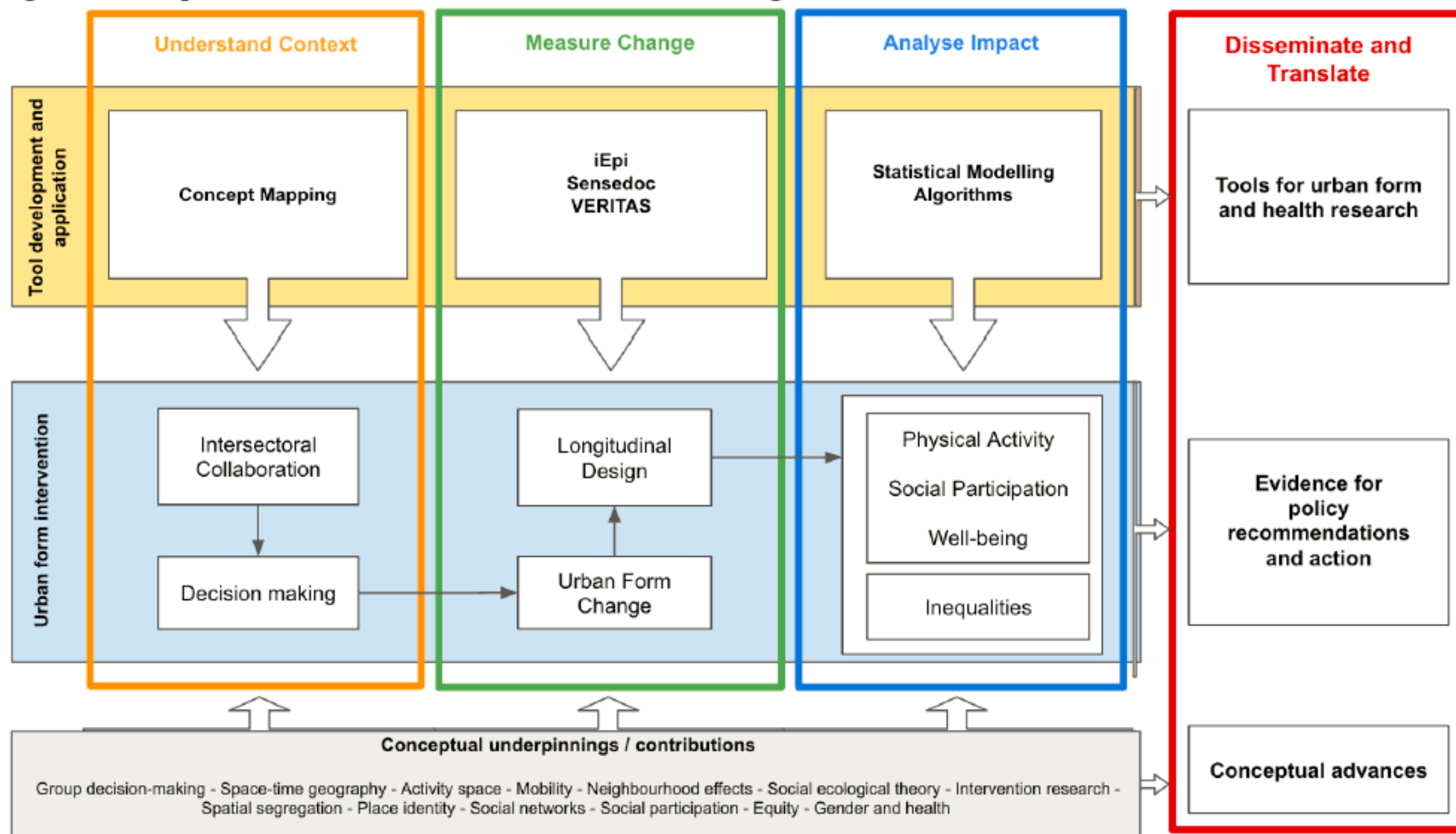
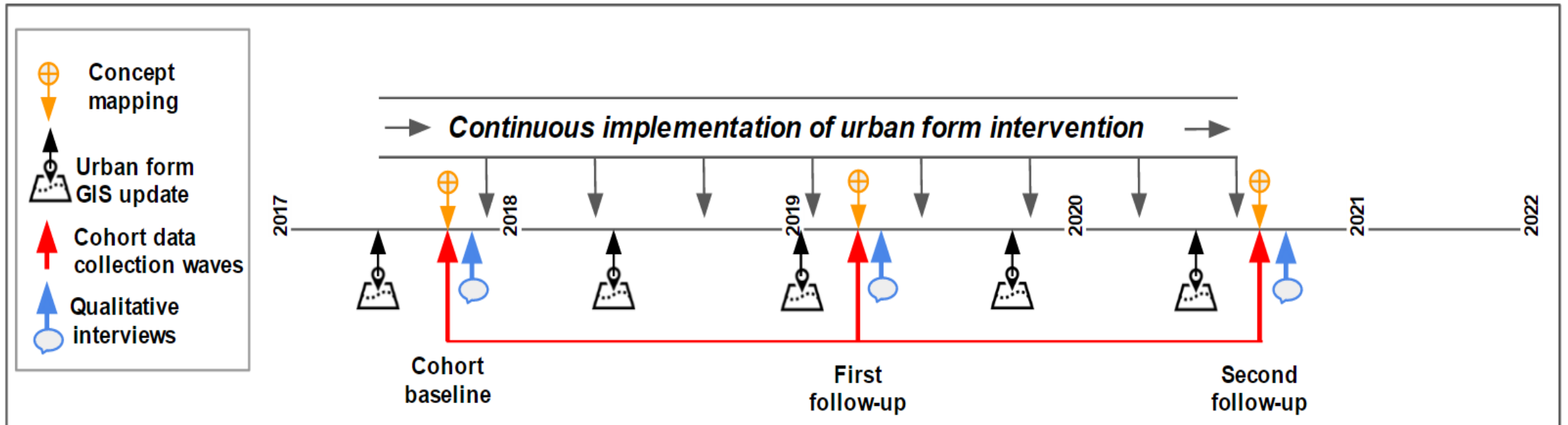


Figure 3. Conceptual Framework for the INTERACT Research Program



# The INTERACT Cohorts

250-2500 participants per site



**Concept mapping**

**Online spatial survey**

**Mobile sensing**

## **THE INTERACT TOOLKIT**

**Online health survey**

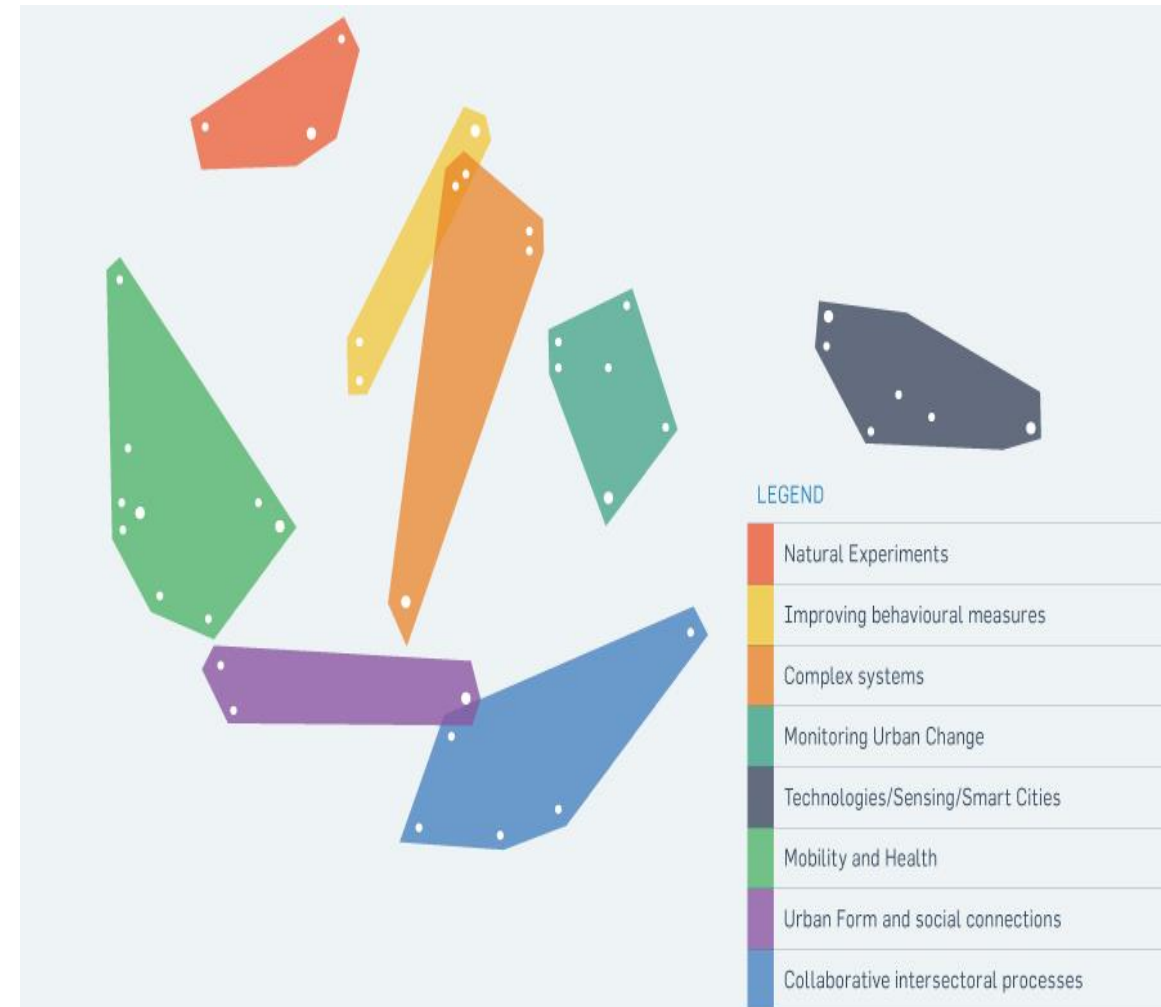
**Wearable sensors**

**Qualitative interviews**

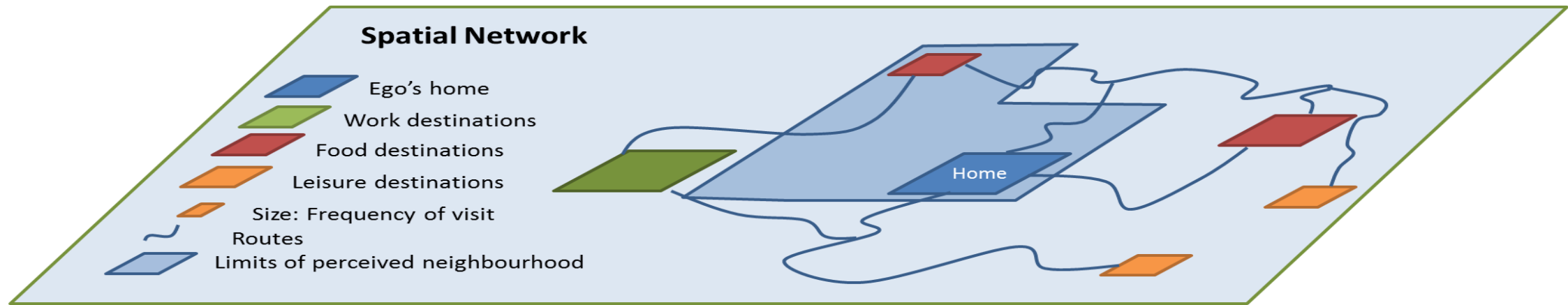


# Tools & Methods: Concept Mapping

- Concept Mapping web application called eKogito (Cantinotti et al.)
- Documents and synthesizes views and perceptions of groups
- Identifies divergence in views between subgroups
- Helps identify priorities and strategies for planning and implementation of urban form interventions



# Tools & Methods : Online health & socio-spatial surveys



American Journal of Preventive Medicine

Volume 43, Issue 4, October 2012, Pages 440-450

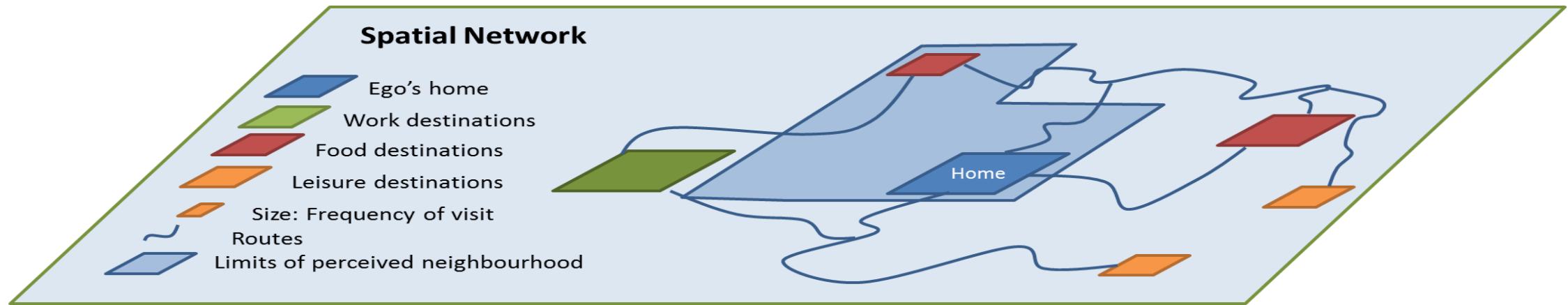


Research and practice method

## An Interactive Mapping Tool to Assess Individual Mobility Patterns in Neighborhood Studies

Basile Chaix PhD <sup>a, b</sup>, Yan Kestens PhD <sup>d</sup>, Camille Perchoux MSc <sup>a, b, d</sup>, Noëlla Karusisi MSc <sup>a, b</sup>, Juan Merlo MD, PhD <sup>c</sup>, Karima Labadi MSc <sup>a, b</sup>

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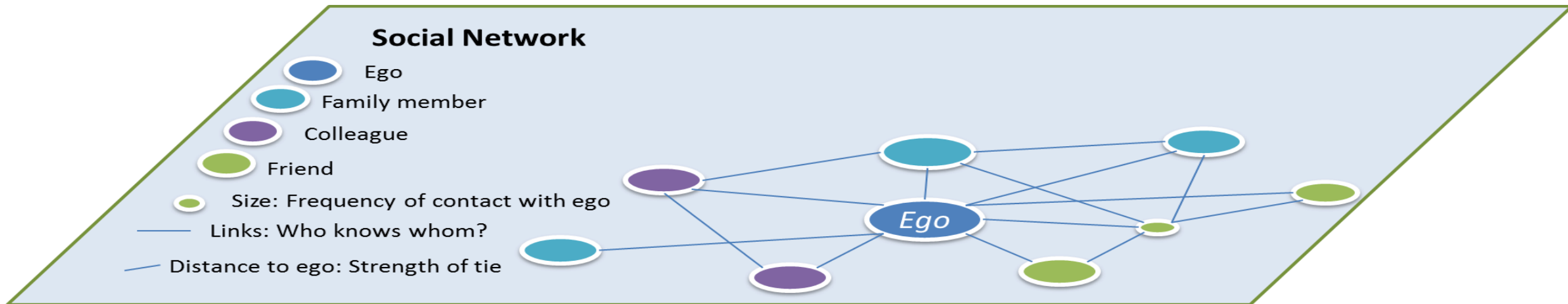


Research and practice method

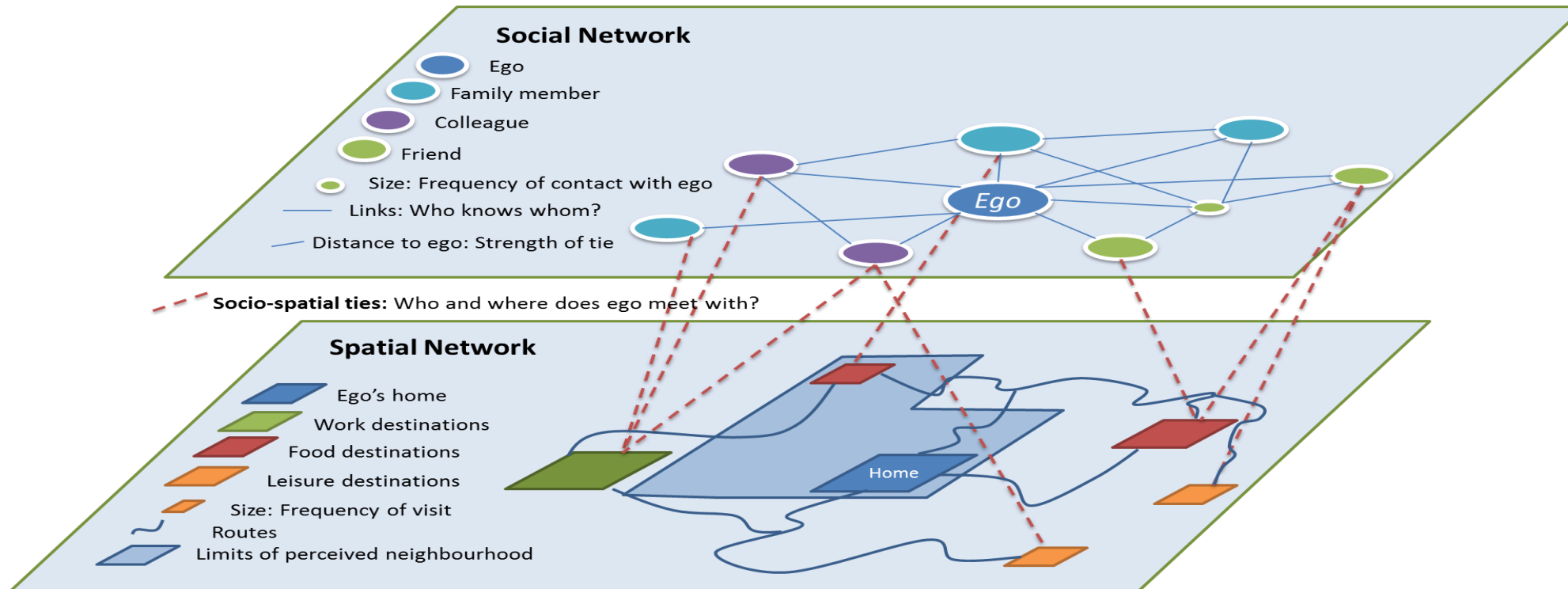
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# Tools & Methods : Online health & socio-spatial surveys



# Tools & Methods : Online health & socio-spatial surveys



[Current Environmental Health Reports](#)  
March 2017, Volume 4, [Issue 1](#), pp 51–60

## “Contextualizing Context”: Reconciling Environmental Exposures, Social Networks, and Location Preferences in Health Research

Authors

[Authors and affiliations](#)

Yan Kestens , Rania Wasfi, Alexandre Naud, Basile Chaix



# Tools & Methods : Smartphone sensing

- Ubiquitous
- GPS – Accelerometer
- AppEthica Data
- Real time data collection and analysis
- Ecological Momentary Assessment (Well-being)



# Tools & Methods : Algorithms

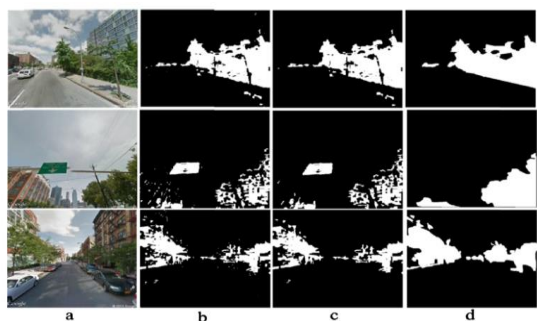


Fig. 7. Green vegetation extraction results and references. (a) original GVI images, (b) initial classification results, (c) refined classification results, and (d) manually extracted green vegetation.



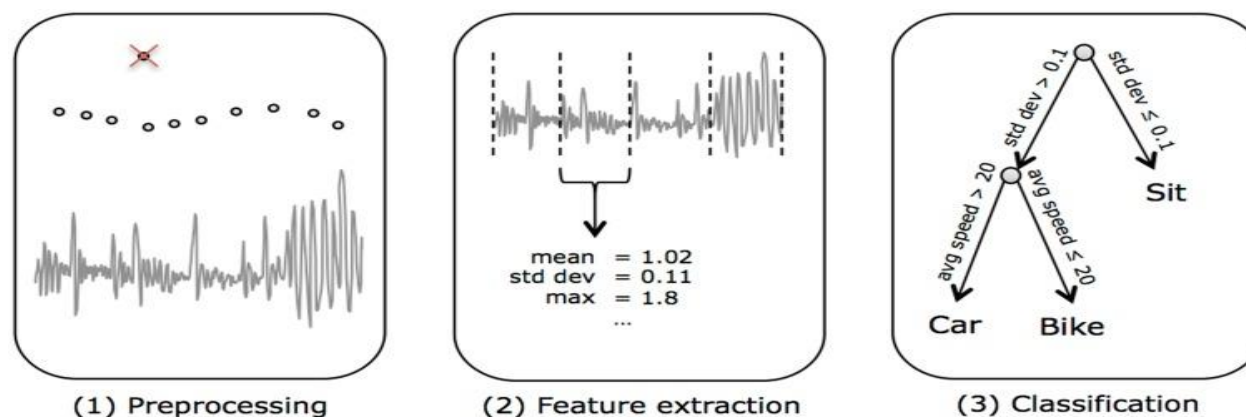
Assessing street-level urban greenery using Google Street View and a modified green view index

Xiaojiang Li<sup>a,\*</sup>, Chuanrong Zhang<sup>a</sup>, Weidong Li<sup>a</sup>, Robert Ricard<sup>b</sup>, Qingyan Meng<sup>c</sup>, Weixing Zhang<sup>a</sup>

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<sup>c</sup> Institute of Remote Sensing and Digital Earth, Chinese Academy of Sciences, Beijing 100101, China



Source: Ellis K, Godbole S, Marshall S, Lanckriet G, Staudenmayer J, Kerr J. Identifying Active Travel Behaviors in Challenging Environments Using GPS, Accelerometers, and Machine Learning Algorithms. *Frontiers in Public Health*. 2014;2:36. doi:10.3389/fpubh.2014.00036.

**INTERACT** offers an innovative methodological framework to evaluate the impact of real world urban form interventions on health and health inequities.



Designing a dream city is easy.  
Rebuilding a living one takes  
imagination.

- Jane Jacobs

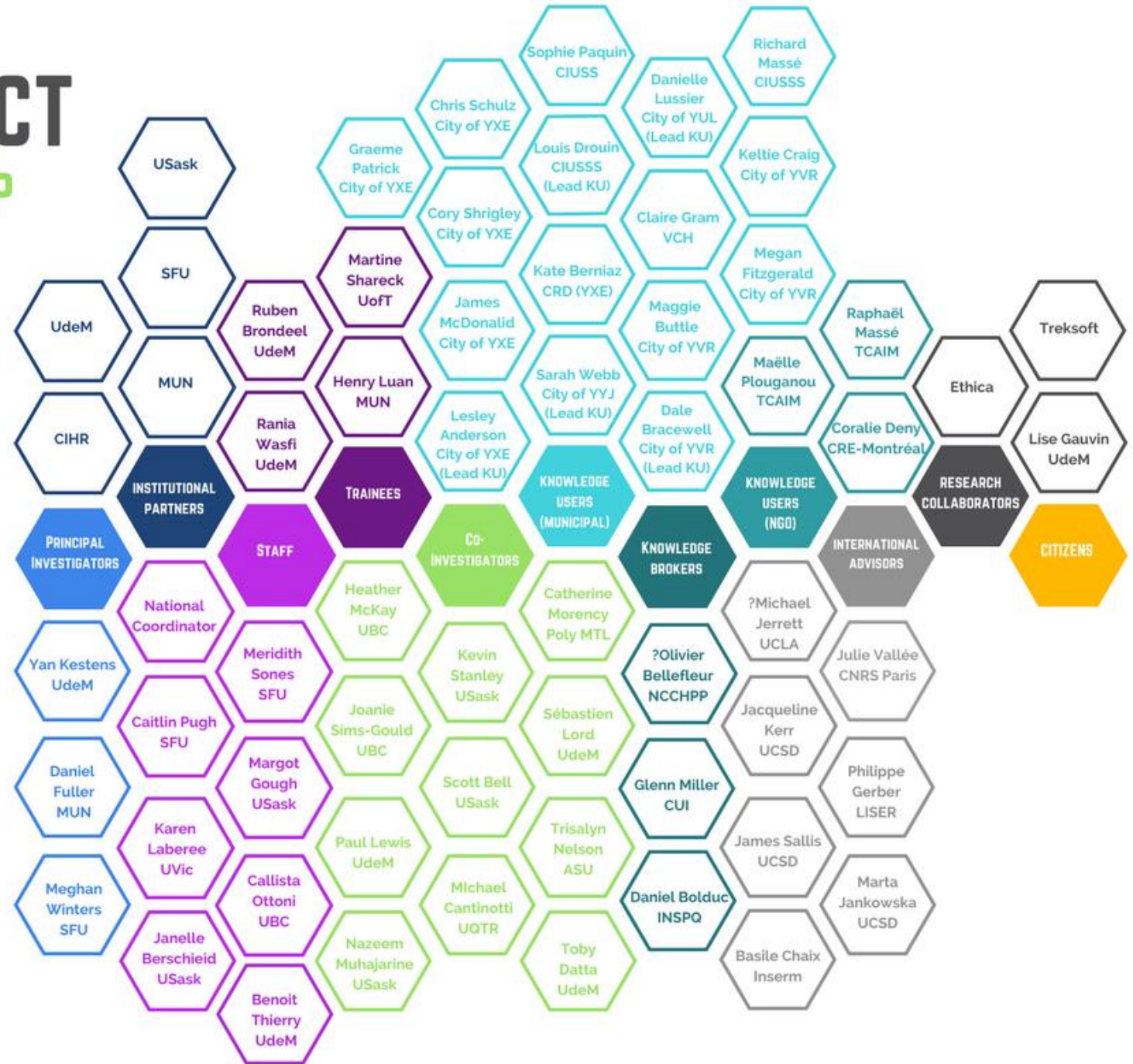




# INTERACT

## MEMBER MAP

Thanks to all team  
members, knowledge  
users, collaborators,  
and INTERACT  
participants!





# Disclosure Statement

I own shares in two research spin-off companies:

- Treksoft Solutions: markets on online Research Suite that includes the VERITAS map-based questionnaire
- Mobysens Technologies: markets the Sensedoc 2.0 wearable device and sociometric tags

# #LETSINTERACT



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