

City Rhythm



Den Haag - Zaandam - Helmond - Rotterdam - Zoetermeer - Amsterdam



City Rhythm, Logbook of an Exploration

Caroline Nevejan, Pinar Sefkatli, Scott Cunningham

Den Haag

Zaanstad

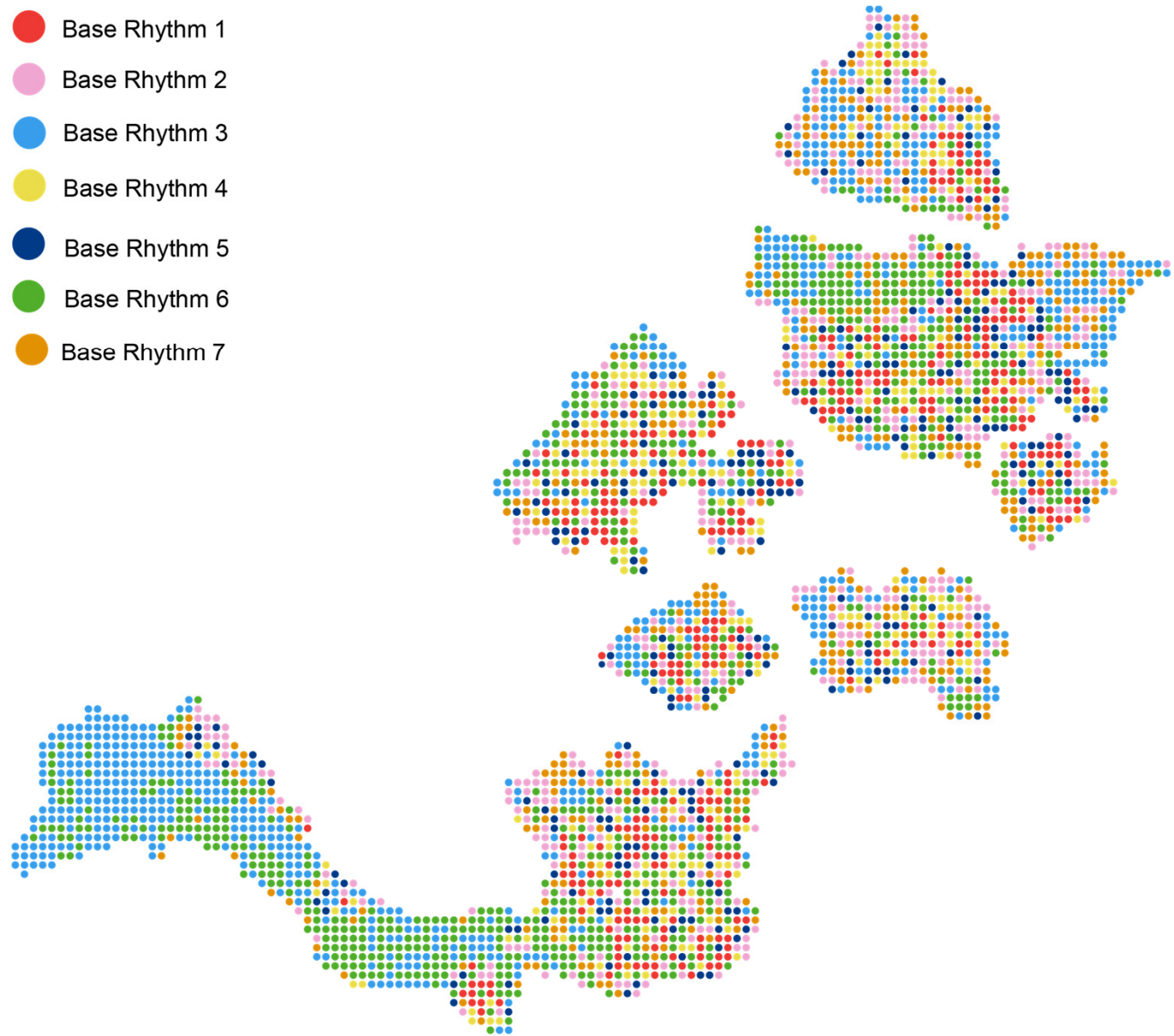
Helmond

Rotterdam

Zoetermeer

Amsterdam

- Base Rhythm 1
- Base Rhythm 2
- Base Rhythm 3
- Base Rhythm 4
- Base Rhythm 5
- Base Rhythm 6
- Base Rhythm 7



Impuls geven aan de aanpak van de veiligheid in een buurt

- Een nieuwe manier van het 'lezen' van de (big) data sets
- Een nieuwe manier om de data steeds te verbinden met maatschappelijk beleid
- Slimme informatie voor handhaving en beleidsvorming – welke factoren van belang zijn om het ritme van een buurt vast te stellen
- Visualisatie van de buurt: interactieve simulatie waarin het gemeenschappelijk ritme van een buurt kan worden gevisualiseerd
- Samenwerken met stakeholder uit de wijk of stad
- Landelijk kennisontwikkeling

Rhythm and the Design of Trust

New Paradigm of Human Experience

Homo Mensura
(human being as measure of all things)



Homo Mensurabilis
(measurable human being)



Humanitas Mensurabilis
(measurable human kind)

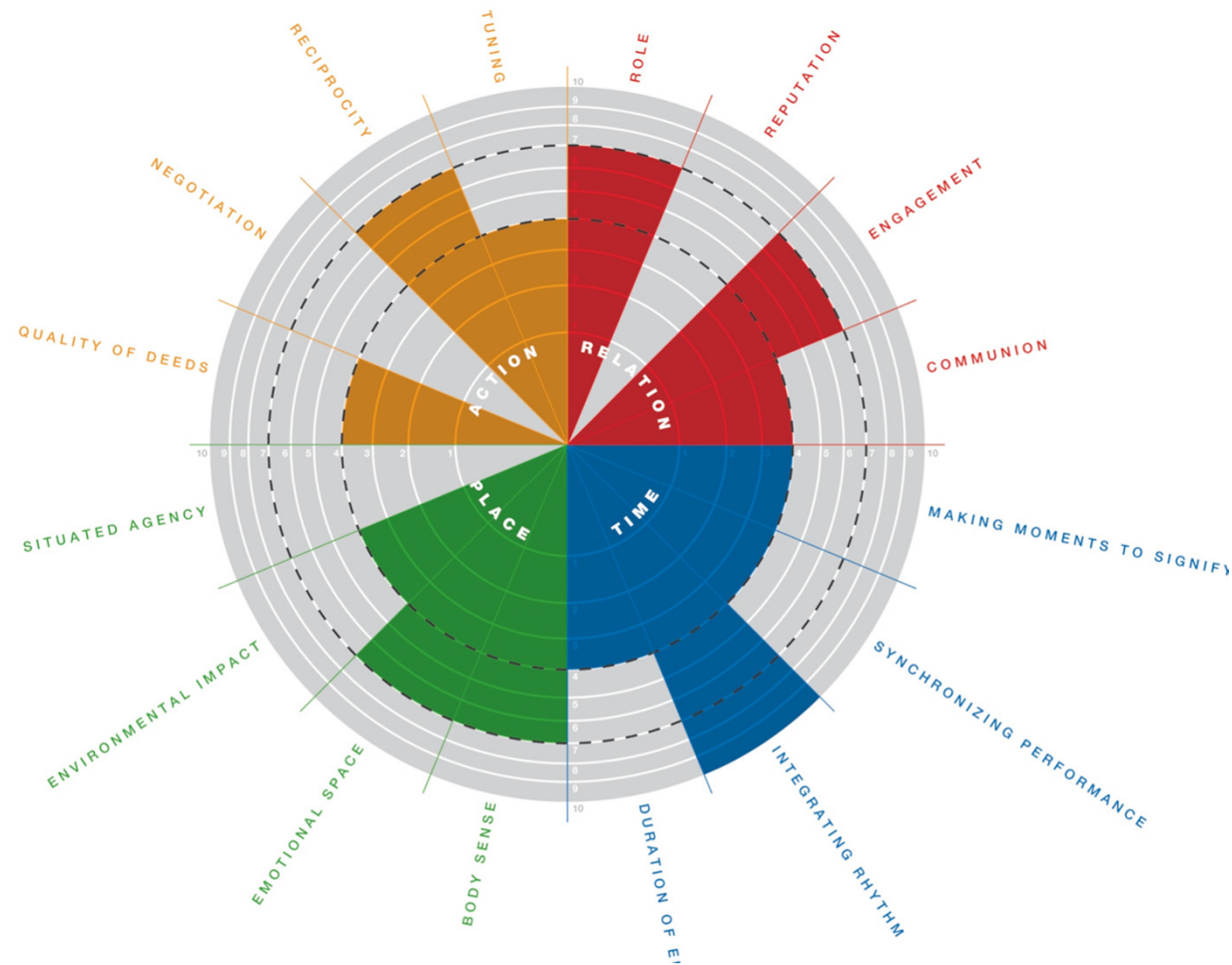
Communities of Systems and People

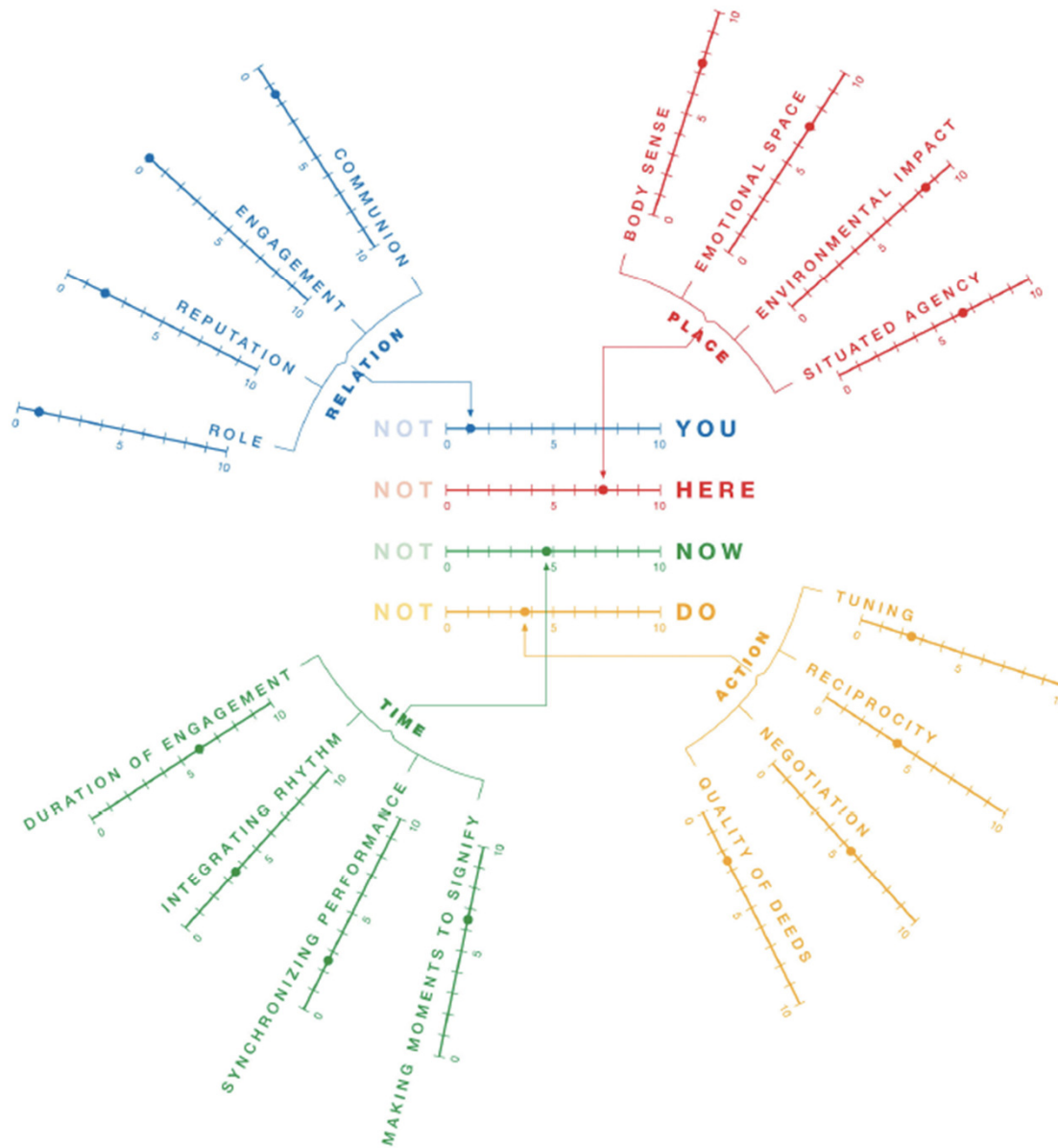
High Trust  Low Trust

Participatory  Surveillance

Evolving Meta Design Paradigm

Previous Research, Escamp Den Haag





YUTPA Framework Dimensions

Time

Duration of Engagement
Integrating Rhythm
Synchronizing Performance
Making moments to signify

Place

Body Sense
Emotional Space
Environmental impact
Situated Agency

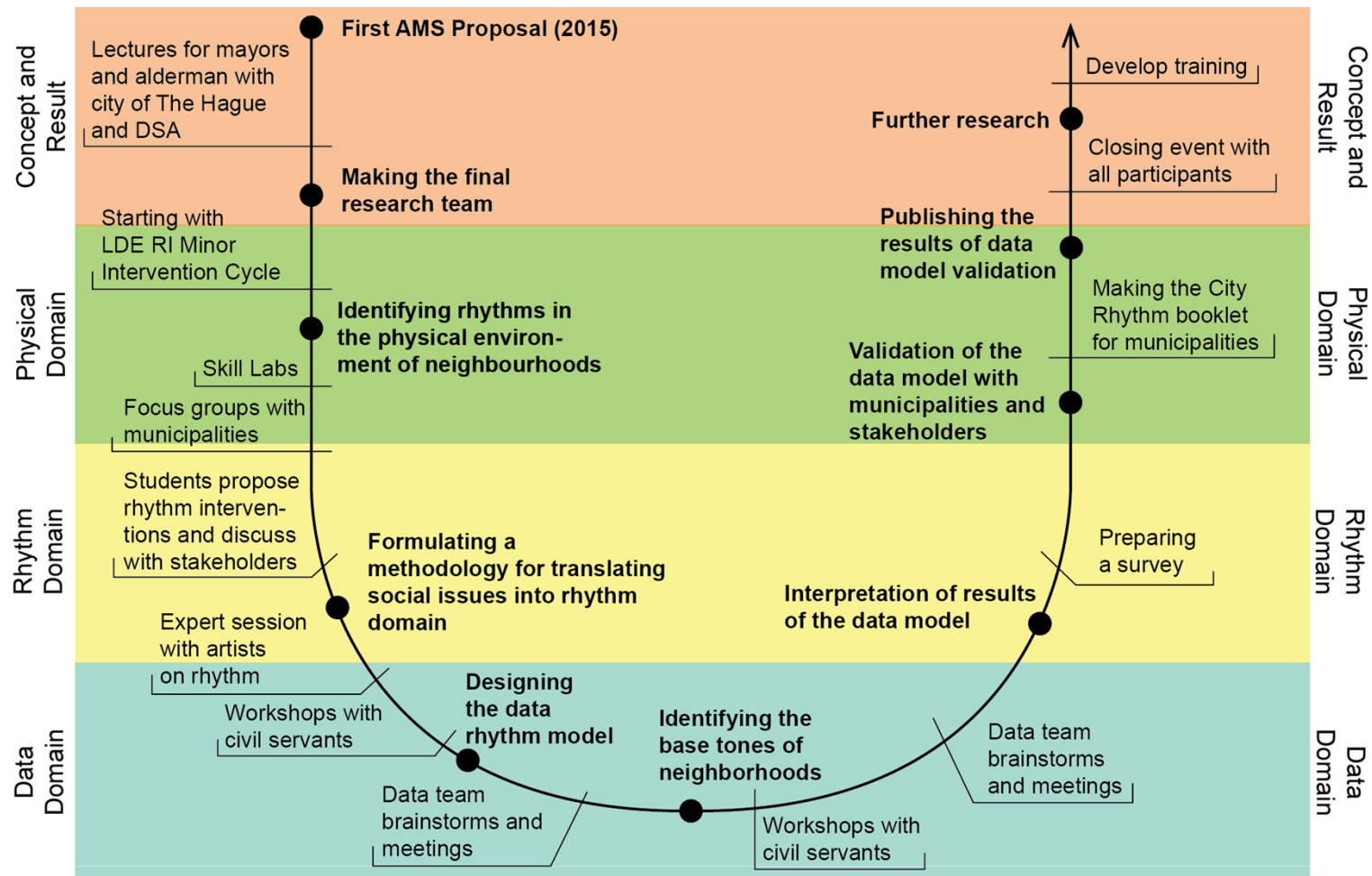
Relation

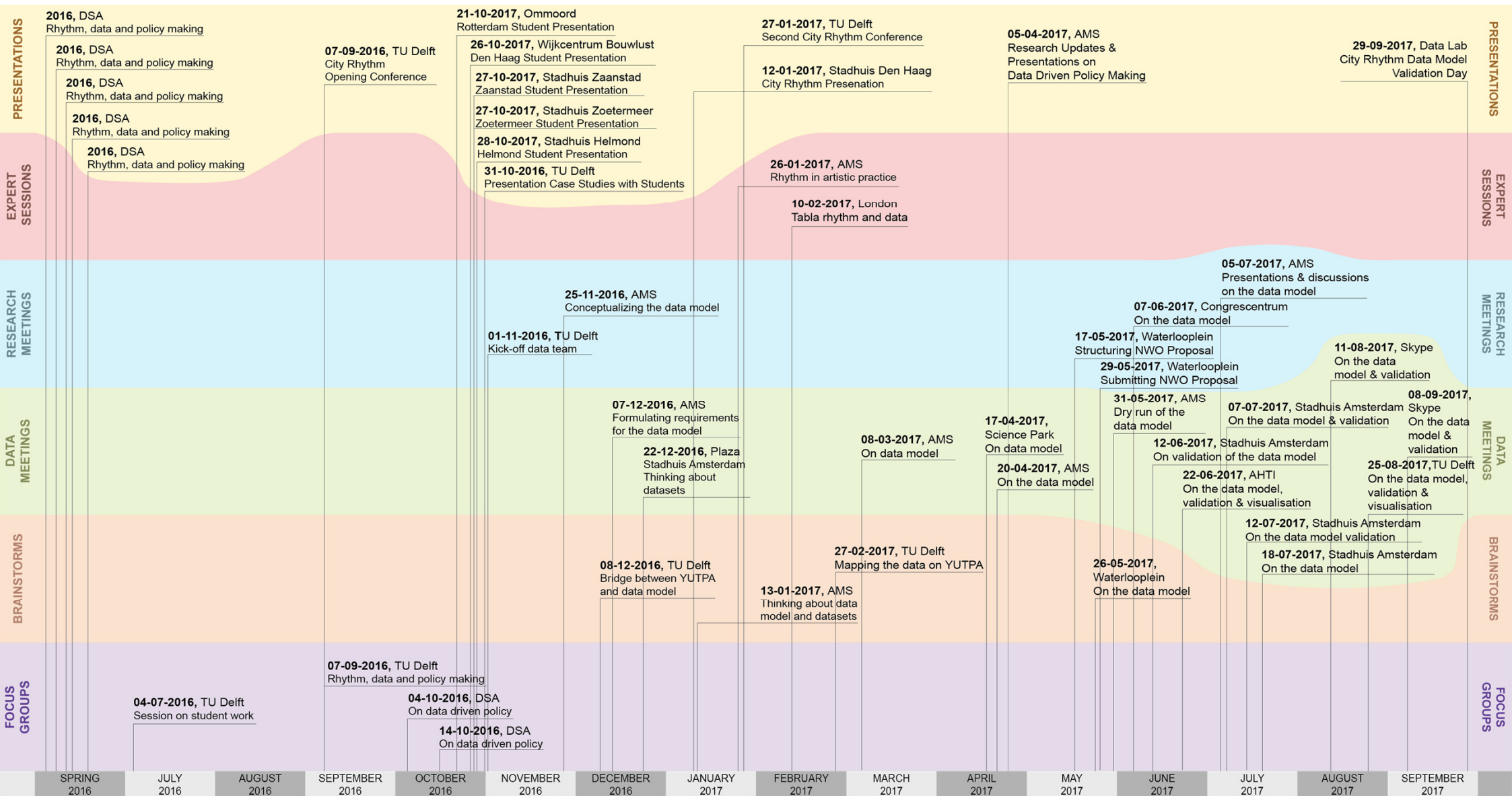
Role
Reputation
Engagement
Communion

Action

Tuning
Reciprocity
Negotiation
Quality of Deeds

Research Design





Documenting the Research

TU Delft Open Research Platform

Wonder • Connect • Discover • Engage

For sharing research between students and professionals, in the field of Responsible Innovation, Sustainability, International Development & Entrepreneurship and Companies & Innovation.

Read more in the [About](#) page.

Blog

Blogpost

VENDING TRICYCLE CHALLENGE

9 May 2017

TU Delft tv: Vending Tricycle

Jasper Sauer went with

Blogpost

2nd City Rhythm Conference // LDE Minor Responsible Innovation 2016-2017 Final SPG Presentations

27 Jan 2017

Starting Presentation @ The Hague City Hall 15 January 2017

At the start of the Bubble

Blogpost

IED Students are leaving for their destinations!

17 Oct 2016

The minor International

Blogpost

Observing our environment

30 Sep 2016

The City Rhythm Project

Blogpost

Visiting HNI

26 Sep 2016

We had an exciting program arranged for the

23 November 2016 - By: [Caroline Nevejan](#)

AMS research meetings

Part of [AMS Researchers](#) PROJECT [AMS Researchers](#)

SWITCH TO: OVERVIEW | **ARTICLE** | COLLECTION

Article

Data Meeting 07.07 @ Stadhuis Amsterdam

Data Team had a meeting with Caroline Nevejan (principle investigator) to validate the

Collection

City Rhythm Meeting 5 July

In this meeting, we presented the developments of data model (Delph B), the

Article

Data Meeting 22.06 @ AHTI

Data Team met in AHTI to discuss about the model proceedings and scheduled the presentations for the Feb of

Article

Data Meeting 12.06 @ Stadhuis Amsterdam

After the 7 June workshop, the data researchers met in order to discuss the developments

Collection

Meeting 07.06

City Rhythm Meeting 7 June

At Congressentrum Amsterdam, the first impressions of the data rhythm model have been

Article

Data Meeting 20.04 @ AMS

Minutes of Meeting 20.04 @ AMS Attendees: Scott Cunningham, Lene Boehnke, Thijs M.J. Mark Verhoeven, Duhan

Article

Data Meeting 16.04

Collection

Meeting 05.04

Meeting 05.04.2017

Article

Data Meeting 08.03

Data Meeting 08.03

Collection

Meeting 27-01-2017 Final presentation Student Projects

Here you find all the final presentation of the students. These presentations include

Collection

Meeting 13.01

Meeting 13.01.2017

Article

Data Team Meeting 22nd of December

Article

Meeting 07.12

AMS Researchers Meeting 7th

Article

Meeting 25.11

AMS and Municipalities

Article

24-11-2016 Datasets Assigned

Collection

Meeting 01.11

AMS Meeting 1st of November

COLLECTION

11 July 2016 - By: [Caroline Nevejan](#)

City Rhythm

City Rhythm is one of our longterm research programs. The research is carried out by Delft University, AMS institute and 6 cities in the Netherlands: Amsterdam, Rotterdam, Zaanstad, Den Haag, Helmond en Zoetermeer with the support of the "Digitale Steden Agenda", a network organisation around smart cities.

Student Project Groups of the LDE Minor Responsible Innovation participate in the research. Students study and explore rhythms and interventions in rhythms in the 6 different cities.

ADMIN | EDIT

Part of [Responsible Innovation](#) Ongoing Research with Stakeholders

ARTICLE | **COLLECTION**

Project

Civil Servants Communication Group

Project

AMS

AMS Researchers

Welcome to the communication and collaboration group of the AMS Researchers

Collection

Research Context: City Rhythm

The urban challenge we address in this research is to enhance the sense of security

Collection

FINAL SPG PRESENTATIONS

LDE Minor Responsible Innovation 2016-2017 Q2 Presentations

Collection

FINAL SPG PRESENTATIONS

Q1 SPG Presentations

Collection

POSTERS

Posters

Here are the posters that were exhibited on the 31st of October in TU Delft. The posters show the results of

Showcase

ZOETERMEER

Showcase: Zoetermeer

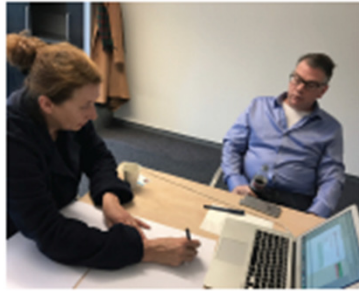
How can the sense of safety in the Bossen buurt be increased?

Showcase

HELMOND

Showcase: Helmond

How can the sense of safety be improved in the specific neighborhood of Beistersveld?



Data for Policy Making

Data Group

Brainstorm on identifying data sets and understanding which social issues they shed light on.

How do data support policymaking today?

How can Rhythm Analyses help?

- CURRENT**
- Focus on Open data
 - No connection to policymaking
 - Supply driven
 - Target group is broad
 - Resistance for privacy reasons

- POTENTIAL**
- Value of Data
 - Good interpretation is central
 - Data analyses supports understanding
 - External and open connections
 - Municipalities start to organize themselves

Social Group

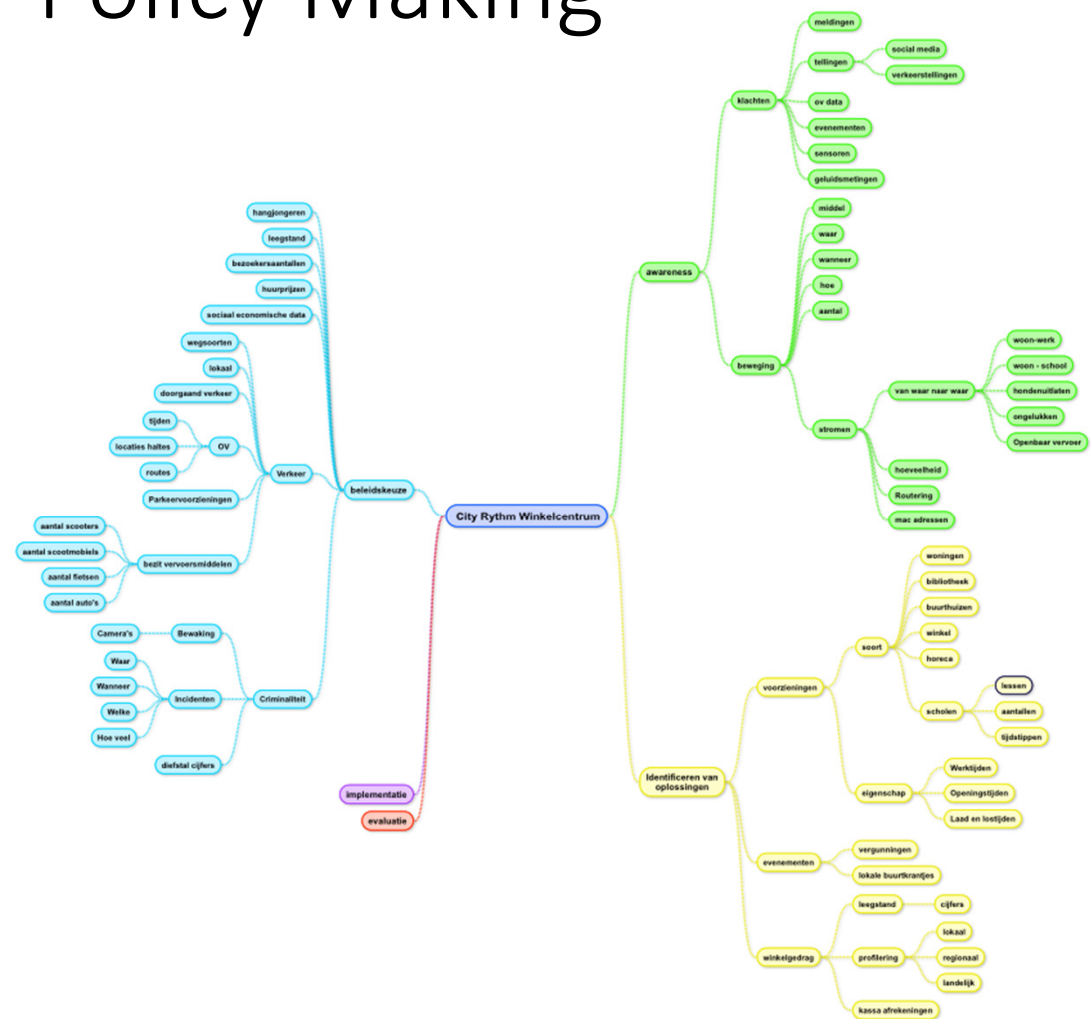
Brainstorm on translating social issues into rhythm and identifying data sets that can be useful for the analysis.

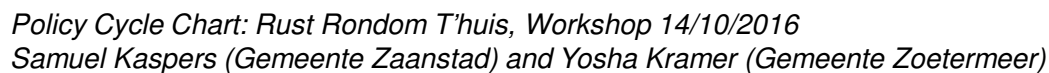
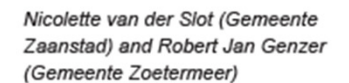
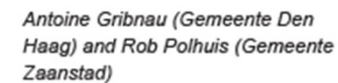
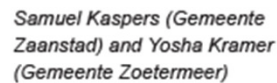
How does policymaking make use of data?

How can Rhythm Analyses help?

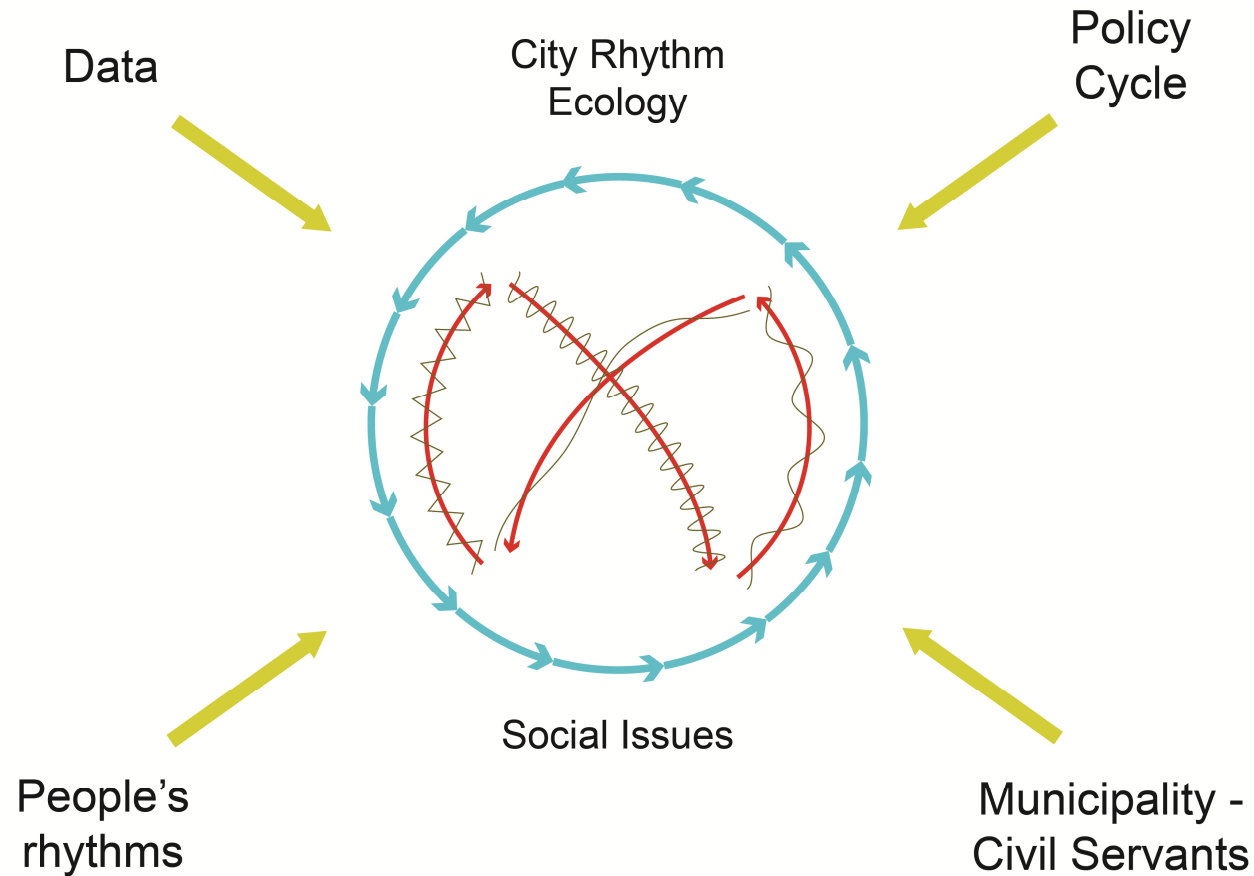
- CURRENT**
- Limited available data
 - No data combinations
 - Privacy prevents sharing
 - No responsibility without policy document
 - Too many thick reports

- POTENTIAL**
- Matching information municipality needs
 - Control over different sources
 - Sharing data
 - Visualizations
 - Anticipating new needs





Can rhythm analyses of social issues in the physical and in the data world contribute to policymaking for enhancing social safety?



Case Studies with Students from LDE Responsible Innovation Minor



Research questions in 6 cities

The Hague: How can conditions be improved in a housing block in which refugees and other residents live together?

Zoetermeer: How can the sense of safety in the Meerzicht neighbourhood be increased?

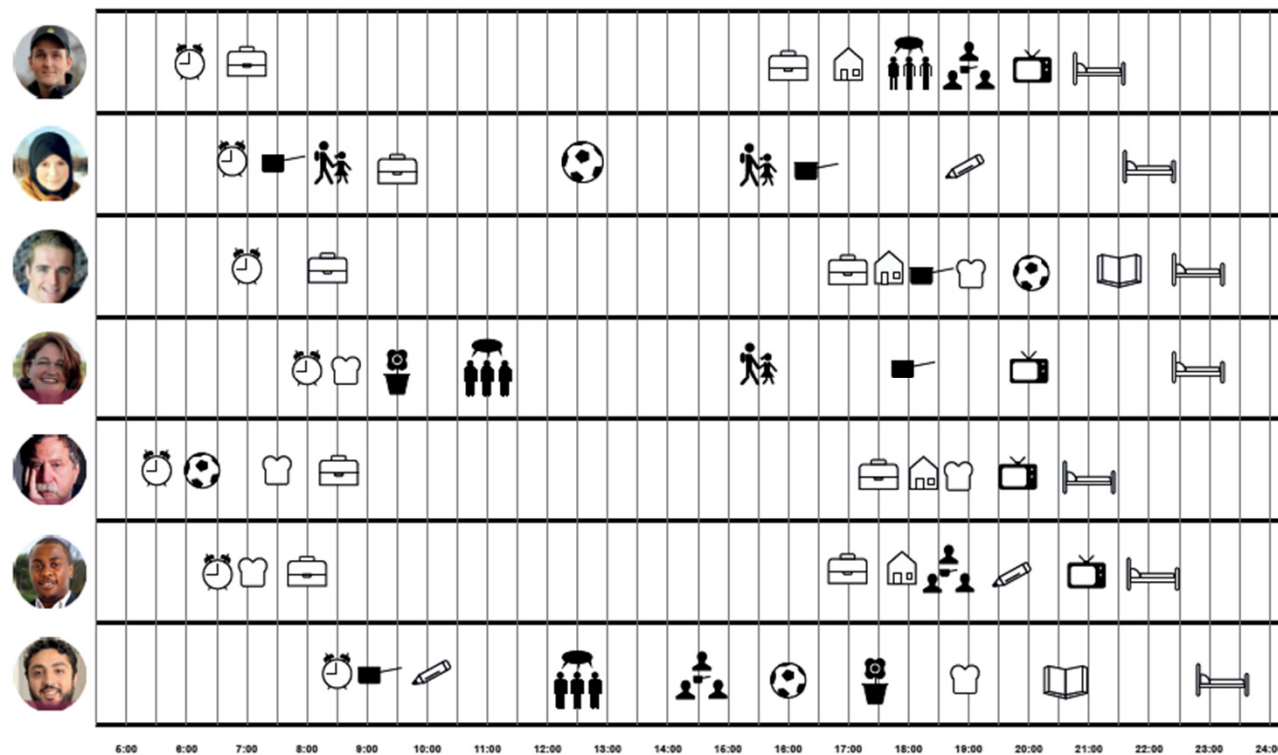
Rotterdam: How can senior citizens feel safer?

Zaanstad: How can youth (between 15 – 20) be more integrated into the neighbourhood?

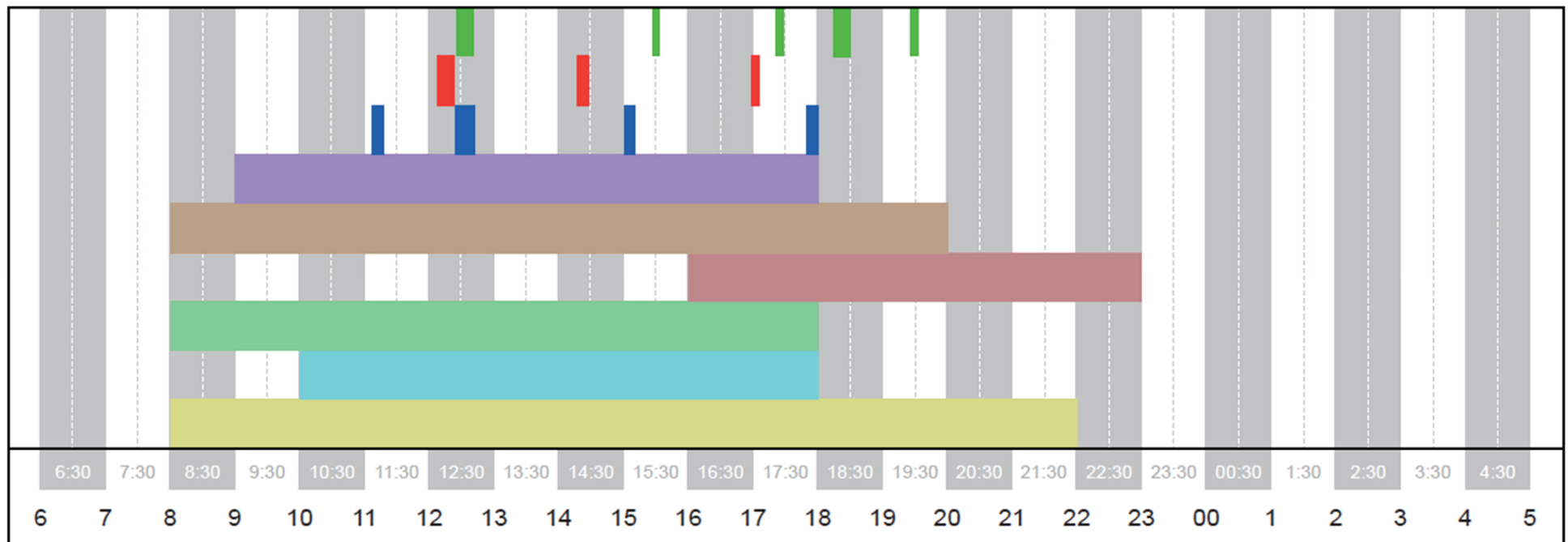
Helmond: How can the sense of safety be improved in the specific neighbourhood of Beisterveld?

Amsterdam: How can single mothers participate more actively in education, work and so on?

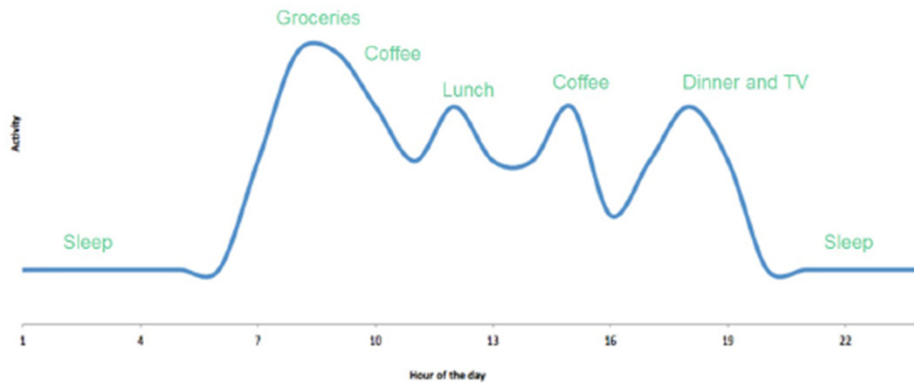
Den Haag SPG: Sharing Rhythms



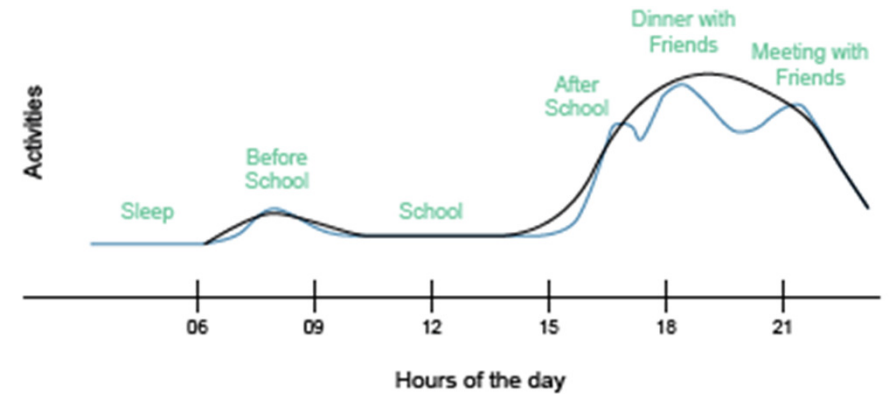
Zoetermeer SPG: Enhancing Rhythms



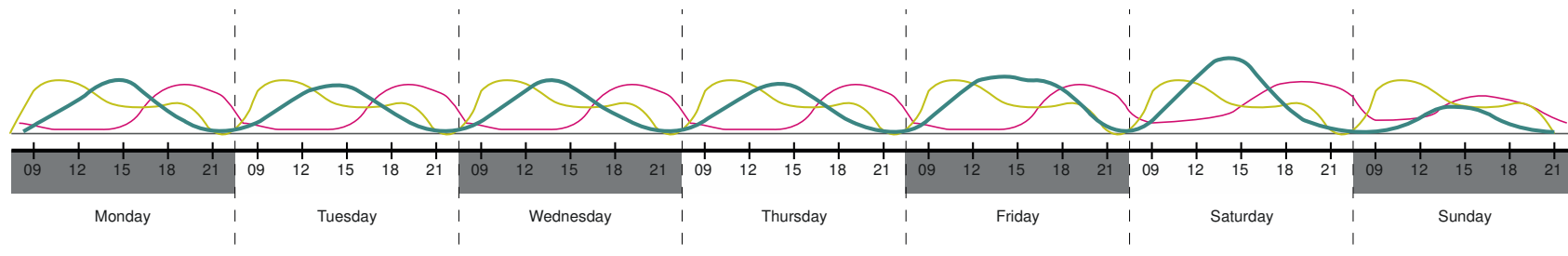
Rotterdam SPG: Tuning Rhythms



Rhythm of the elderly

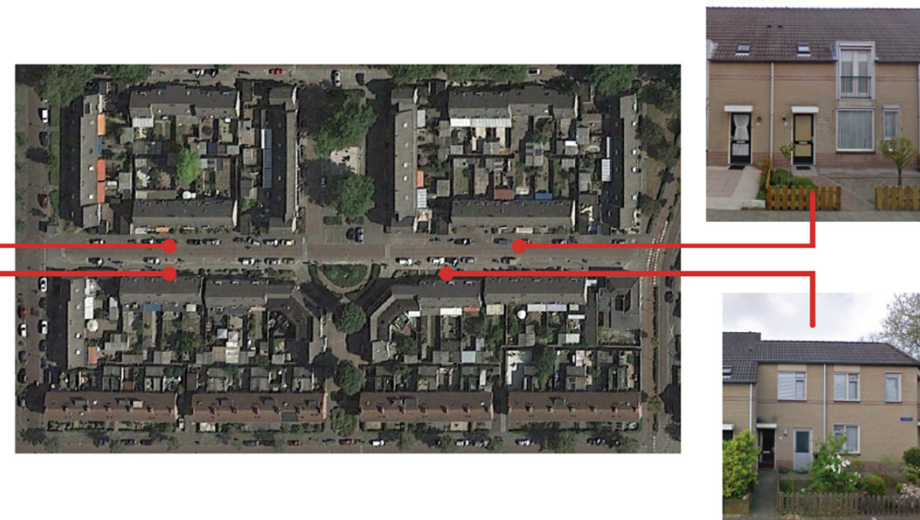


Rhythm of the youth



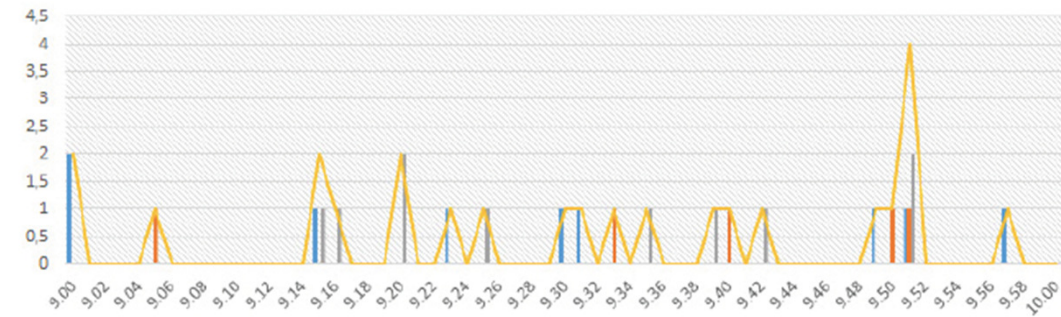
Comparison rhythm of the elderly, rhythm of the youth, and rhythm of the Winkelcentrum

Helmond SPG: Quiet Rhythms

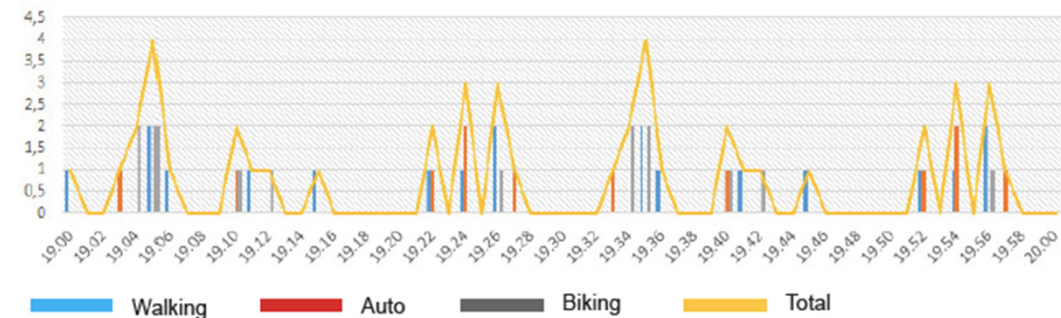


Tulpstraat, Helmond

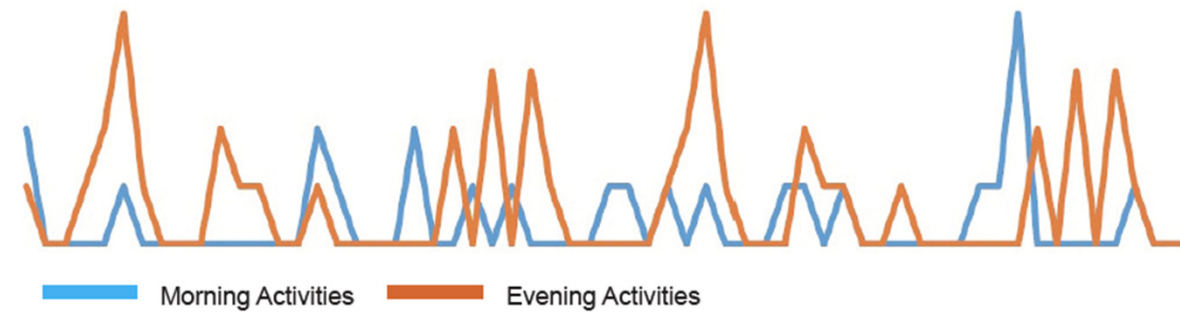
Morning Hours / 9:00-10:00:



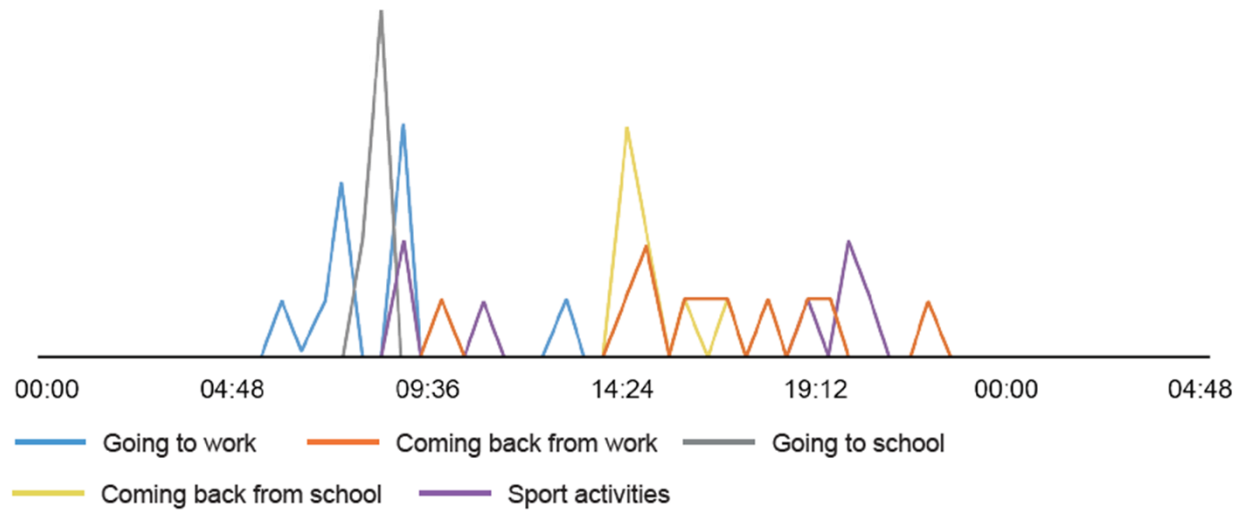
Evening Hours / 18:00-19:00:



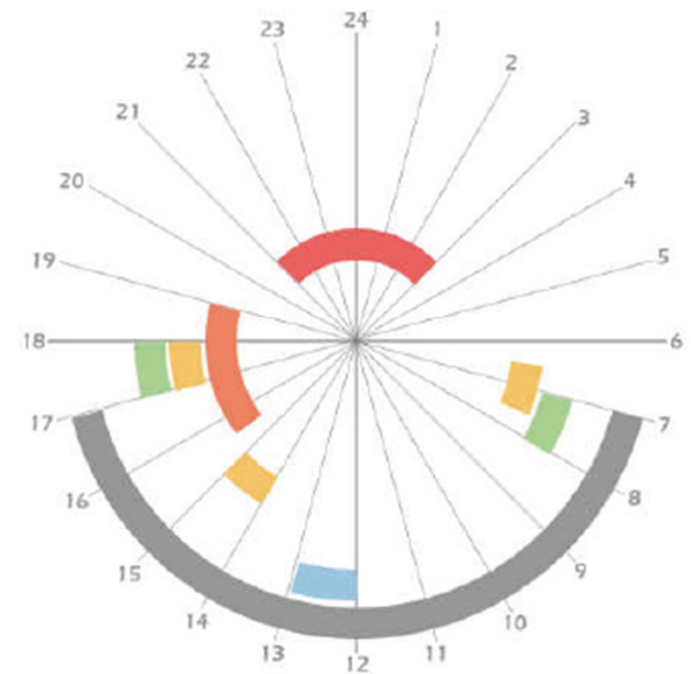
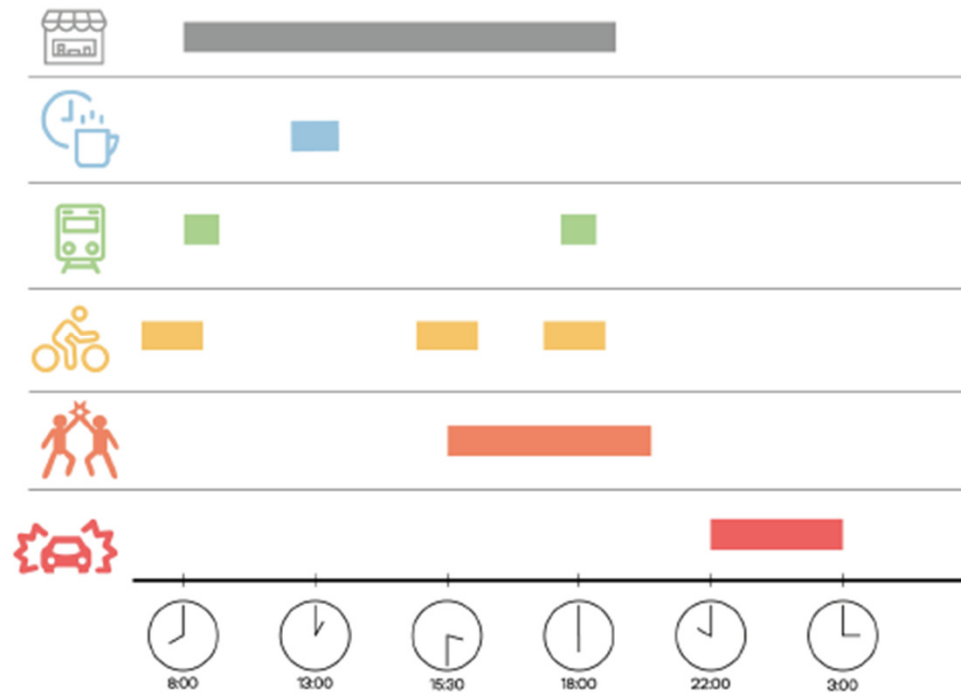
Helmond SPG: Quiet Rhythms



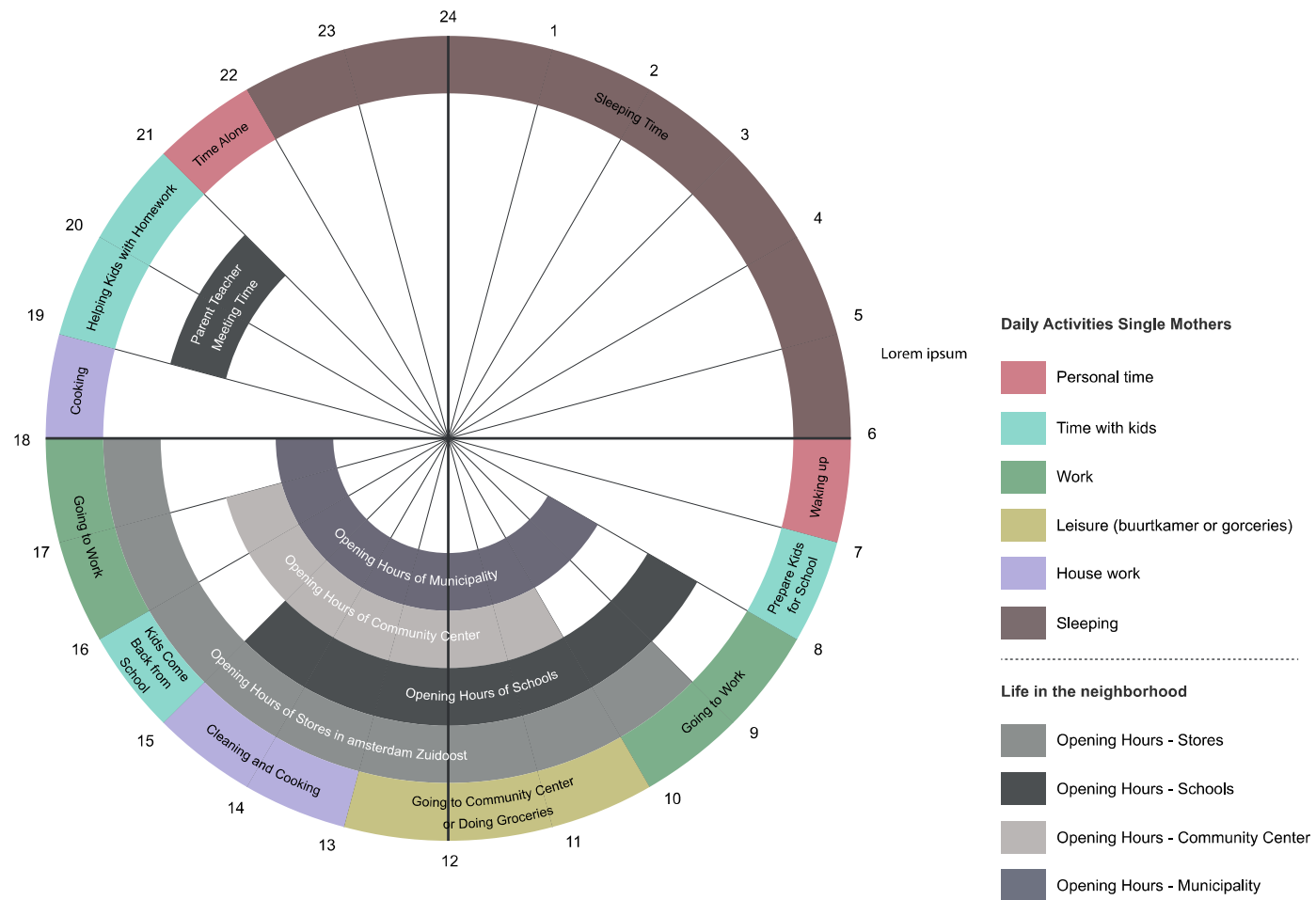
Helmond Image 4: Diagram showing the documentation of daily rhythms of Tulpstraat

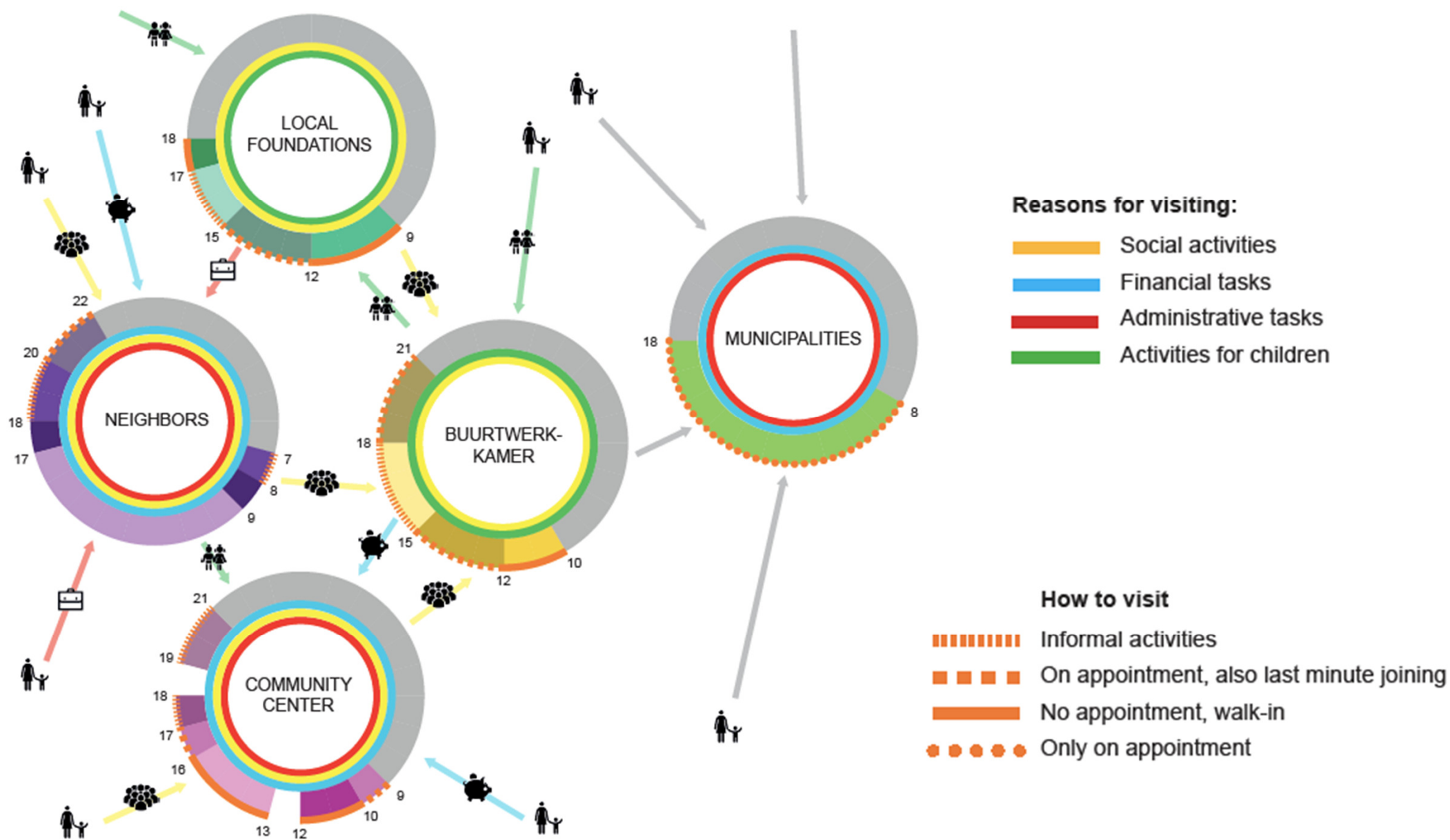


Zaanstad SPG: Balancing Rhythms

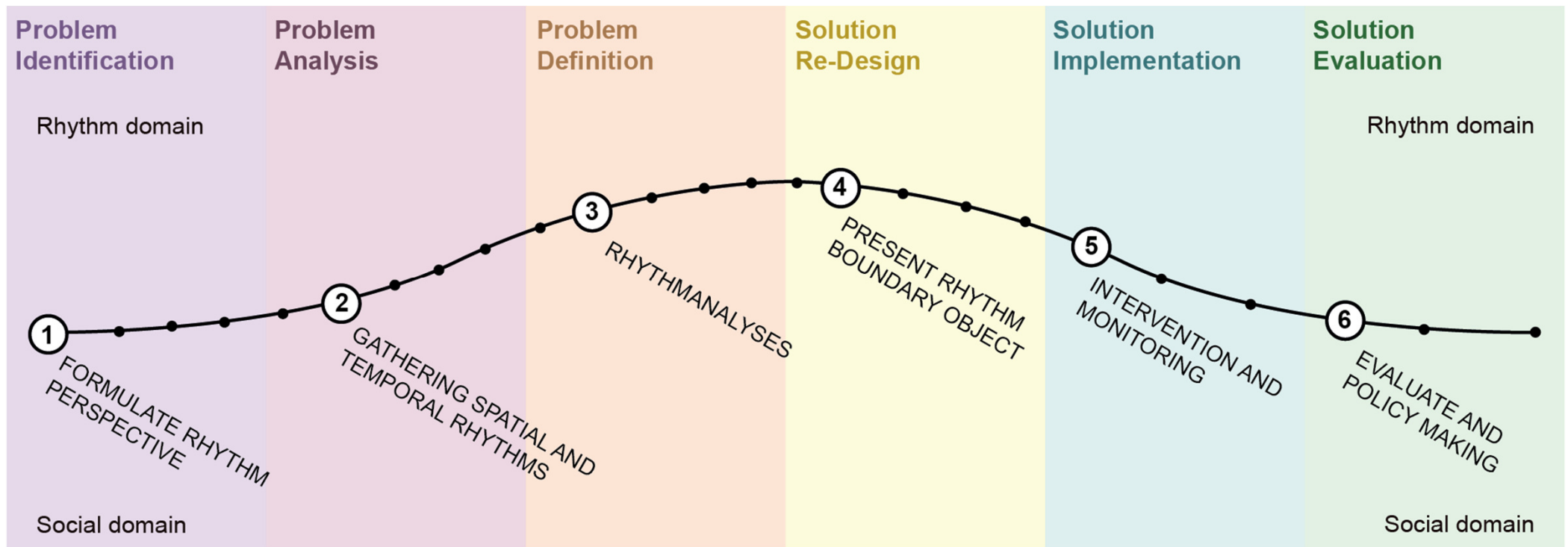


Amsterdam SPG: Matching Rhythms





Methodology for Translating Social Issues into Rhythm Issues



Understanding Rhythm in Cities



- *Rhythm as urban territory*
- *Rhythm as variation in a pattern*
- *Rhythm as aesthetic experience*
- *Rhythm as force for connection and engagement*

Understanding Rhythm in Artistic Practice



Basic Syllabus on Tabla

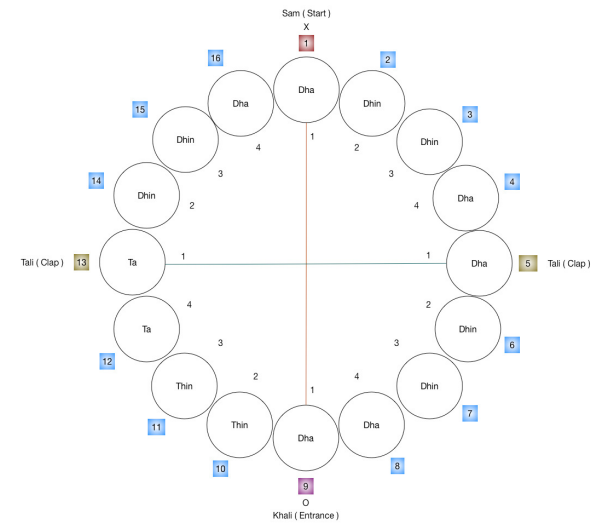
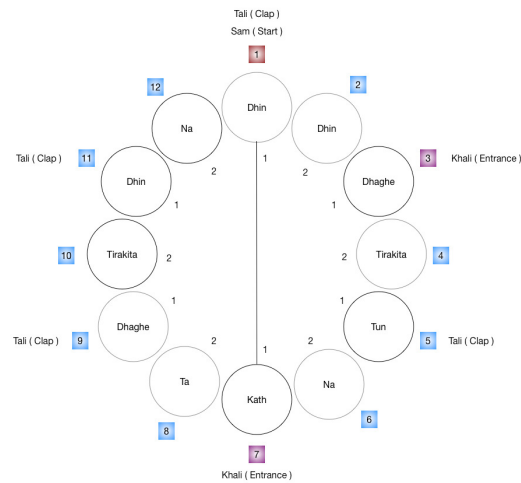
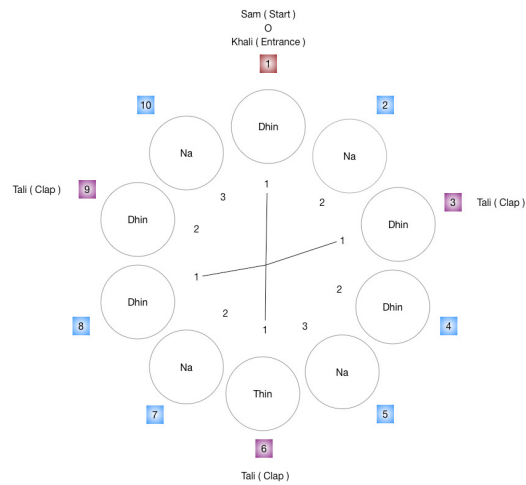
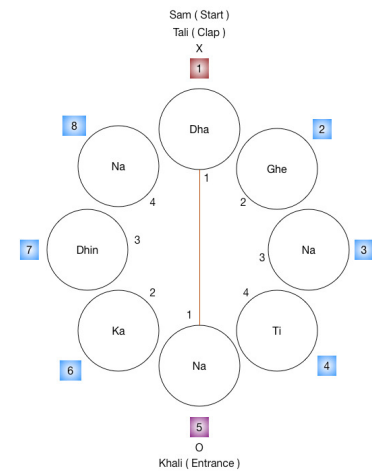
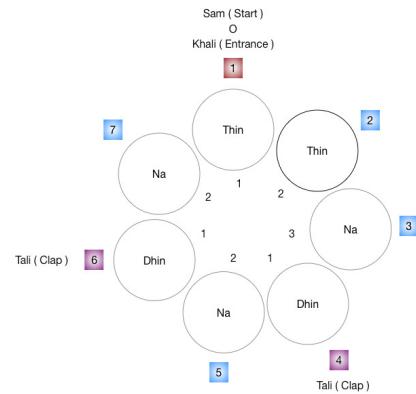
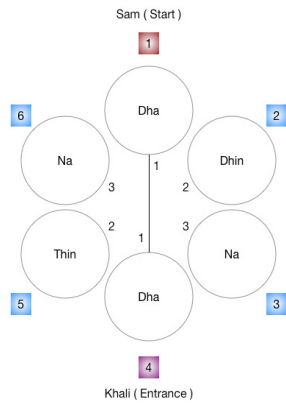
Some basic syllabus with the dayan on the right side and the bayan on the left side are:

- dayan {
- 1) Ta
 - 2) Na
 - 3) Ti
 - 4) Te
 - 5) Thin
 - 6) Tun
 - 7) kath
- bayan {
- 8) Ghe
 - 9) Gee
 - 11) Ka

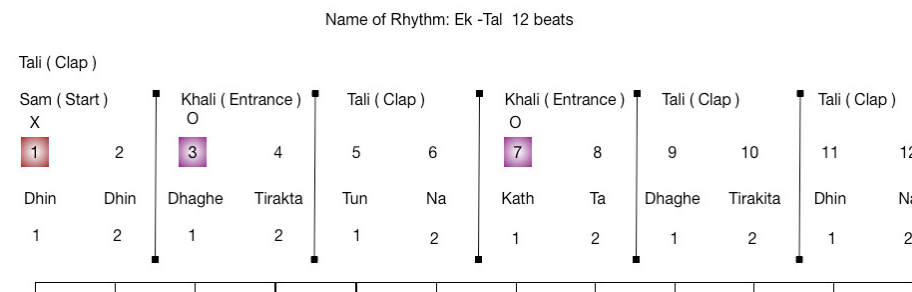
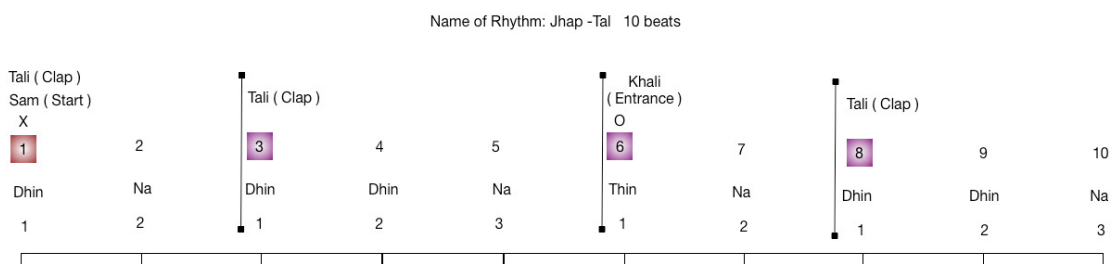
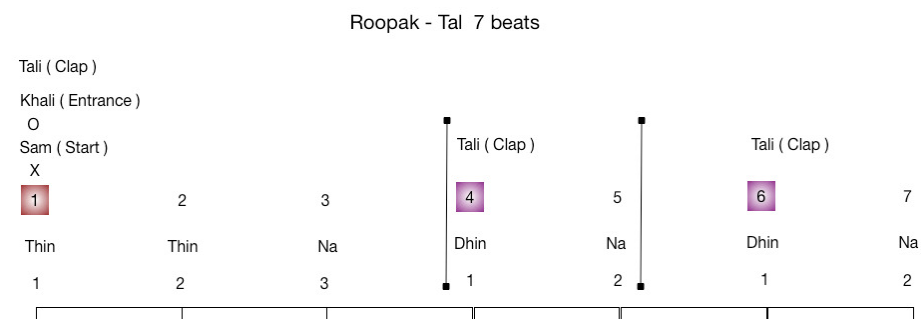
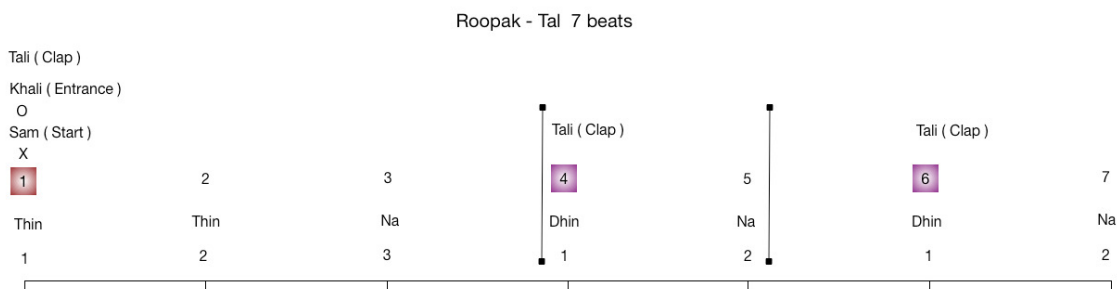
Combination:

- 1) Ta and Ghe = Dha
- 2) Thin and Ghe = Dhin
- 3) Tirakita
- 4) Dhere dhere





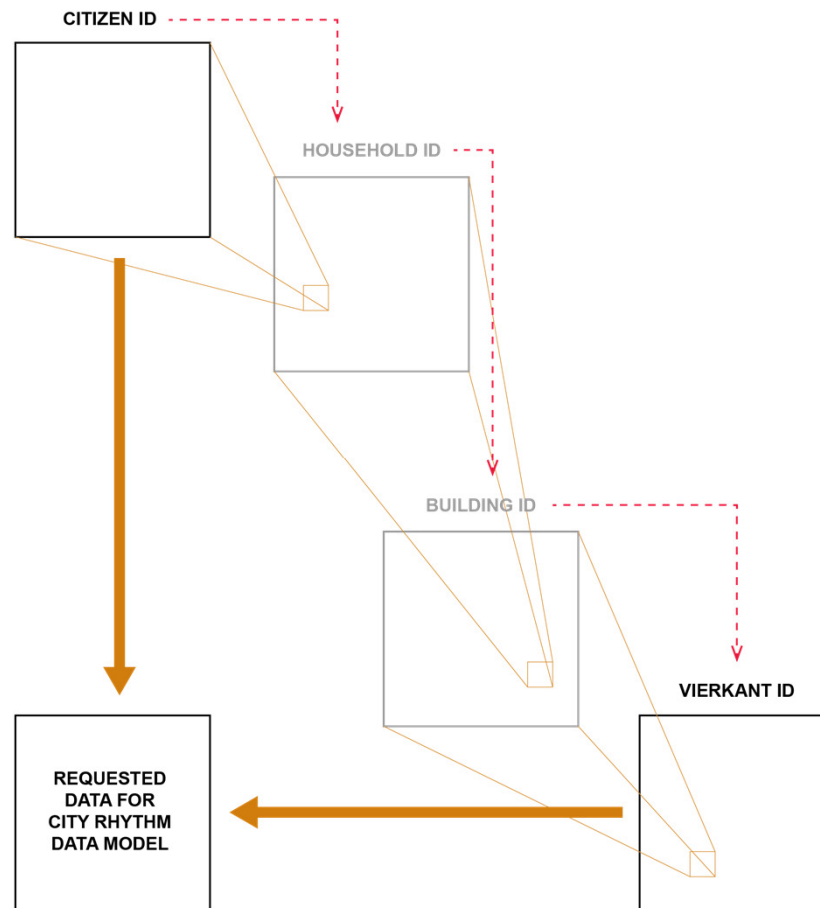
Merging Rhythms



Roopak Tal (7 beats) into Jhap Tal (10 beats)

Roopak Tal (7 beats) into Ek Tal (12 beats)

Modelling Rhythm in Urban Data



Different Approaches to Data

	Classical Statistical Approach	Policy Analytic Approach	Open Systems Approach
General Framework	Mathematical	Computational	Natural Systems
Role of the Analyst	Rationalist	Interlocutor	Empiricist
Nature of Data	Objective	Subjective	Partial, Incomplete
Typical Models	Classical Statistics	Machine Learning	Spatial and <u>Descriptive Statistics</u>
Successful Models	Falsify Hypotheses	Useful for Decision-Making	Enable Exploration and Learning
Ascribed	<u>Mark Verhagen</u> , <u>Leo Huberts</u> , <u>Ruben Spruit</u> , <u>Lene Boehnke</u> , <u>Thu Vu</u>	Scott Cunningham	Jan Dirk <u>Bulens</u>

Mapping Urban Data for Trust

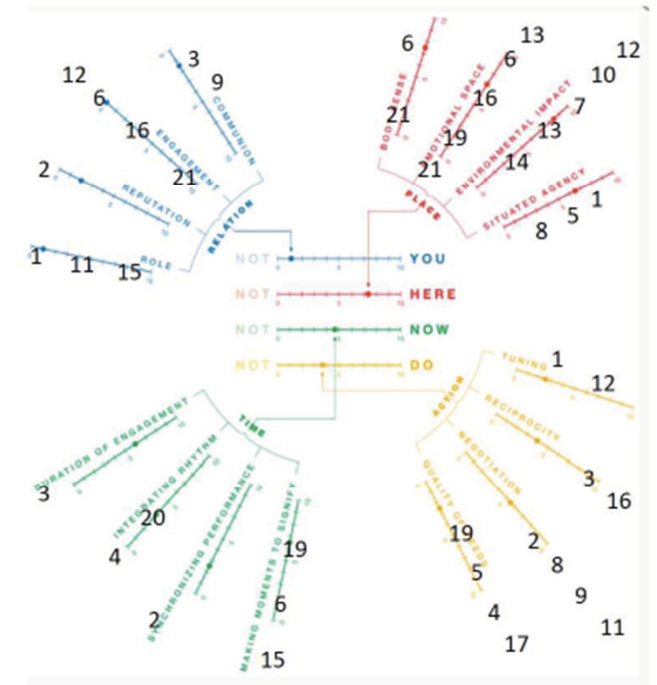
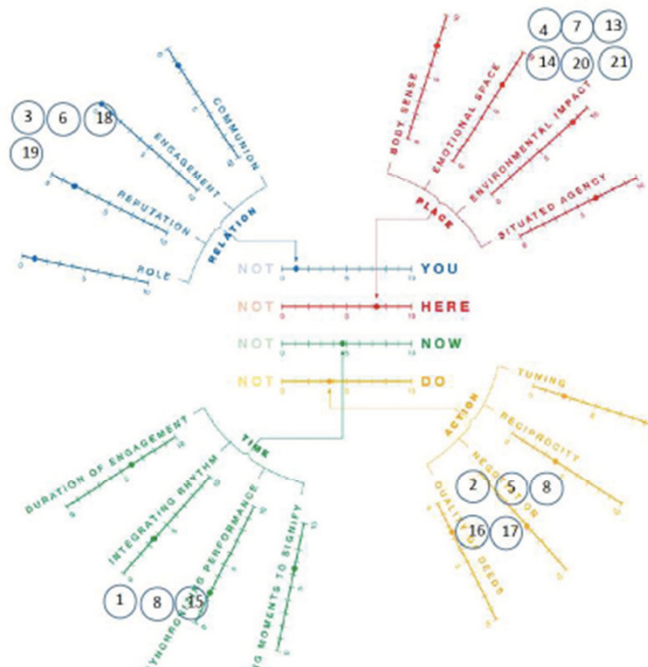
Customised services Customised research Own research Advice about research



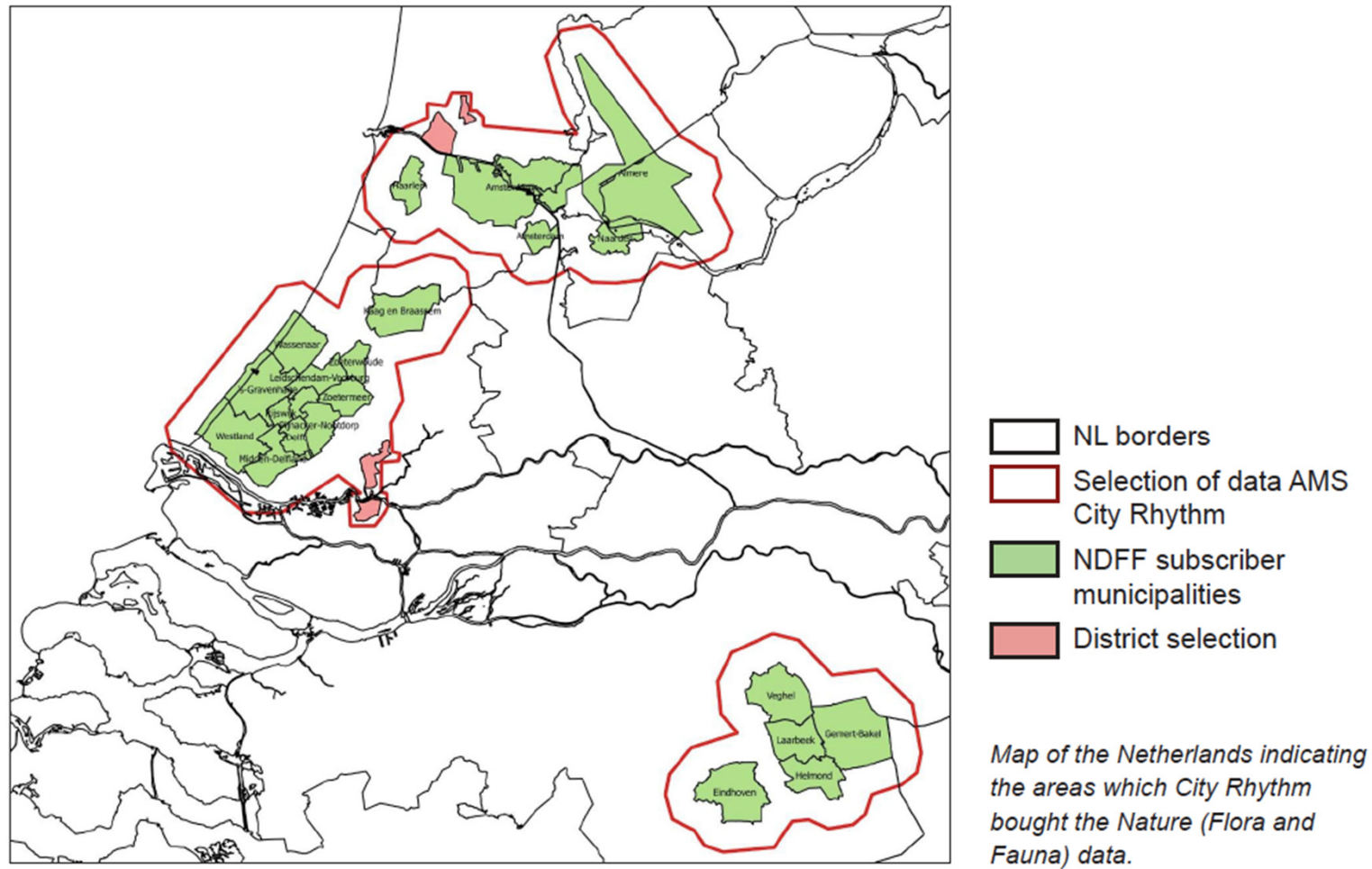
Microdata catalogue

Organisations may use microdata under strict conditions for the purpose of [conducting their own research](#). Below is a list of recent documentation reporting the results of research conducted using microdata sets, arranged by subject area:

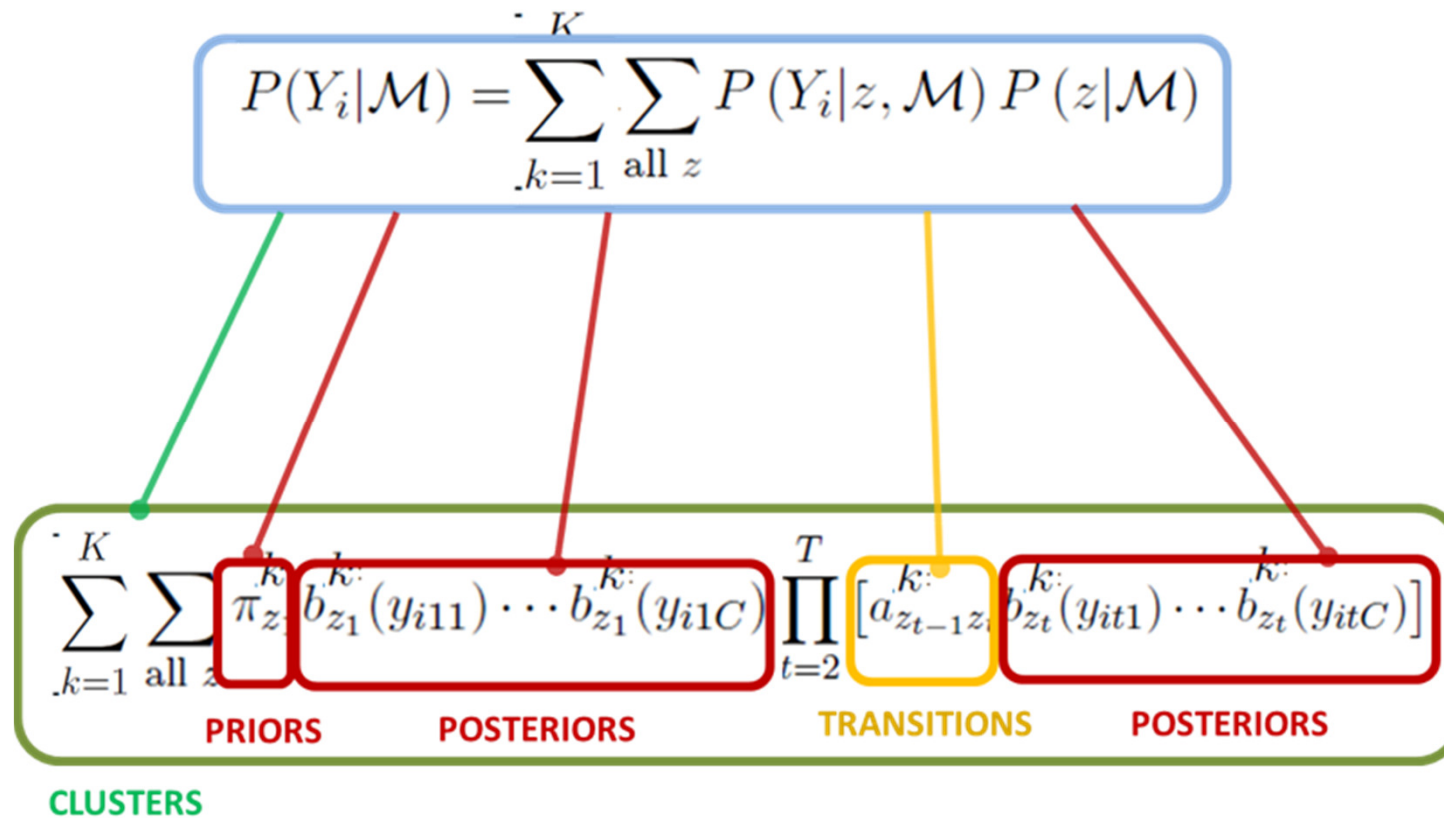
1. Labour and social security
2. Enterprises
3. Population
4. Construction and dwellings
5. Financial and business services
6. Health and welfare
7. Trade, hotels and restaurants
8. Income and expenditure
9. International trade
10. Manufacturing industry and energy
11. Agriculture
12. Macroeconomics
13. Nature and environment
14. The Netherlands, regional
15. Education
16. Government and politics
17. Prices
18. System of Social Statistical Dataset
19. Security and justice
20. Traffic and transport
21. Leisure and culture



Getting the Data

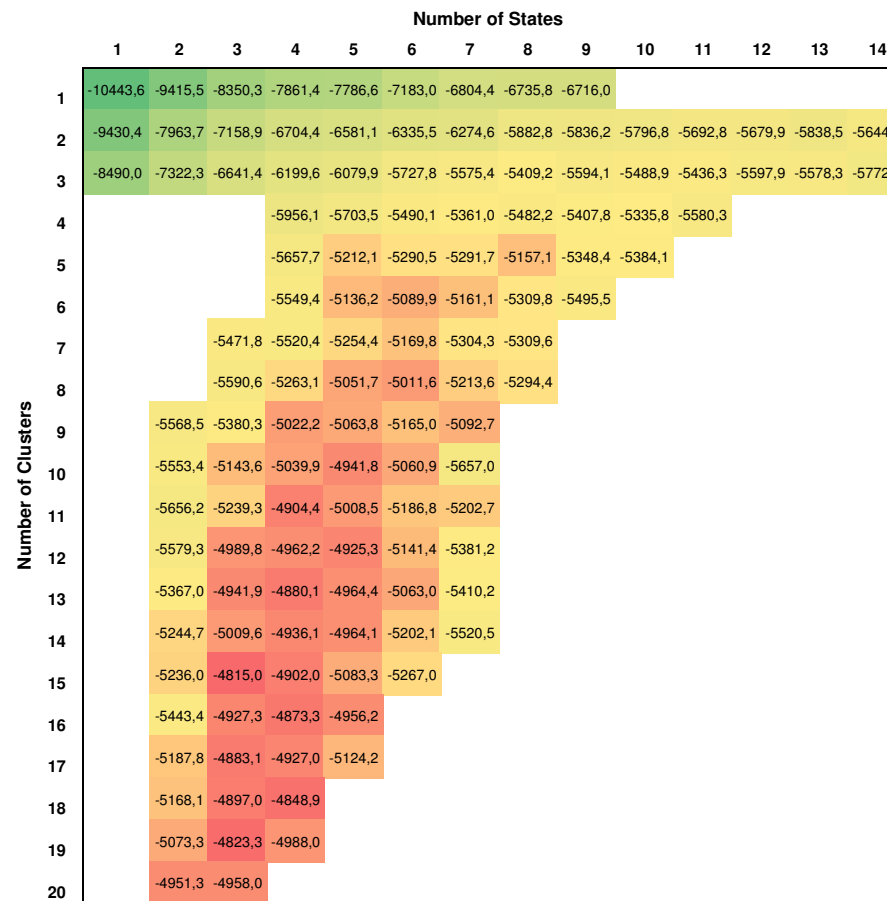


Designing the City Rhythm Data Model

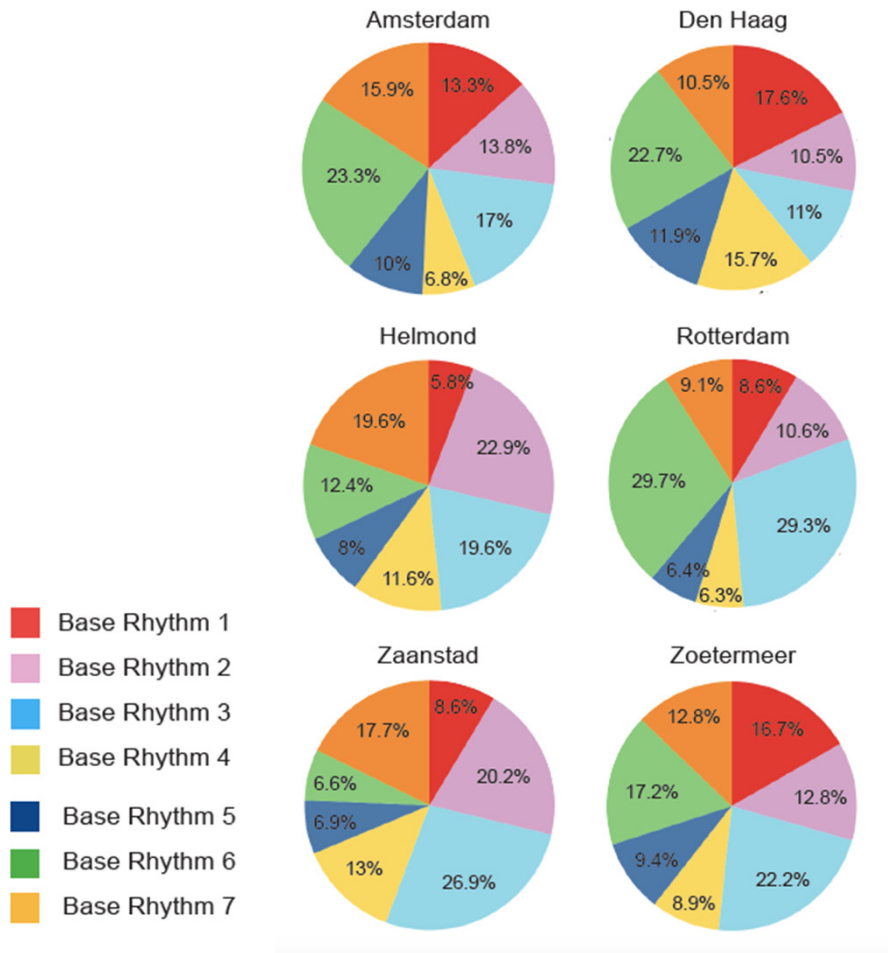


Vocabulary Element	Modeling Element	Feature	Purpose	Color
Rhythm	Clusters or mixtures	Spatial	The model seeks to find the best available rhythm with which to summarize experiences in a neighborhood. Through clustering the same kind of rhythms are identified.	Green
Base Tone	Priors	Probabilistic	The model seeks to use the most commonly experienced base notes where and when these are appropriate. Base note identifies the common rhythm and its specificity on area level	Red
Beats	Profile	Latent	The model generates realistic socio-economic profiles for now and also for the future. These profiles are specific states a areas can go through.	Red
Meter	Transitions	Dynamic	The model sequences between different beats, introducing pauses, where appropriate. Pauses reflect transitions in different states (beats) of the area.	Yellow

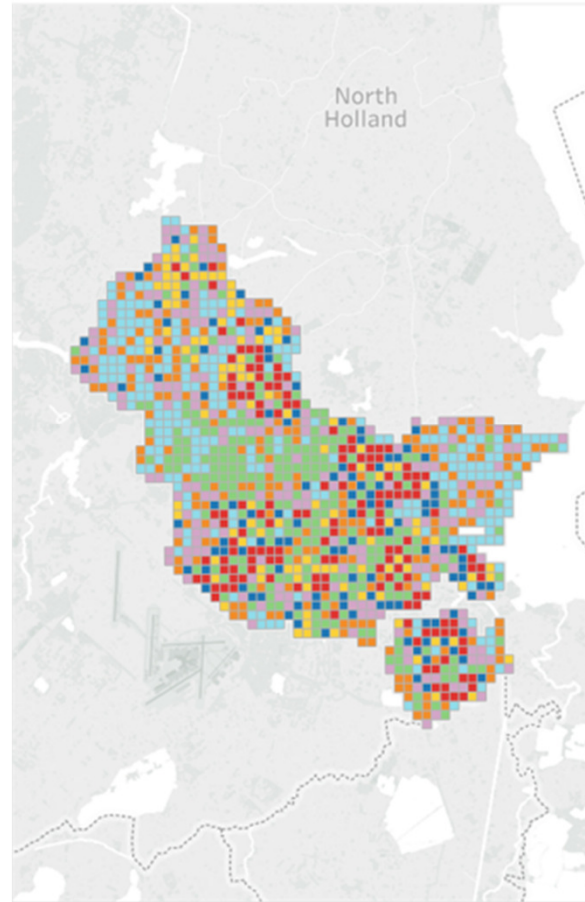
Choosing the Right Trade-Off: Exploring the Metaverse of Models



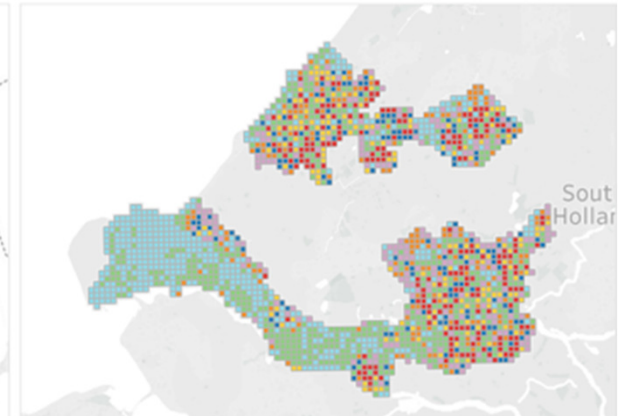
Working with the City Rhythm Data Model



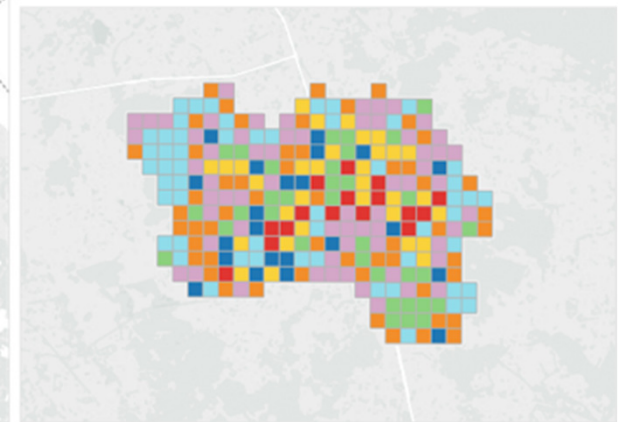
Amsterdam and Zaanstad

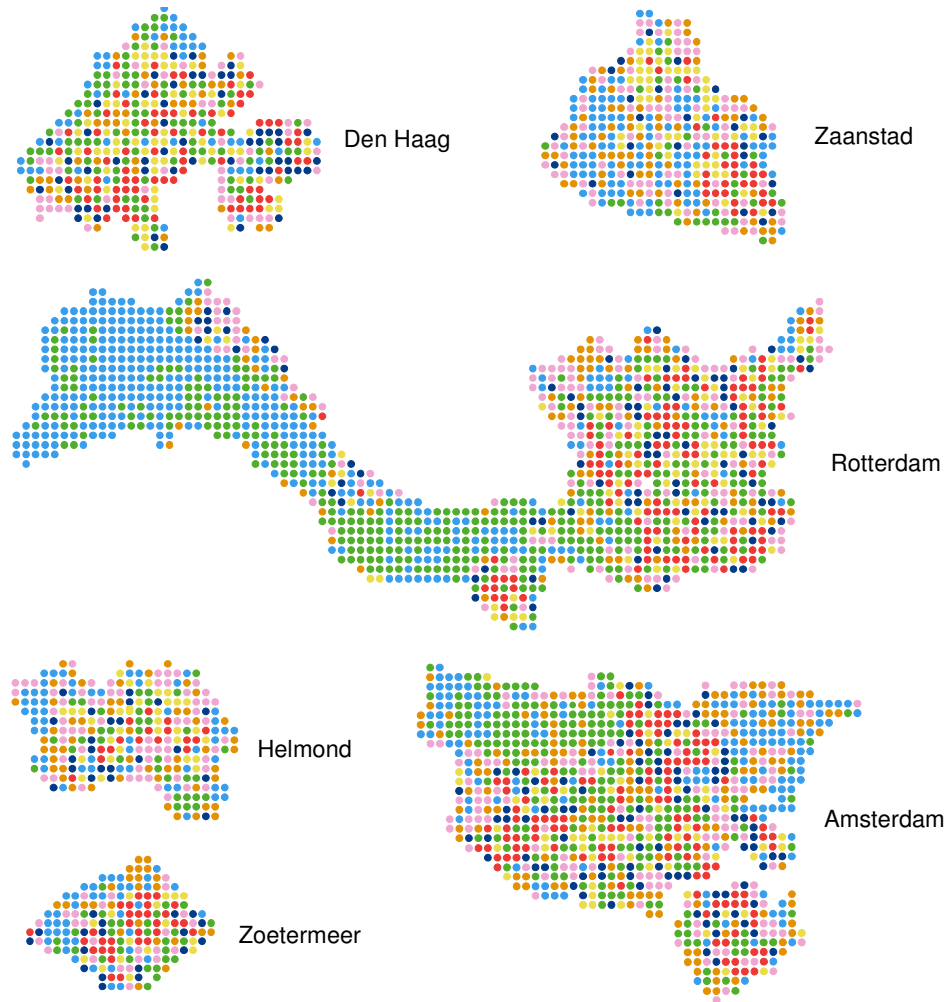


Rotterdam, Den Haag and Zoetermeer



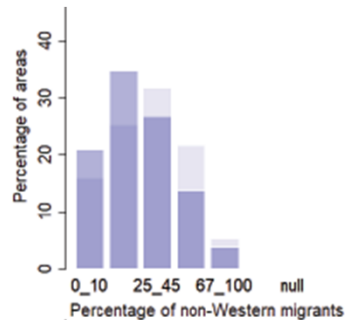
Helmond





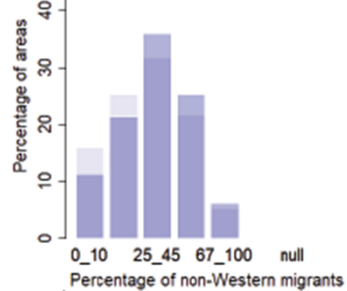
- Base Rhythm 1
- Base Rhythm 2
- Base Rhythm 3
- Base Rhythm 4
- Base Rhythm 5
- Base Rhythm 6
- Base Rhythm 7

Working with the City Rhythm Data Model



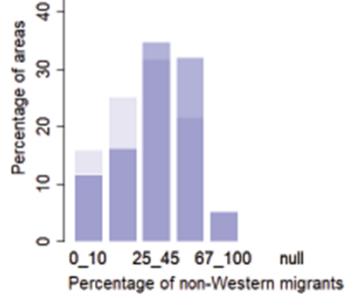
Comparison of beat 1 in base rhythm 1 regarding the percentage of non-Western migrants

Base rhythm 1
Beat 1



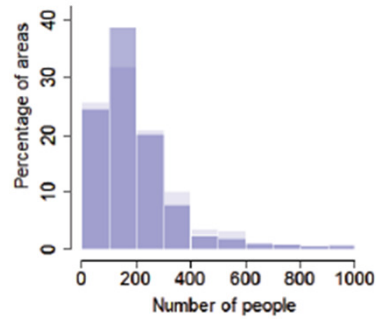
Comparison of beat 2 in base rhythm 1 regarding the percentage of non-Western migrants

Base rhythm 1
Beat 2



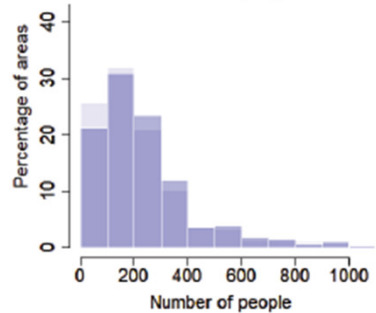
Comparison of beat 3 in base rhythm 1 regarding the percentage of non-Western migrants

Base rhythm 1
Beat 3



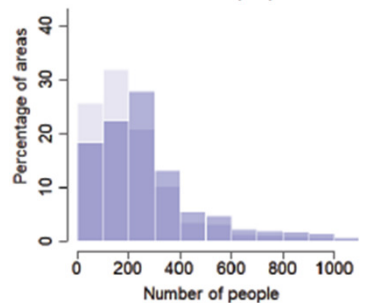
Comparison of beat 1 in base rhythm 1 regarding the age groups

Base rhythm 1
Beat 1



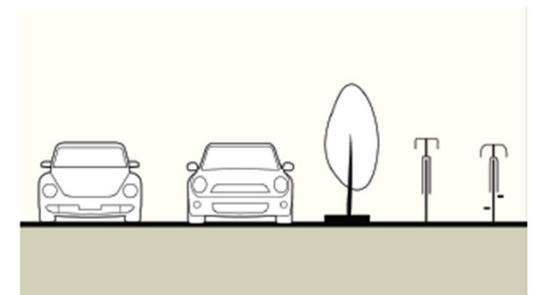
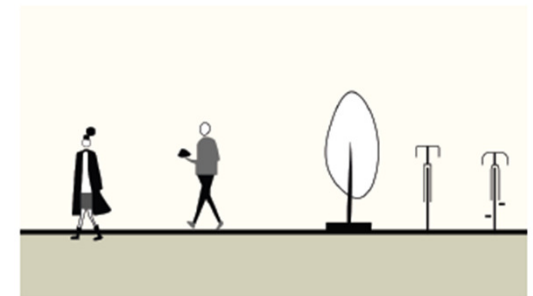
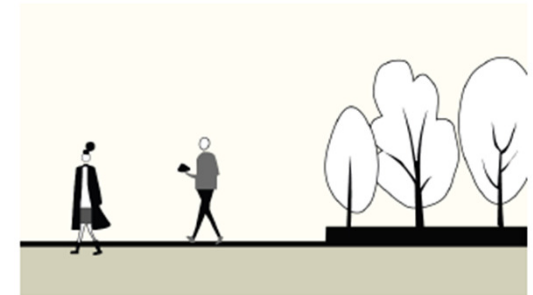
Comparison of beat 2 in base rhythm 1 regarding the age groups

Base rhythm 1
Beat 2

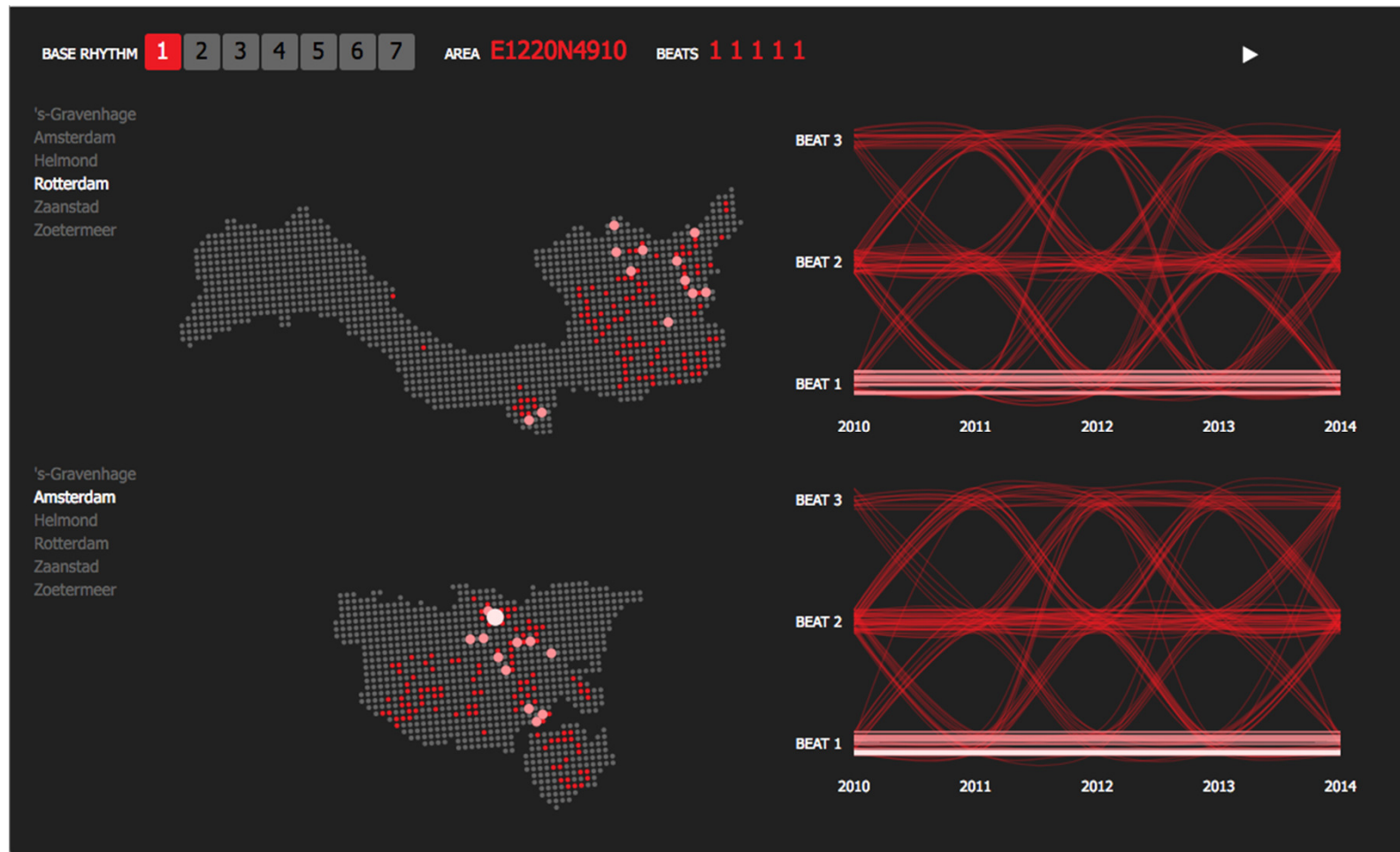


Comparison of beat 3 in base rhythm 1 regarding the age groups

Base rhythm 1
Beat 3



Visualising Beats and Base

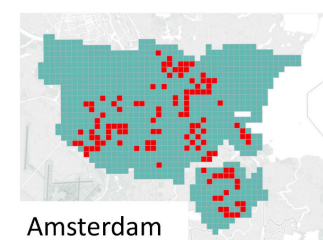
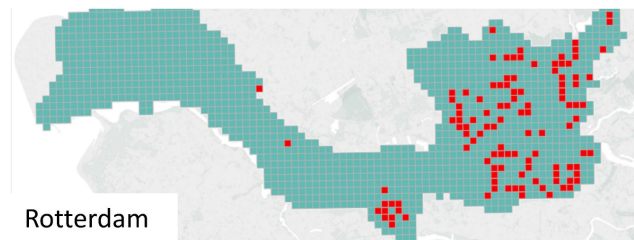
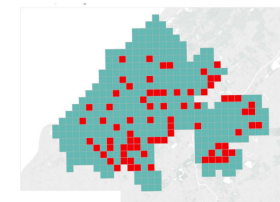
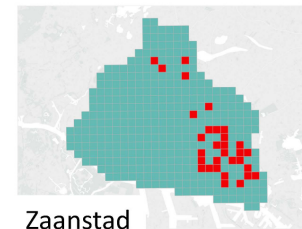
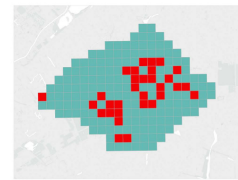
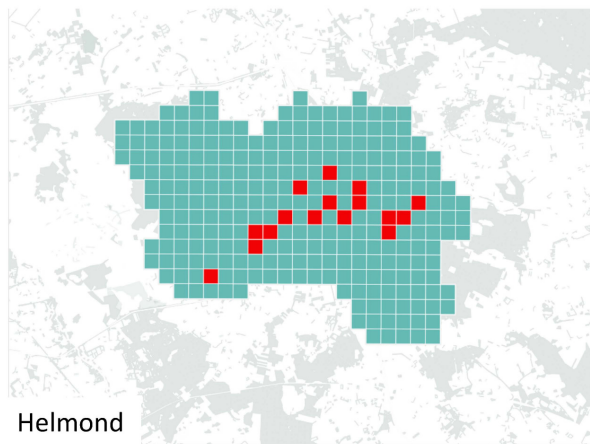


Validating and Evaluating the City Rhythm Data Model



Validating and Evaluating the City Rhythm Data Model

The model spotted that the Tulpstraat in Helmond has the red base rhythm.
Neighborhoods in other cities have red base rhythms too.



Do you also think that the Tulpstraat can be found in other cities?

Yes ☐ No ☐

Validating and Evaluating the City Rhythm Data Model



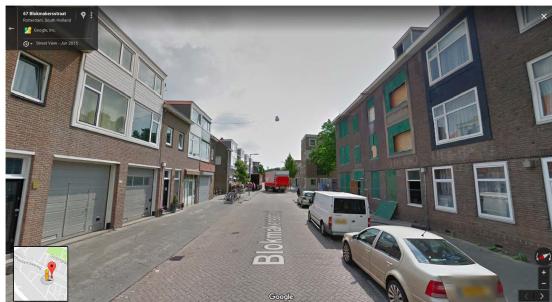
Tulpstraat, Bijsterveld, Helmond



Zwaardemakerstraat, Zaanstad



Tuindreef, Zoetermeer



Blokmakerstraat, Rotterdam



Westerlengte, Amsterdam Zuidoost



Zuringveld, Den Haag

Is it interesting to see the visual comparison between neighborhoods with same base rhythm? ☐ Yes ☐ No

Applying the Data Rhythm Model to European Cities

		State 1	State 2	State 3	State 4
Education	Very high	0.00	0.33	0.00	0.25
	High	0.00	0.31	0.11	0.25
	Medium	0.00	0.04	0.11	0.00
	Low	0.44	0.27	0.44	0.50
	Very Low	0.56	0.04	0.33	0.00
Mortality	Very high	0.00	0.00	0.00	0.13
	High	0.00	0.18	0.07	0.88
	Medium	1.00	0.50	0.07	0.00
	Low	0.00	0.32	0.33	0.00
	Very Low	0.00	0.00	0.53	0.00
GDP	Very high	1.00	1.00	0.00	0.88
	High	0.00	0.00	0.00	0.13
	Medium	0.00	0.00	0.00	0.00
	Low	0.00	0.00	1.00	0.00
	Very Low	0.00	0.00	0.00	0.00
Population	Very high	0.00	0.86	0.00	0.00
	High	0.15	0.01	0.00	0.00
	Medium	0.85	0.13	0.00	1.00
	Low	0.00	0.00	1.00	0.00
	Very Low	0.00	0.00	0.00	0.00
Employment	Very high	0.00	0.40	0.00	0.00
	High	0.00	0.30	0.03	0.00
	Medium	0.92	0.14	0.44	0.00
	Low	0.08	0.16	0.53	1.00
	Very Low	0.00	0.00	0.00	0.00



Amsterdam



Berlin



Hamburg

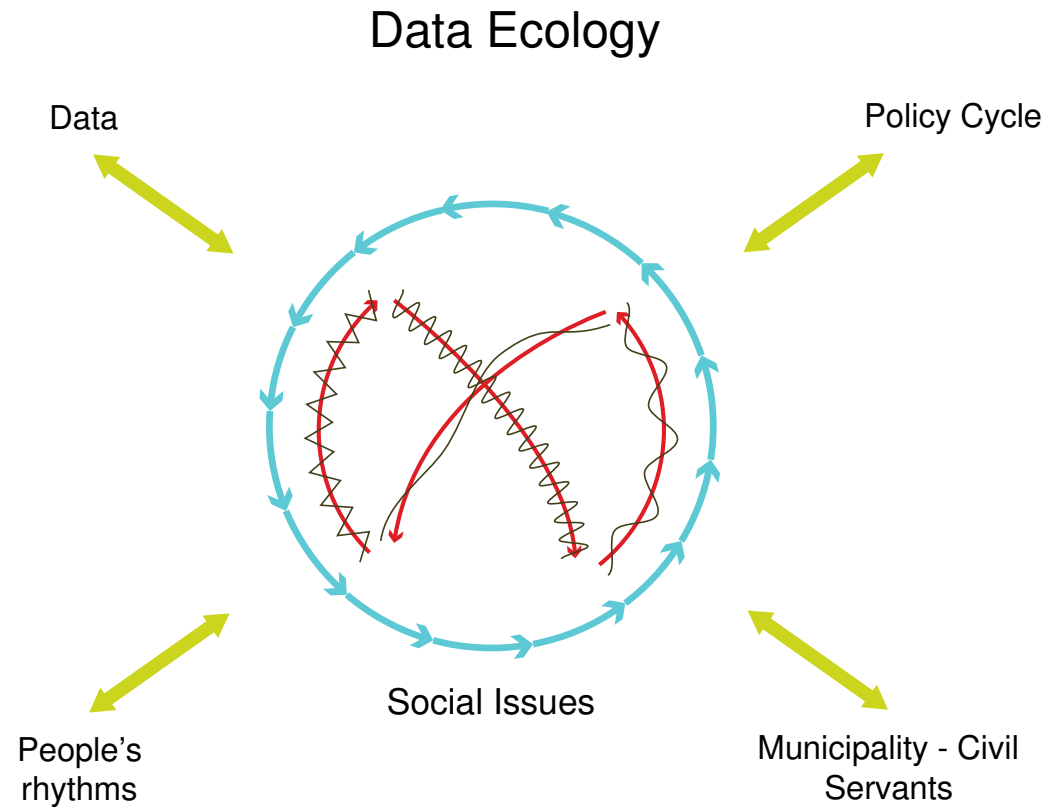
Impuls geven aan de aanpak van de veiligheid in een buurt – Resultaat?

- Een nieuwe manier van het 'lezen' van de (big) data sets
- Een nieuwe manier om de data steeds te verbinden met maatschappelijk beleid
- Slimme informatie voor handhaving en beleidsvorming – welke factoren van belang zijn om het ritme van een buurt vast te stellen
- Visualisatie van de buurt: interactieve simulatie waarin het gemeenschappelijk ritme van een buurt kan worden gevisualiseerd
- Samenwerken met stakeholder uit de wijk of stad
- Landelijk kennisontwikkeling

City Rhythm, Logbook of an Exploration boeklancering @ VNG, Den Haag



Designing Rhythm for Social Resilience



4 years Amsterdam Zuidoost & OIS ----- University of Amsterdam & TU Delft