

KOTANATOMI



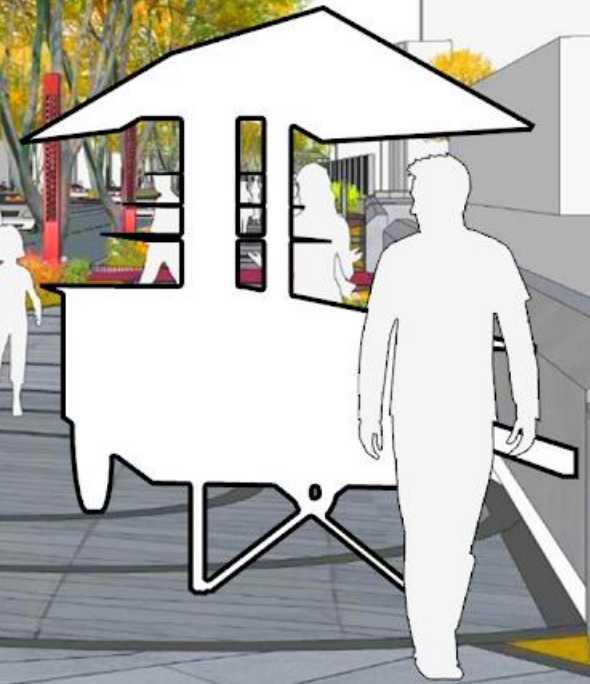


KOTA = CITY ANATOMI = ANATOMY

KOTANATOMI imagines the informal sector through the lens of urban respiration, with the intention of stimulating innovations in urban design, regulation and intersectoral collaboration which maximize the function of Jakarta's limited public space for all.



WAHID HASYIM



Background to the research

Jakarta is a city of the informal.

More than 40% of the residents depend on informal livelihoods, with significantly more dependant on the informal sector.

Yet informality remains a mystery

A vestige of colonial policymaking, the informal economy is seen as 'abnormal,' or 'wild,' and is entirely absent from urban policy. It is poorly understood even by proponents, and discussions are dominated by **generalizations, assumptions and anecdotes.**

Which leads to conflict

Policymakers, urban designers, architects and other stakeholders lack the preliminary framework or even language to engage meaningfully with informal phenomena.



Aims of the KOTANATOMI project



1. Highlight the dynamic nature of the informal economy
2. Explore how informal phenomena interact with the urban environment
3. Develop an innovative methodology for research on urban informality
4. Establish a knowledge base for theory and academics in the Jakarta context
5. Provide insight and advice for policymakers and urban designers about designing the capital with informality in mind
6. Reframe conceptions of informality in the public consciousness



The KOTANATOMI Methodology

In order to provide new insight into the form and function of informality in Jakarta, KOTANATOMI relies on primary data collected in the field.

As of mid 2021, the project has been through 4 main phases:

Phase 1: Data Collection

- a) Site selection
- b) Video recording

Phase 2: Data Preparation

- a) Parameter Creation
- b) Mapping

Phase 3: Preliminary Analysis

- a) Descriptive analysis
- b) Statistical analysis

Phase 4: Promotion and Public Participation

- a) The KOTANATOMI Archive
- b) Golongan Kartun (the Cartoon community)



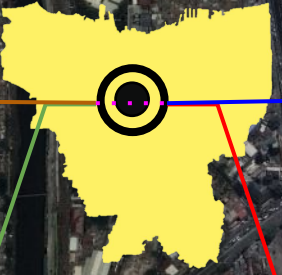
PHASE 1: Data Collection



Phase 1

Site Selection

NATIONAL MONUMENT



TANAH ABANG STATION

TANAH ABANG MARKET

Jl. Wahid Hasyim

Jl. Wahid Hasyim

GONDANGDIA STATION

Jl. Johar

Jl. Srikaya II

Jl. M. H. Thamrin

Jl. M. H. Thamrin



In addition to a being very strategic and well-known location, WHC is one of the most diverse streets in the city. Almost all urban activities or phenomena that can be seen in Central Jakarta are found here.



- Kampung
- Private Offices
- Government Offices
- Religious buildings
- Markets
- Stations
- Malls
- Hotels
- Bus stops
- Cafes/Restaurants
- Parking
- Houseing
- Banks
- Warehouses
- Convenience Stores
- Cinemas
- Bars

Phase 1

Video Recording



September – December 2019

40+ Volunteers



2019/11/21
08:22:13

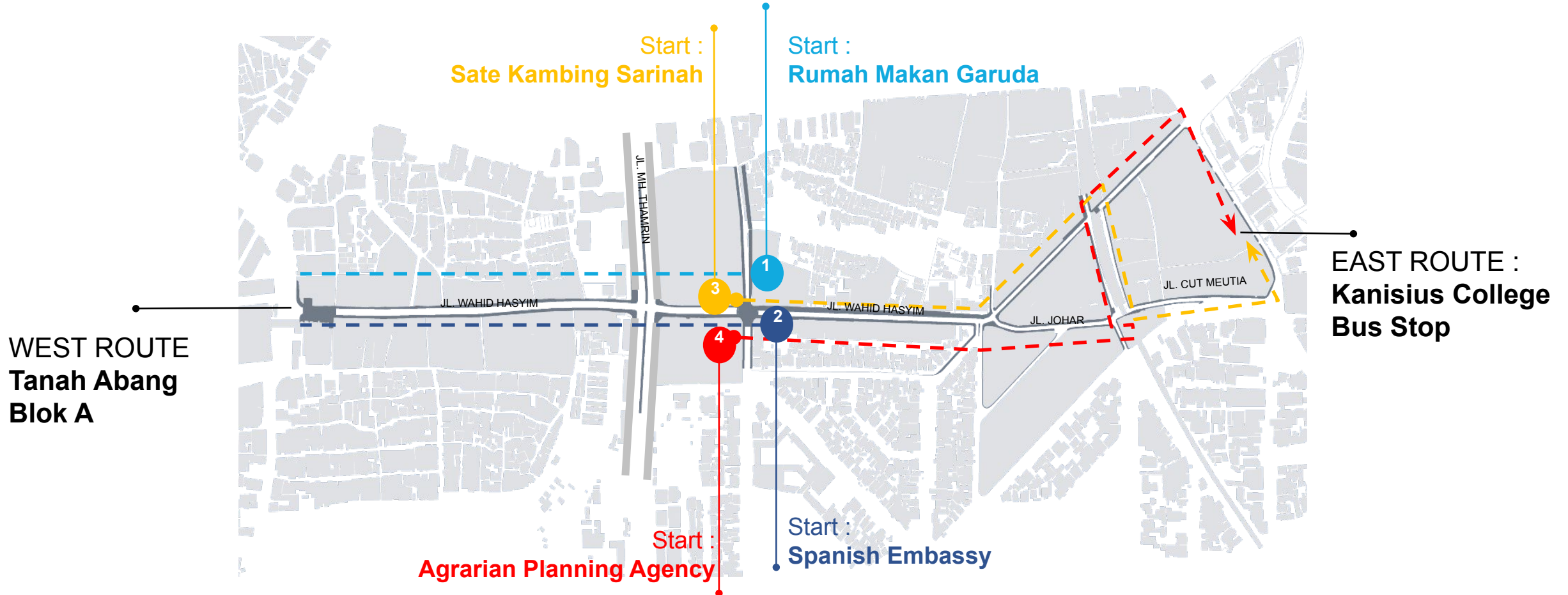
2019/09/24
12:08:51

2019/09/24
17:56:07

2019/09/28
08:06:23

Phase 1

Video Recording



- 1 West Route – North side of Wahid Hasyim Sidewalk
- 2 West Route – South side of Wahid Hasyim Sidewalk

- 3 East Route – North side of Wahid Hasyim Sidewalk
- 4 East Route – South side of Wahid Hasyim Sidewalk

PHASE 2: Data Preparation

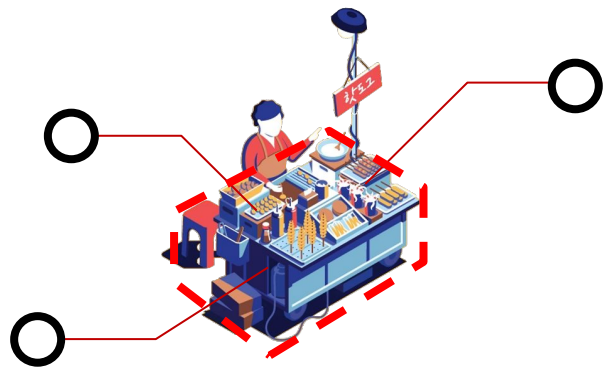


Phase 2

Parameters



To begin understanding the nature of formal-informal interaction in Jakarta's public spaces, we isolated the 3 most significant factors and allocated them specific parameters



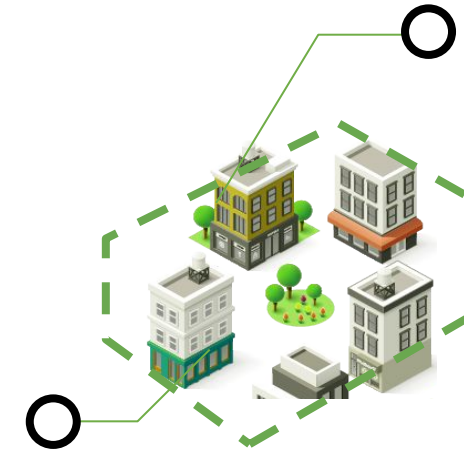
**A1
(INF)**

- Typology
- Size
- Commodity



**A2
(PED)**

- Profile
- Posture
- Gesture



**A3
(BDG)**

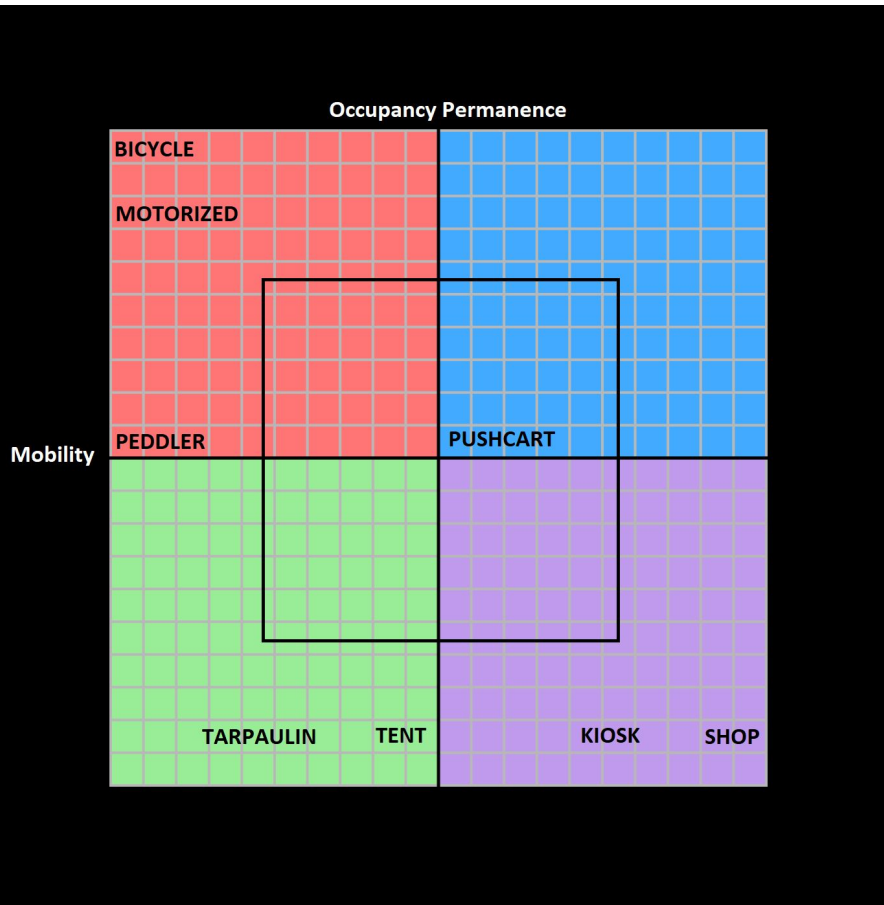
- Category
- Size
- Accessibility

Phase 2

Parameters

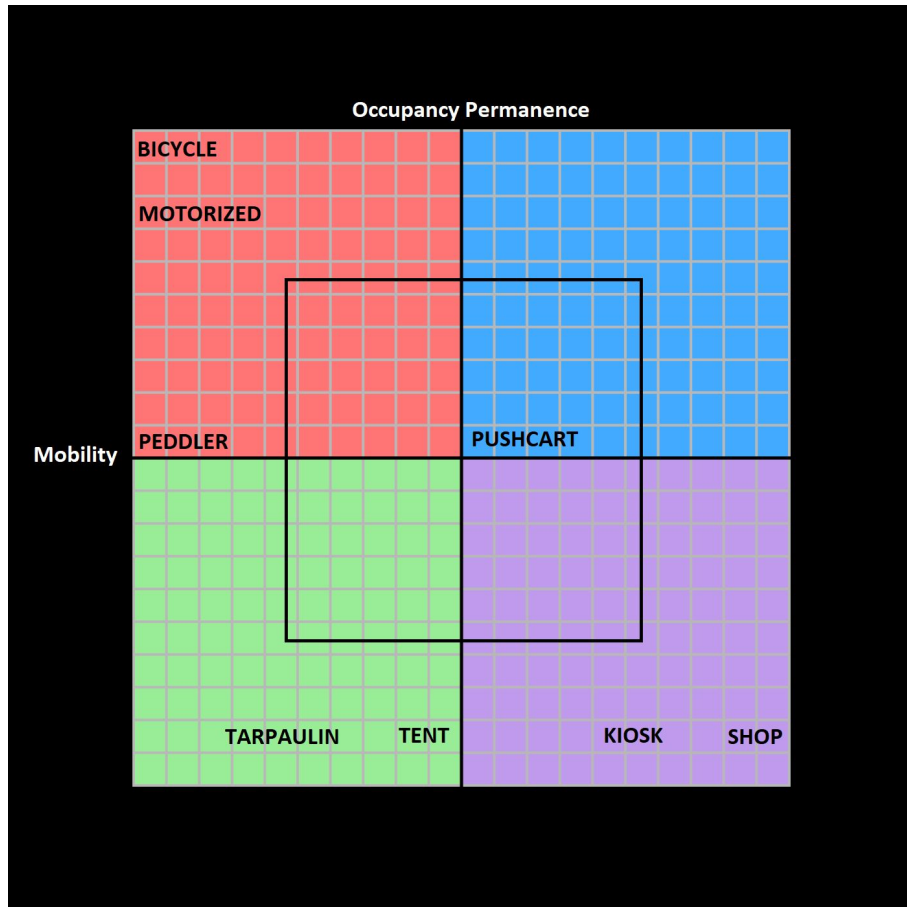


Parameters for pedestrians were developed from the Gehl Institute's public life tools. Informal enterprise typologies were developed through extensive observations by RRJ, and based on two key factors determining each enterprise's interaction with Jakarta's 'public' spaces: mobility and occupancy permanence.





Parameters for pedestrians were developed from the Gehl Institute's public life tools. Informal enterprise typologies were developed through extensive observations by RRJ, and based on two key factors determining each enterprise's interaction with Jakarta's 'public' spaces: **mobility** and **occupancy permanence**.

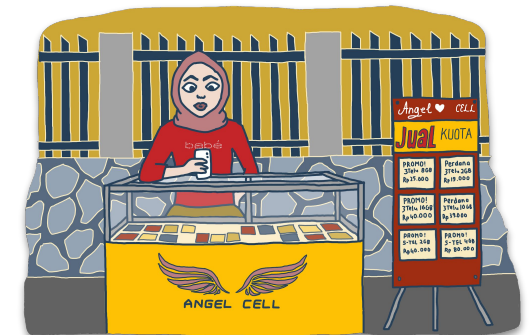


ASONGAN (Peddler)

The simplest form of informal vending, peddlers travel on foot and carry their enterprise with them at all times. This affords them high maneuverability, being able to cross roads, ascend staircases, enter traffic jams etc., but also limits their speed over longer distances. They are likely to relocate very often, if not continuously, and possess **low occupancy permanence with medium mobility**.

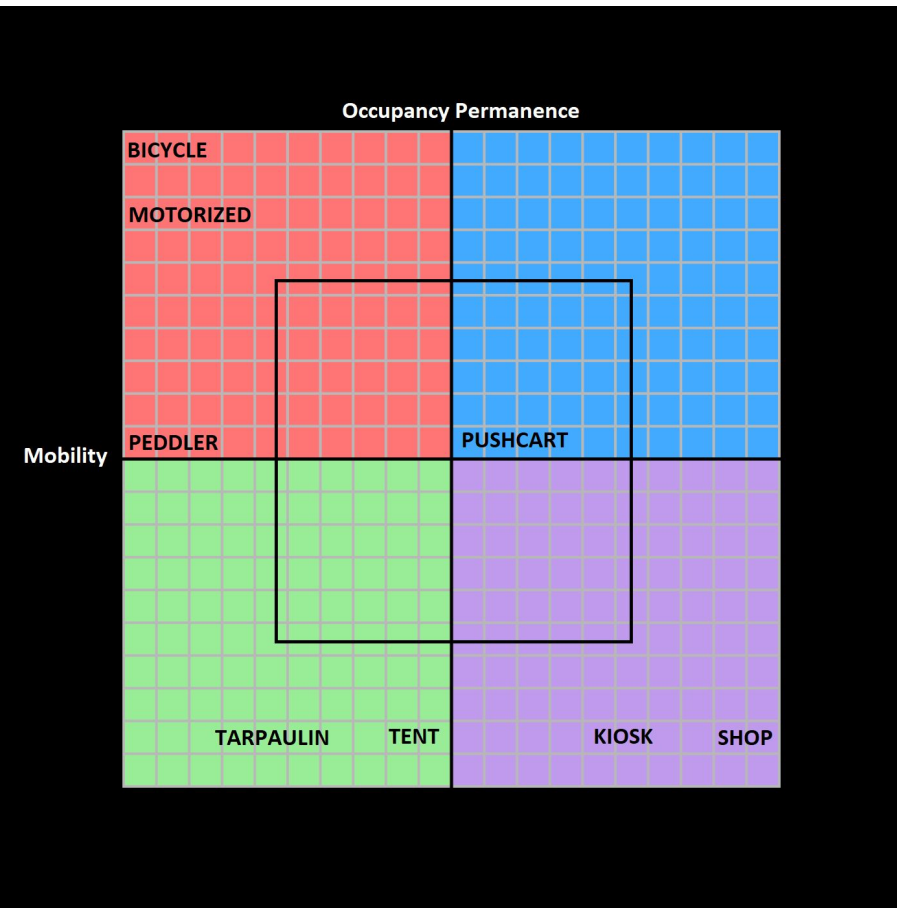
KIOS (Kiosk)

Kiosks are simple enterprises which depend on a strategic location, since they are unable to relocate once they have set up their equipment. This affords them **low mobility and also medium-high occupancy permanence** (while active). They do not possess an external structure, but typically display their products on tables, shelves, cabinets or other basic platforms.





Parameters for pedestrians were developed from the Gehl Institute’s public life tools. Informal enterprise typologies were developed through extensive observations by RRJ, and based on two key factors determining each enterprise’s interaction with Jakarta’s ‘public’ spaces: **mobility** and **occupancy permanence**.



MOTOR (Motorized)

Motorized vendors are not particularly common in Jakarta, although there are several notable exceptions. Motorized enterprises are obviously able to move at high speed and relocate easily (depending on traffic), but possess low maneuverability since they must adhere to vehicle regulations, therefore their overall **mobility is medium-high and occupancy permanence low**.

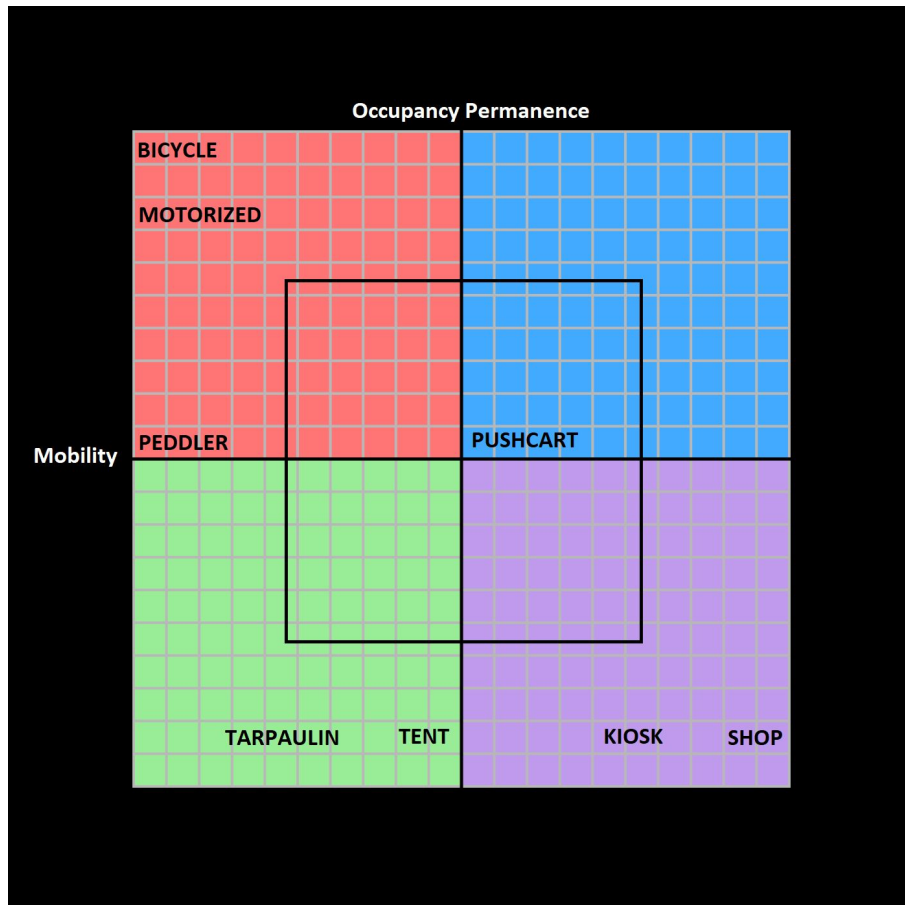
PKL (Pushcart)

Probably the most common vendor strategy in Jakarta involves the use of a mobile pushcart. While highly variable in terms of size, these carts are relatively maneuverable and able to move at walking speed, affording them **medium mobility**. Occupancy permanence is also highly variable and linked to a wide range of factors, but a typical pushcart will operate in several locations, affording them **medium occupancy permanence overall**.





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SEPEDA (Bicycle)

Several common business strategies for informal vendors make use of peddle-powered vehicles, particularly those which target low-density, sedentary customer populations. They possess **high speed and maneuverability**, being able to access sidewalks and other areas, and probably the **lowest occupancy permanence** of all vendor typologies.

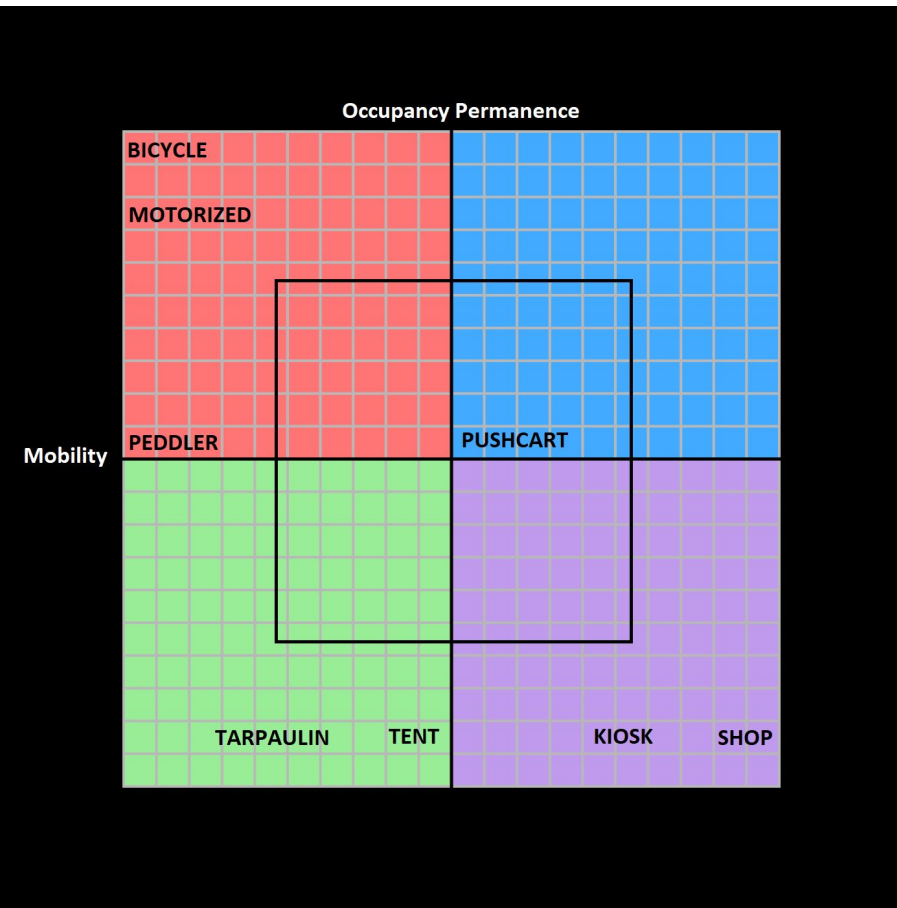
TENDA (Tent)

Pitching simple frame tents is a common strategy for vendors to occupy public, semi-public and unused spaces. While not permanent structures, these enterprises are essentially sedentary given the time and effort taken to set them up, and therefore possess **low mobility**. However, they typically operate for relatively short time periods, and therefore possess **medium occupancy permanence**.





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TERPAL (Tarpaulin)

Displaying products or offering services atop a simple sheet of waterproof material is a relatively inefficient use of space, although it does offer high customer exposure. Therefore, these vendors typically operate in response to seasonal or incidental occurrences for short time periods. They possess **low mobility** and **low-medium occupancy permanence**.

Vendors operating informal enterprises from within permanent structures are the least mobile of all vendor typologies, with **low mobility** and **high occupancy permanence**.



Phase 2

Parameters

Each informal enterprise is then identified by size and commodity



MA – Motor Kue Lekker



MA – Sepeda Fruit



SA – Asongan Crackers



XD – Terpal Clothing



LE – Sepeda crackers



SD – Kios daily goods

INFORMAL ENTERPRISES

Typology

TYPE	+PRODUCT
Asongan	asongan buku, asongan koran berita, asongan rokok
Sepeda	starling, sepeda tukang roti, sepeda yakult
Motor	Motor buah, motor si'omay
PKL	PKL makan, PKL Bakso, PKL minuman, PKL peralatan konstruksi
Kios	kios pulsa, kios rokok
Warung	Warung makan, warung warkop, warung eceran
Tenda	Tenda makanan, tenda minuman, tenda pakaian
Terpal	Terpal pakaian, terpal mainan, terpal gadget, terpal aksesoris

Size / Commodity

SIZE	COMMODITY
S small < 1m2	A Food
M medium 1-1.5m2	B Drink
L large 1.5-2m2	C Food and Drink
X extra large 2m2+	D Product/Retail
	E Service

Phase 2

Parameters

Pedestrians were differentiated by age and gender, then allocated a code corresponding to their current activities



PEDESTRIANS



Profile

GENDER	
M	Male
F	Female
AGE	
C	Children (Under Productive Age <18yo)
A	Adult (Productive Age 18-50yo)
E	Elderly (Above Productive Age >50yo)

Posture / Gesture

POSTURE		ACTIVITY	
I1 Standing	W1 Walking similar	General Context	P1 Being
I2 Leaning	W2 Walking opposite		P2 Device
I3 Squatting	W3 Walking crossing		P3 Consuming
Y1 Lying on furniture	R1 Running similar		P4 Working
Y2 Lying on ground	R2 Running opposite	Extrovert	G1 Chatting/Socializing
Z1 Sitting formal fixed	T1 Using transportation similar		G2 Disruptive
Z2 Sitting formal movable	T2 Using transportation opposite		Commercial Context
Z3 Sitting informal		K2 Prepping	
V in/on vehicle		K3 Participating	
		Socio-Cultural Context	Q1 Recreation/Playing
			Q2 Performance
			Q3 Religious
		***	O *other

Phase 2

Parameters



Buildings were differentiated by primary function, and allocated codes based on size and accessibility



(T) TOKO [SHOPS]
Commercial, semi-public spaces, open access

(T1) - [Minimarket]
(T2) - [Boutique]



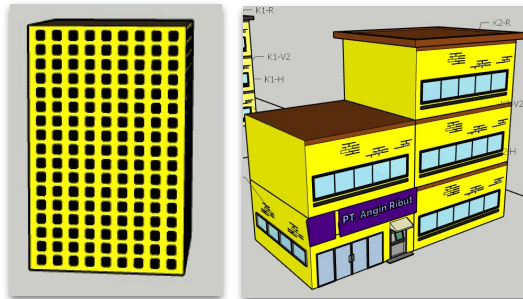
(C) Cafe [Cafes/Restaurants]

Commercial, social spaces, open access, image conscious

(K) KANTOR [OFFICE]

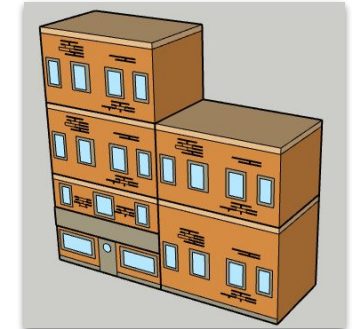
Commercial, private space, secure access, large labour population

(K1) - [Bank]
(K2) - [Office]



(G) GUDANG [industry / warehousing]

Commercial, functional space, labour population, restricted access

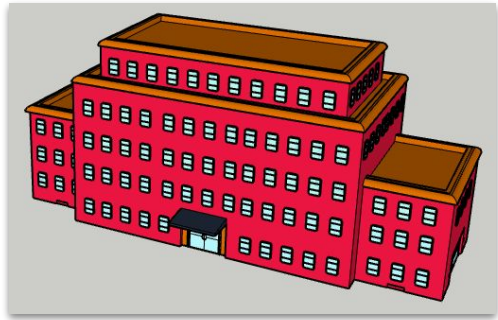


Phase 2

Parameters

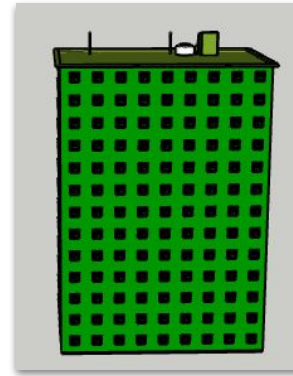


Buildings were differentiated by primary function, and allocated codes based on size and accessibility



(H) HOTEL

Commercial, semi-public, access monitored, image conscious



(P) PEMERINTAH (GOVT.)

Public institution, high-level security, large working population, image conscious

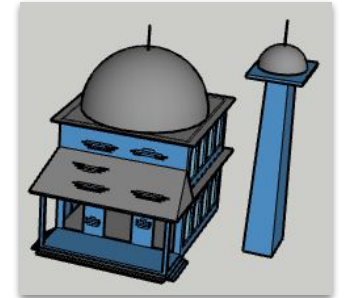
(R) RUMAH [HOUSE]

Private space, exclusive access, variable preferences



(I) IBADAH [RELIGIOUS]

Communal space, non commercial, open, public access



Phase 2

Parameters



GENDER		POSTURE (Stationary)		POSTURE (Moving)		GESTURE		TYPOLOGY		SIZE		COMMODITY	
M	Male	I1	Standing	W1	Walking similar	Introvert	P1	Being	Asongan	S	small	A	Food
F	Female	I2	Leaning	W2	Walking opposite		P2	Device	Sepeda	M	medium	B	Drink
AGE		I3	Squatting	W3	Walking crossing		P3	Consuming	Motor	L	large 1.5-2m2	C	Food and Drink
C	Child (< 18yo)	Y1	Lying on furniture	R1	Running similar		P4	Working	PKL	X	extra large 2m2+	D	Product/Retail
A	Adult (18-50yo)	Y2	Lying on ground	R2	Running opposite	Extrovert	G1	Chatting/ Socializing	Kios			E	Service
E	Elderly (>50yo)	Z1	Sitting formal fixed	T1	Using transportation similar		G2	Disruptive	Warung				
		Z2	Sitting formal movable			Commercial	K1	Providing/ Selling	Tenda				
		Z3	Sitting informal	T2	Using transportation opposite		K2	Prepping	Terpal				
		V	in/on vehicle	K3			Participating						
						Socio-Cultural	Q1	Recreation					
							Q2	Performance					
								Q3	Religious				
								** O	*other				

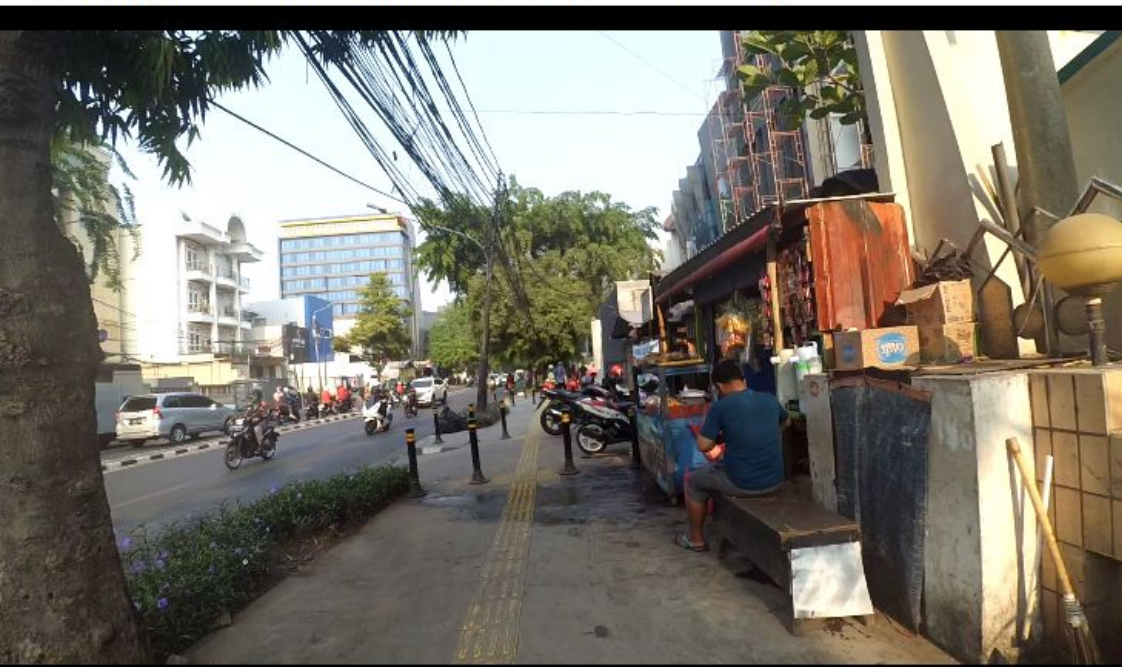


February – May 2020

28+ video analysts

MAPPING

Media Playback Audio Video Subtitle Tools View Help

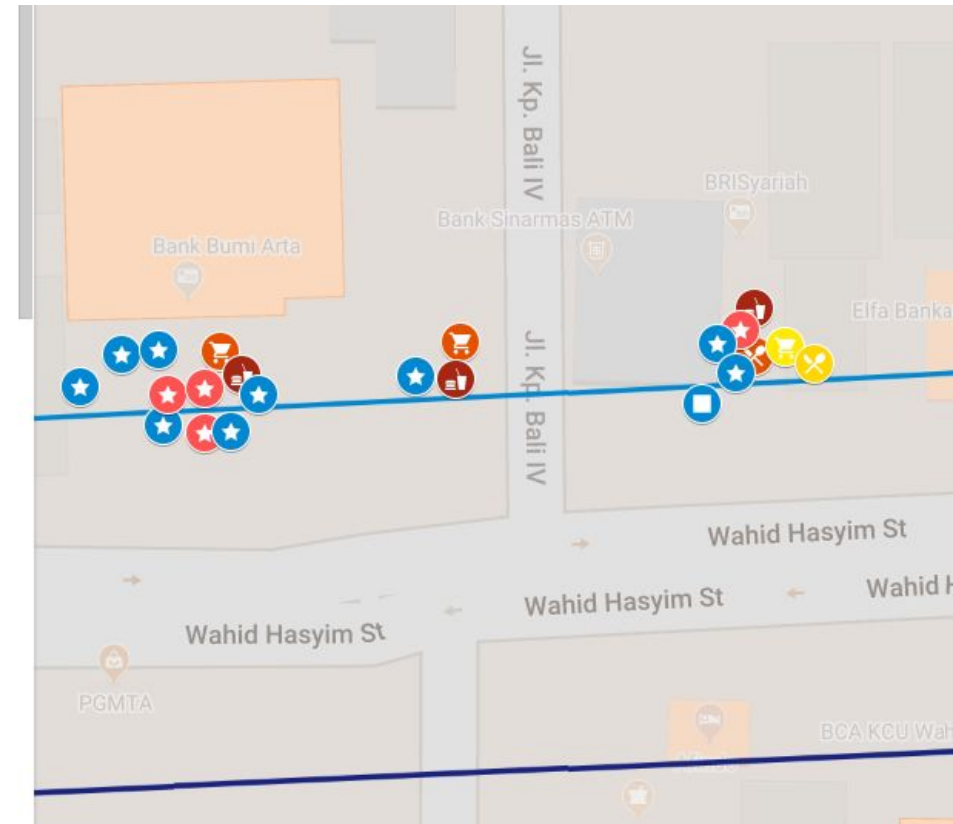


14:05 21:55



Individual styles

- 📍 UKR
- 📍 UKR - Sedang (M)
- 📍 Besar (L)
- 📍 Lebih Besar (XL)
- 📍 UKR - Kecil (S)
- 📍 KOM
- 📍 Makan Saja (A)
- 📍 Minuman Saja (B)
- 📍 Makanan dan Minuman (C)
- 📍 Produk Eceran (D)
- 📍 Jasa (E)
- 📍 RUTE 4
- 📍 RUTE 3
- 📍 RUTE 1
- 📍 RUTE 2
- 📍 GENDER
- 📍 MALE // M
- 📍 FEMALE // F
- 📍 AGE
- 📍 CHILDREN // C

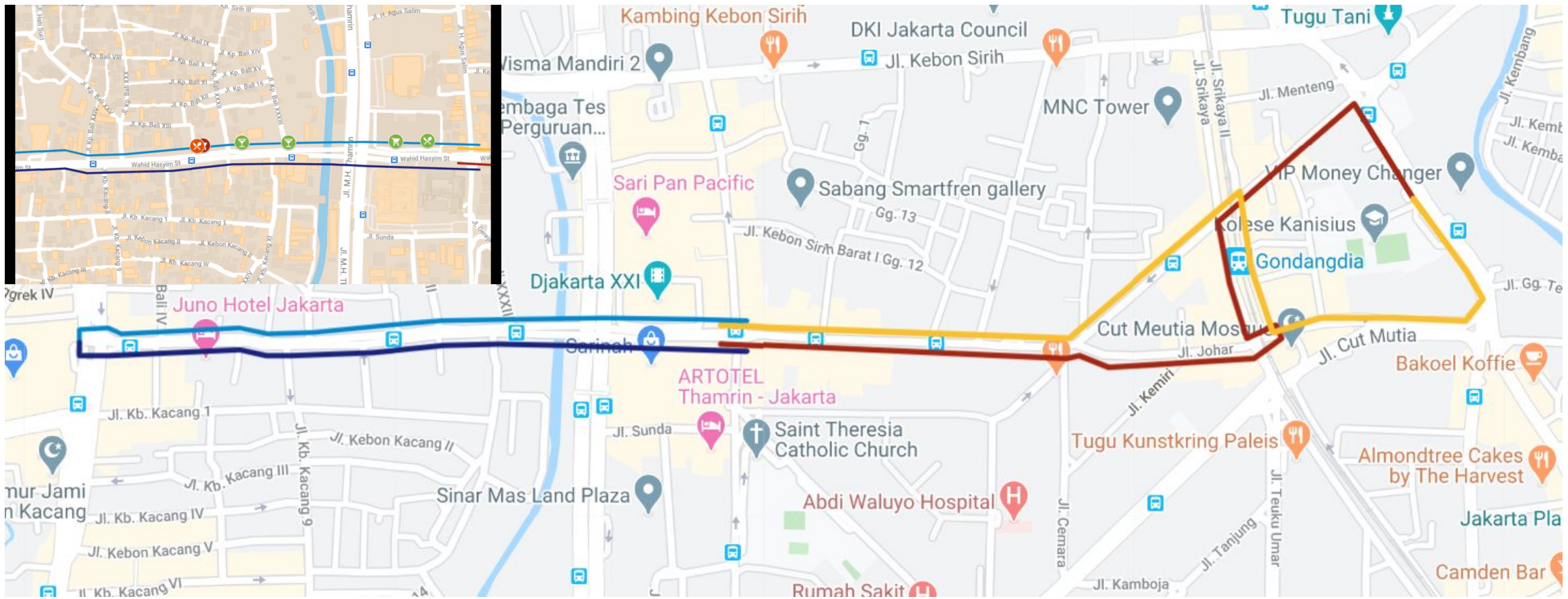


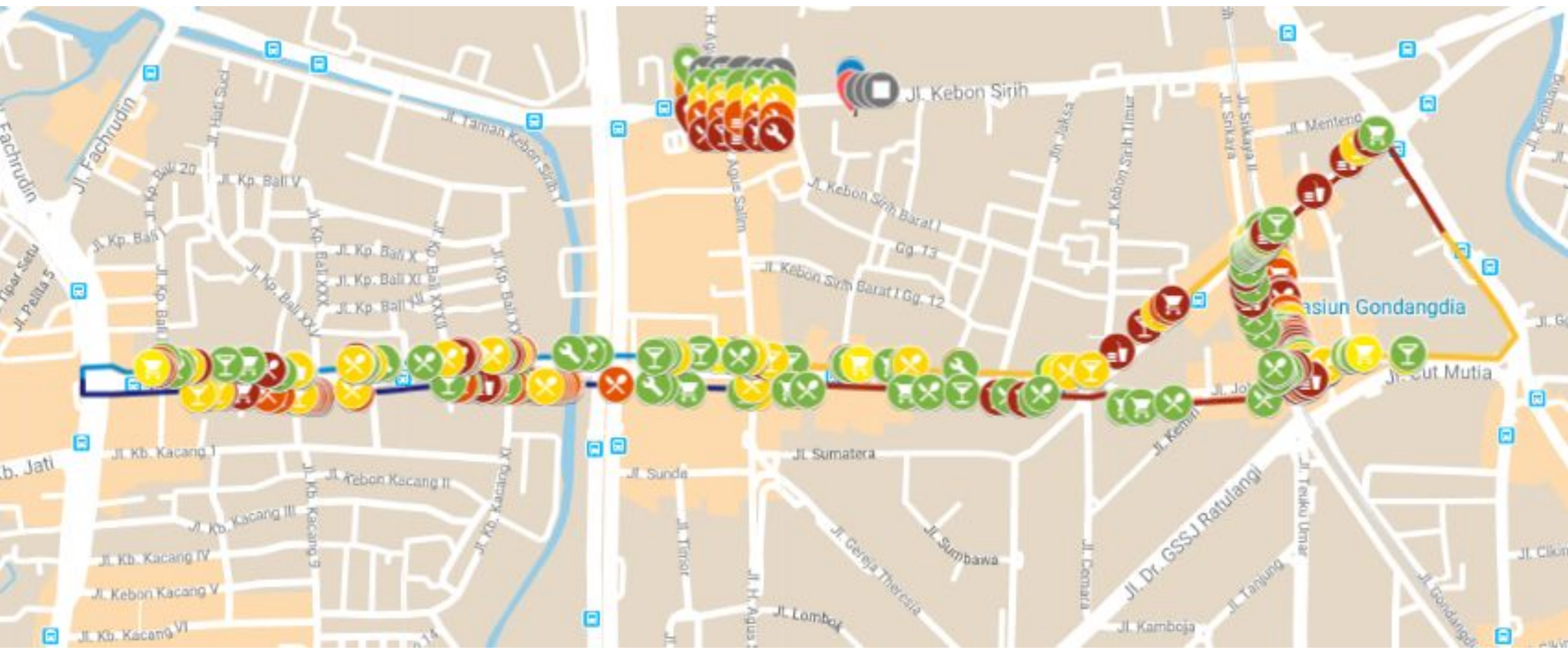
Phase 2

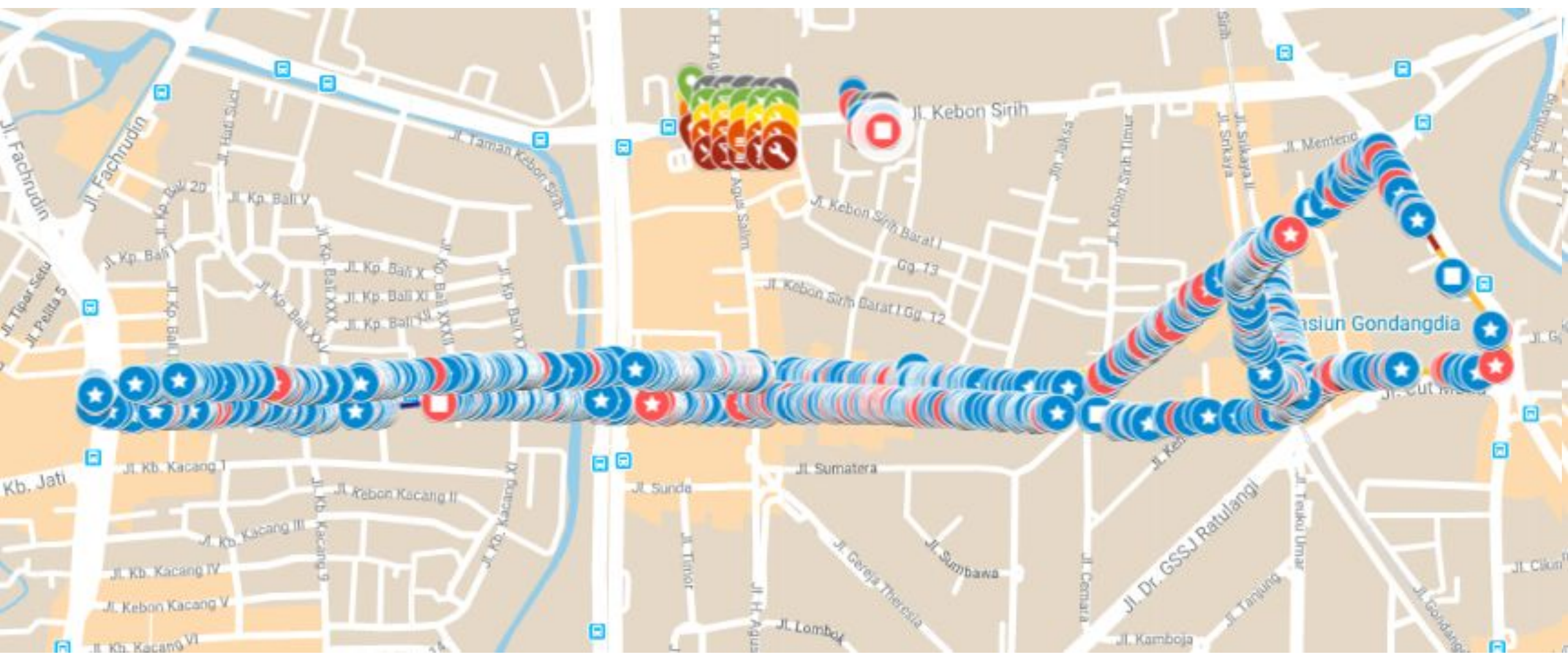
Parameters



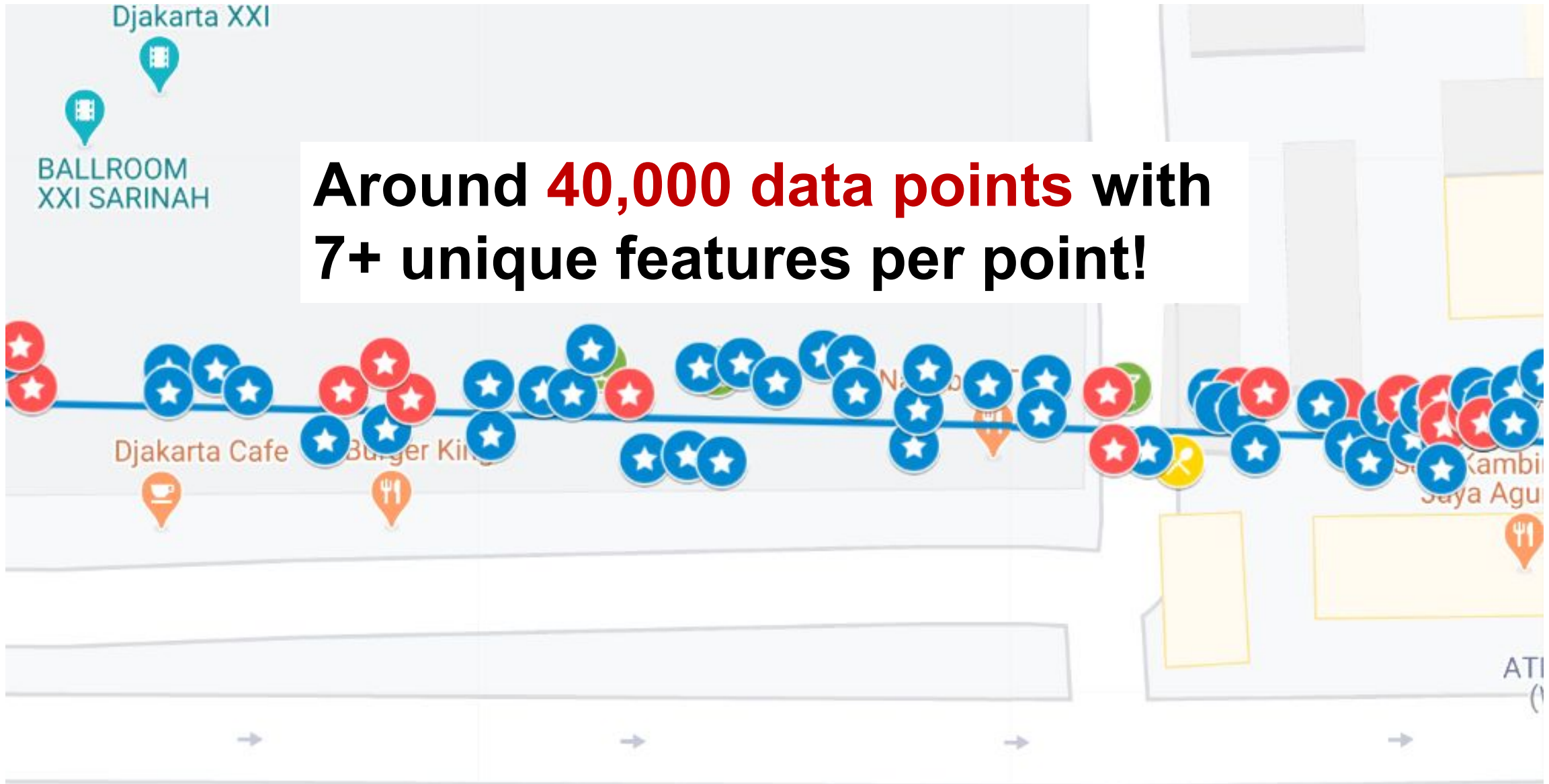
Google MyMaps was used as a free-to-access, collaborative platform for mapping the video parameters, colour coded according to their attributes.



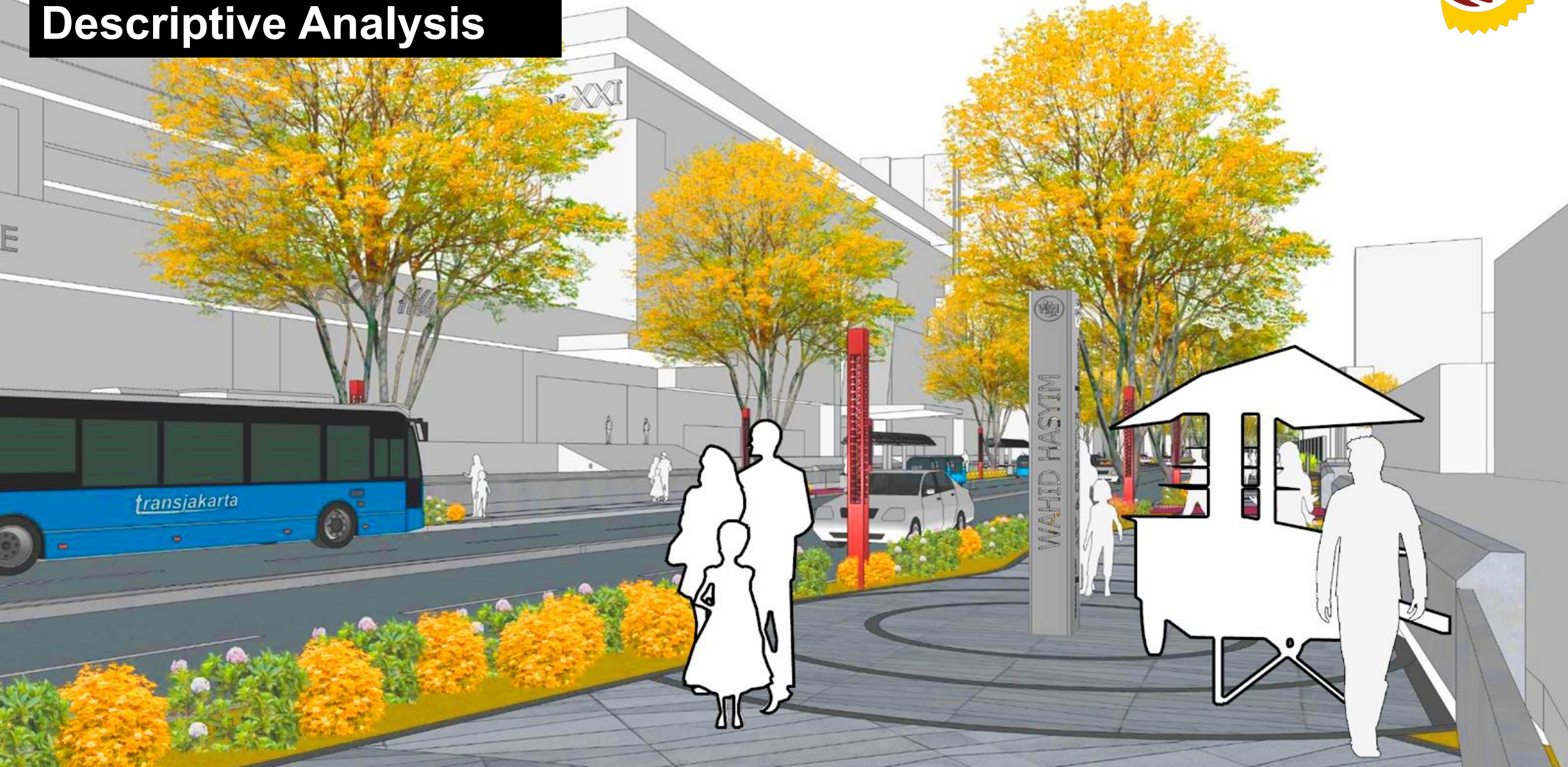




Around **40,000 data points** with **7+ unique features** per point!



PHASE 3: Descriptive Analysis

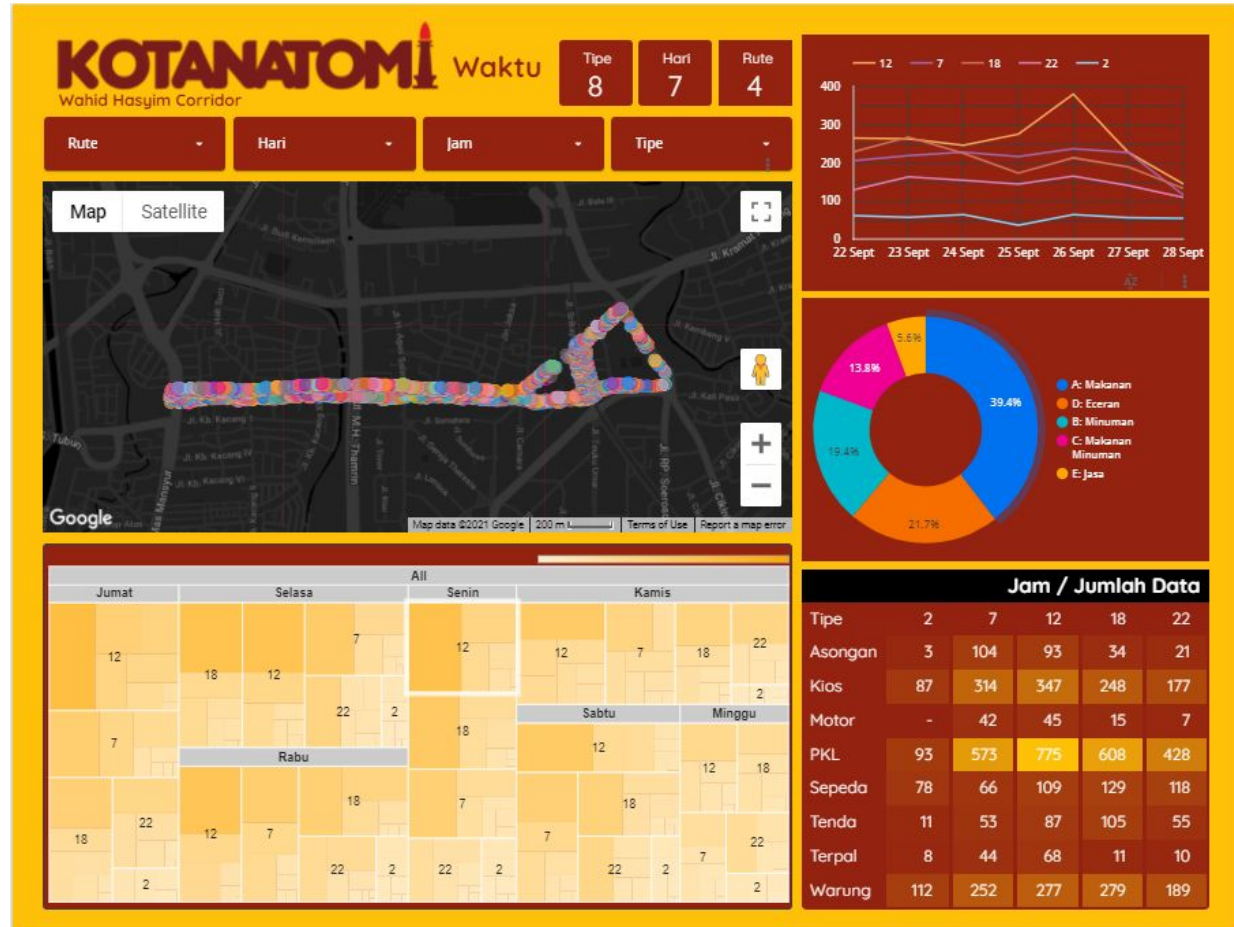
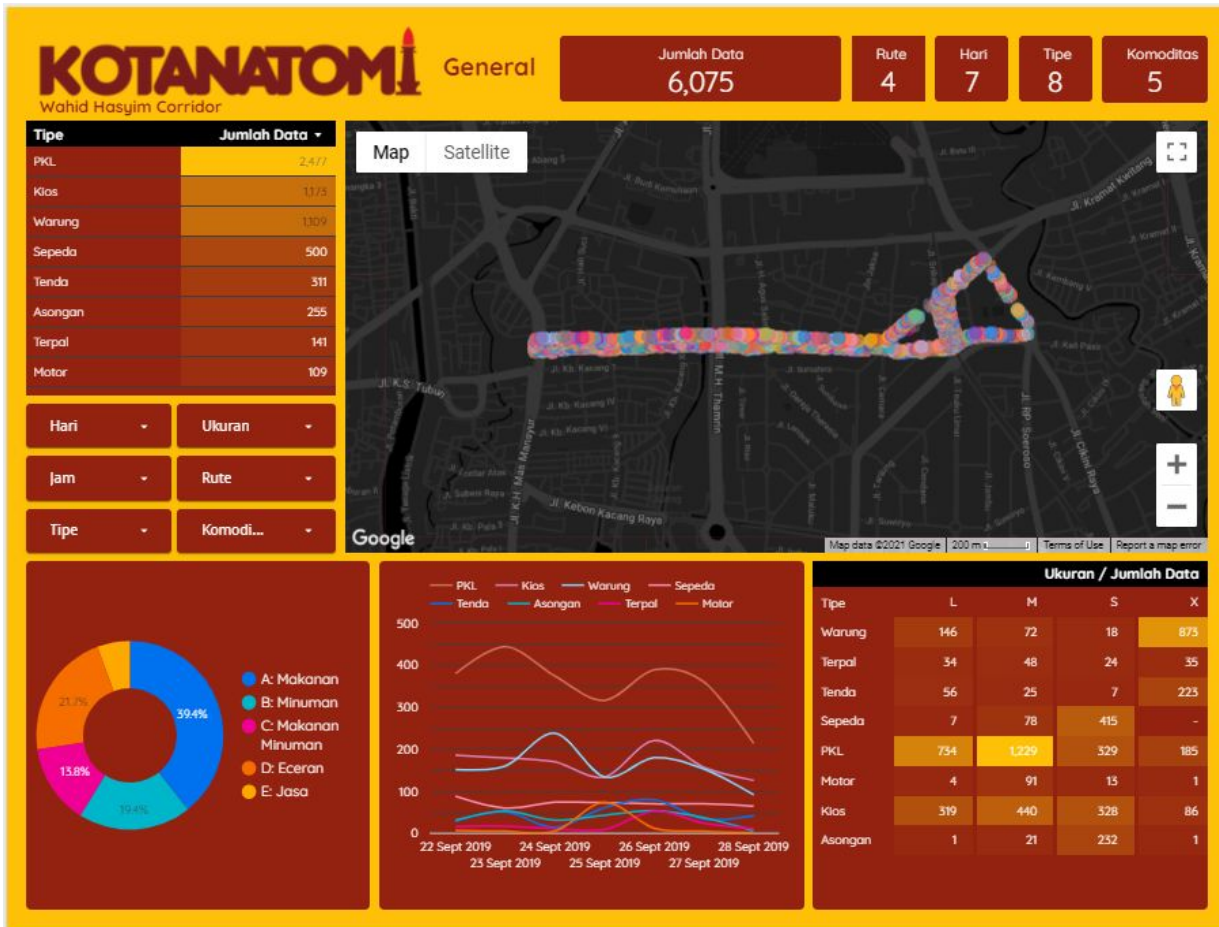


Phase 3

Descriptive Analysis



In order to provide a theoretical and investigative framework for ongoing research based on the KOTANATOMI methodology, an **online data platform** was created to provide preliminary insights and highlight key themes regarding informal phenomena.









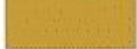



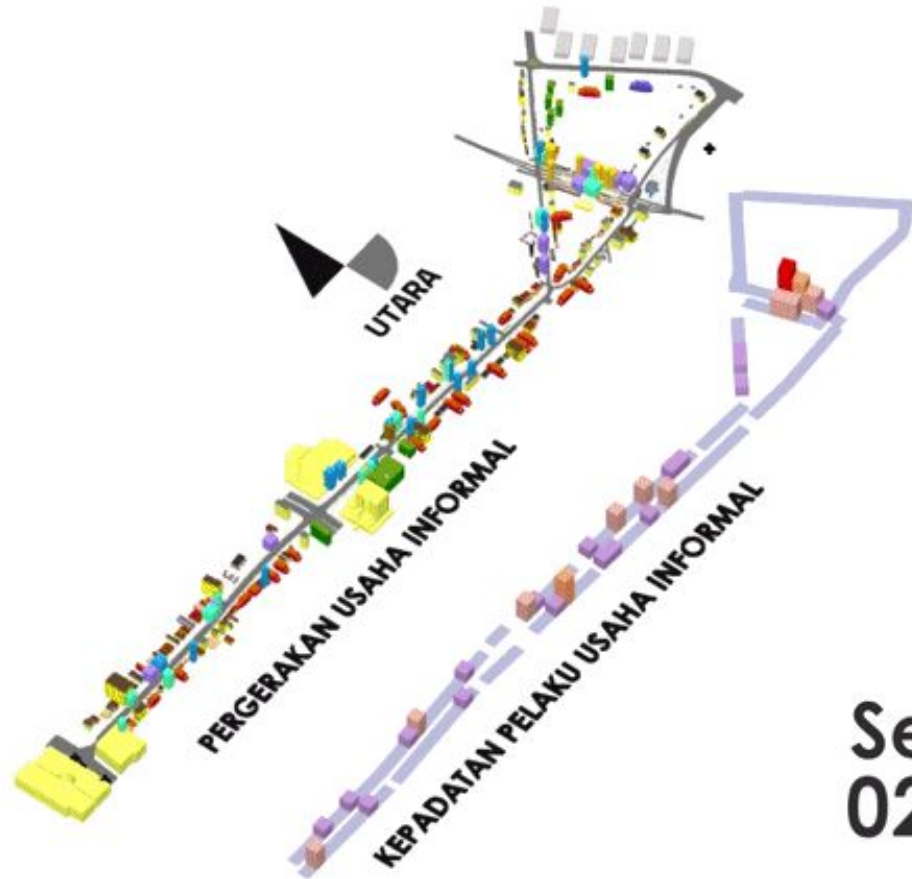
Phase 3

Descriptive Analysis



The **dynamic nature of informal phenomena** in central Jakarta is clearly visualized, highlighting the need for new approaches to planning, regulation and design able to contend with this reality. Jakarta's shortage of space demands a **flexible approach**.

	MAKANAN  S M L XL
	MINUMAN  S M L XL
	MAKANAN DAN MINUMAN  S M L XL
	ECERAN  S M L XL
	JASA  S M L XL



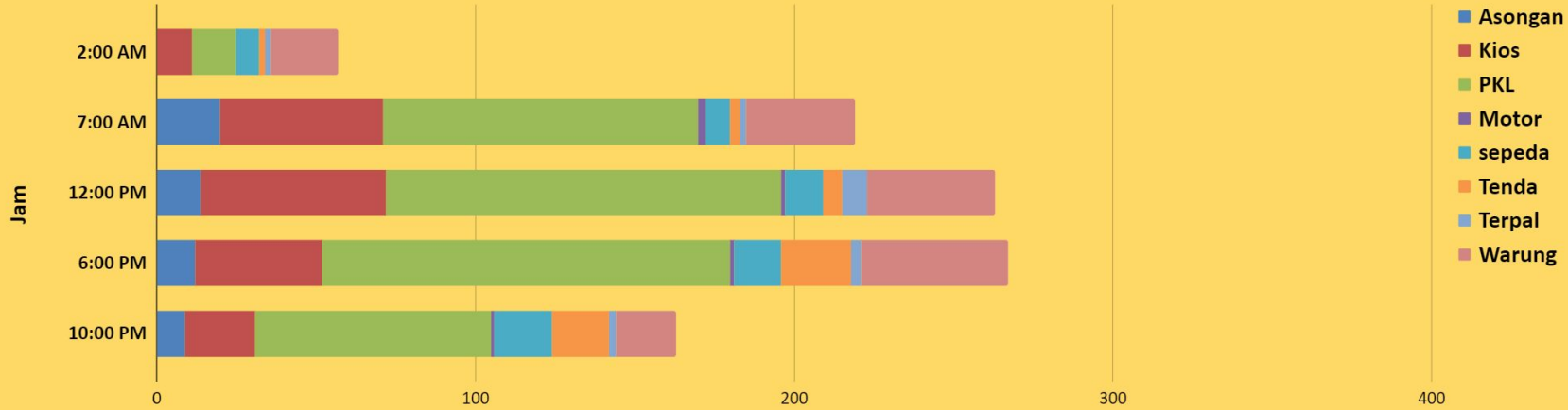
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Phase 3

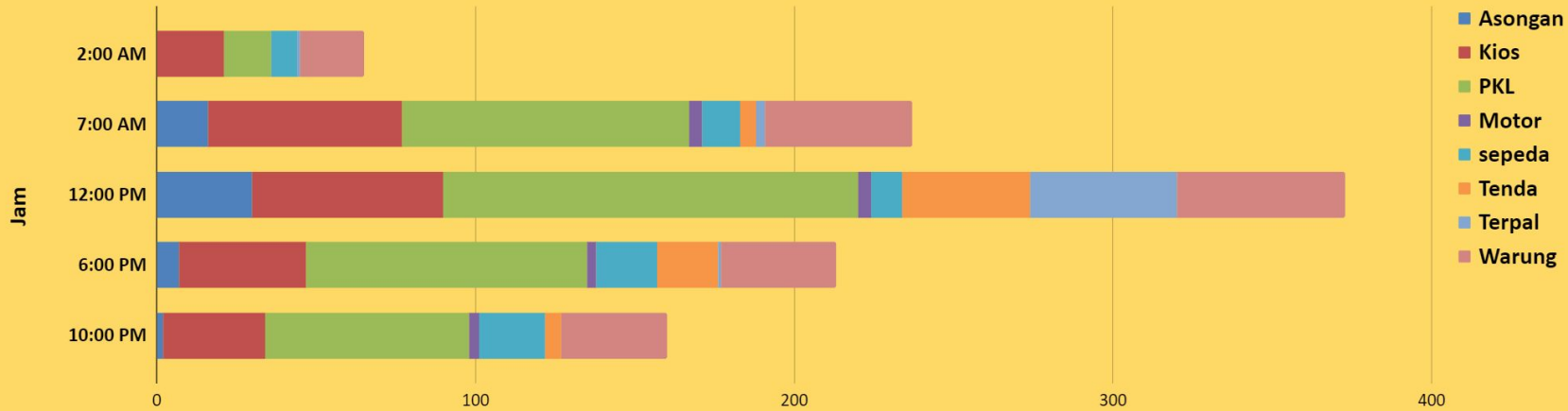
Descriptive Analysis



Ekonomi Informal Wahid Hasyim [Selasa]

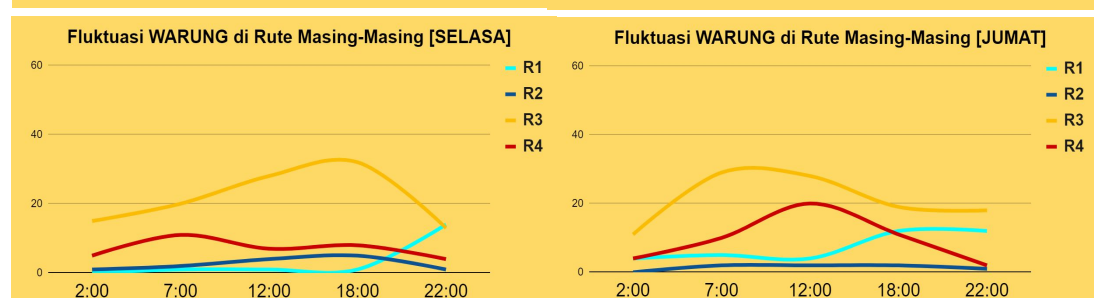
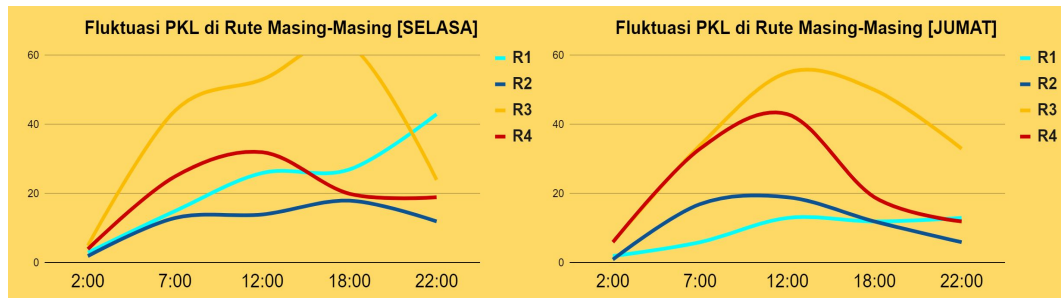
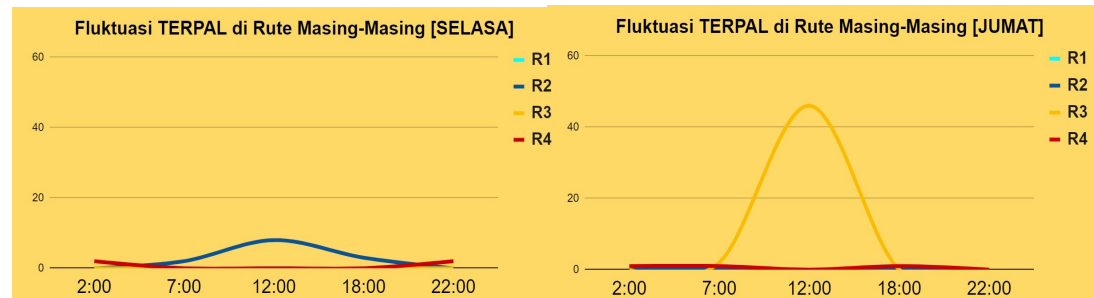
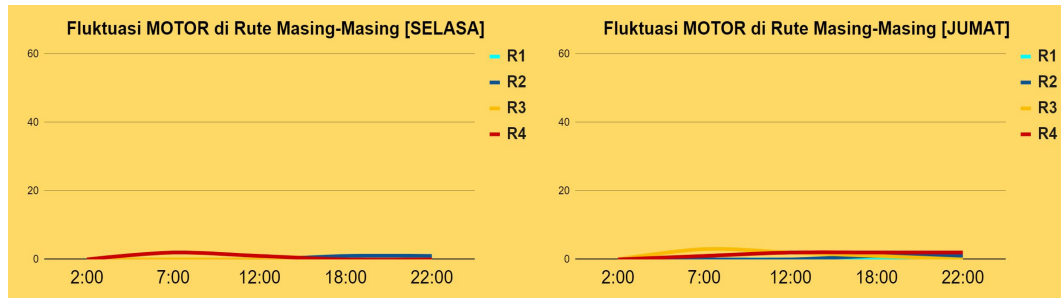
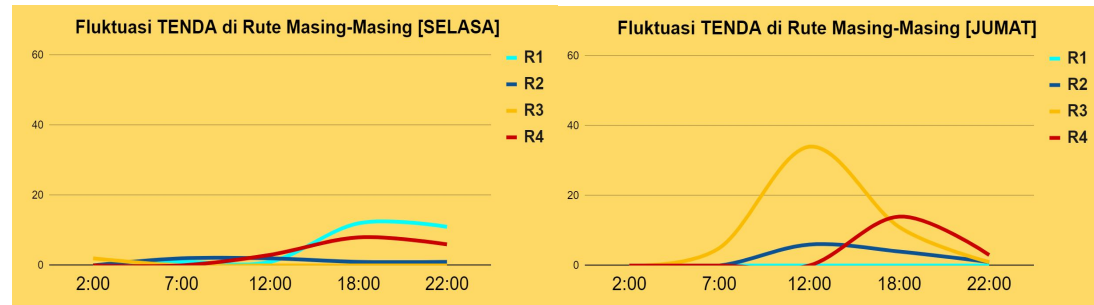
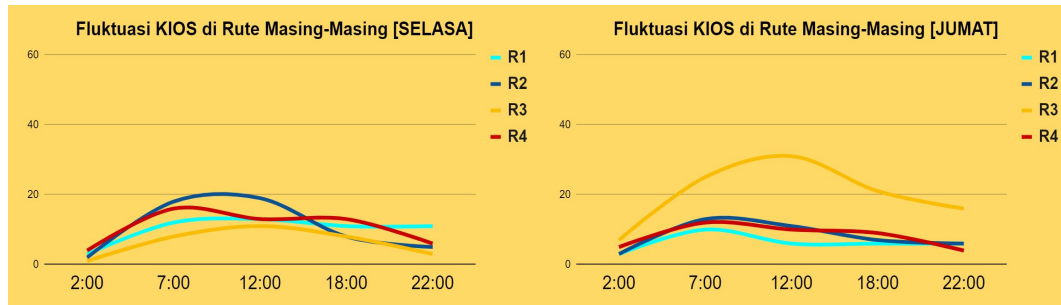
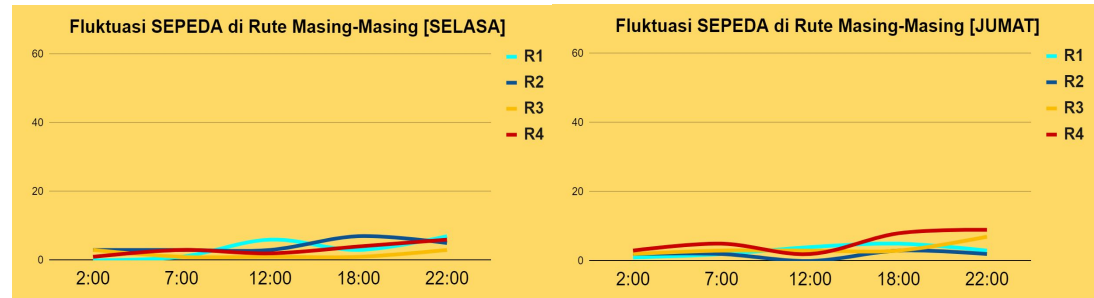
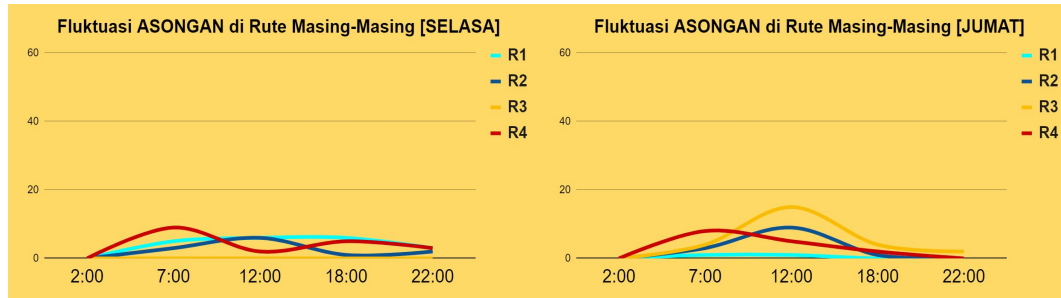


Ekonomi Informal Wahid Hasyim [Jumat]



Phase 3

Descriptive Analysis

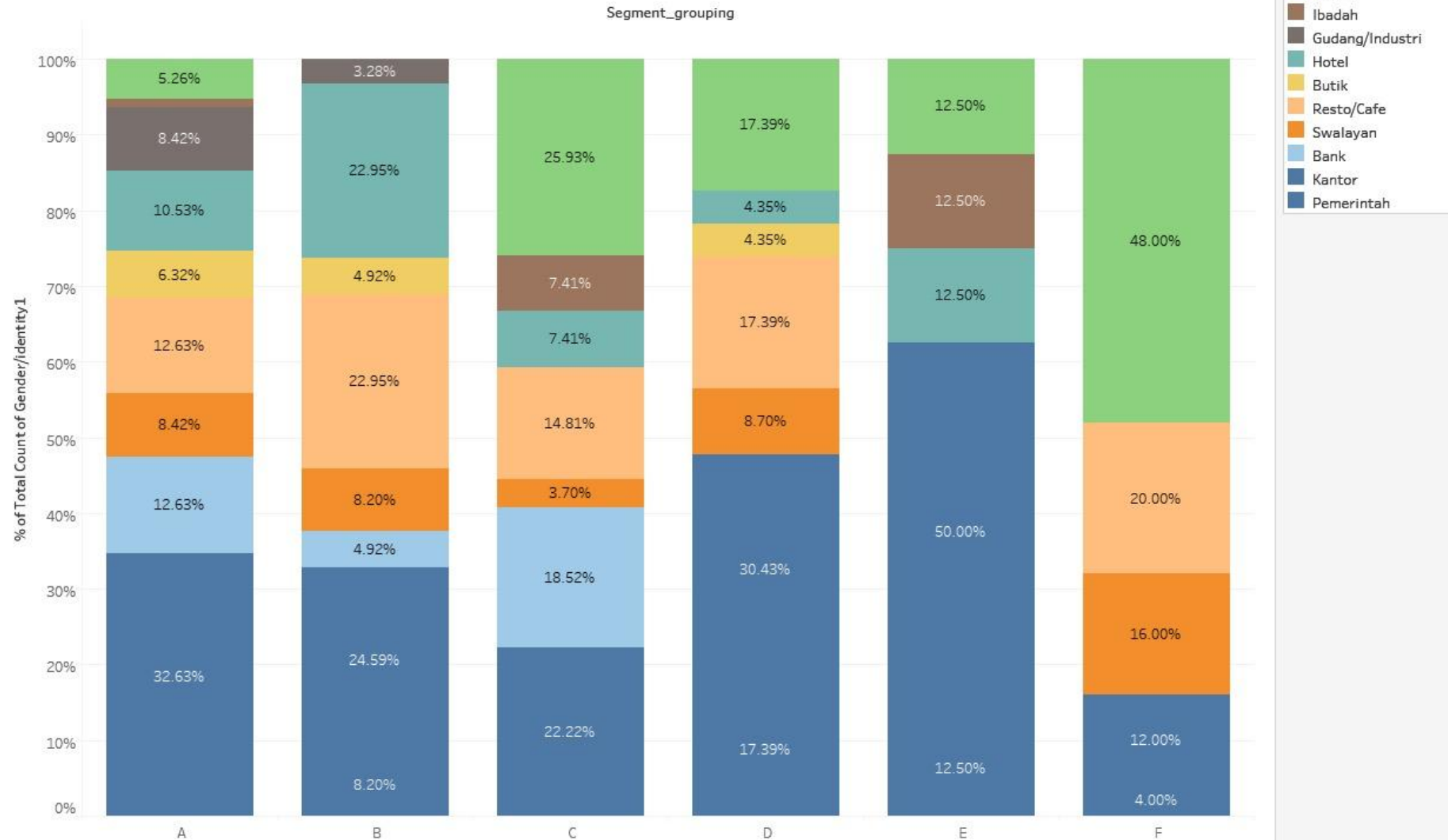


Phase 3

Statistical Analysis

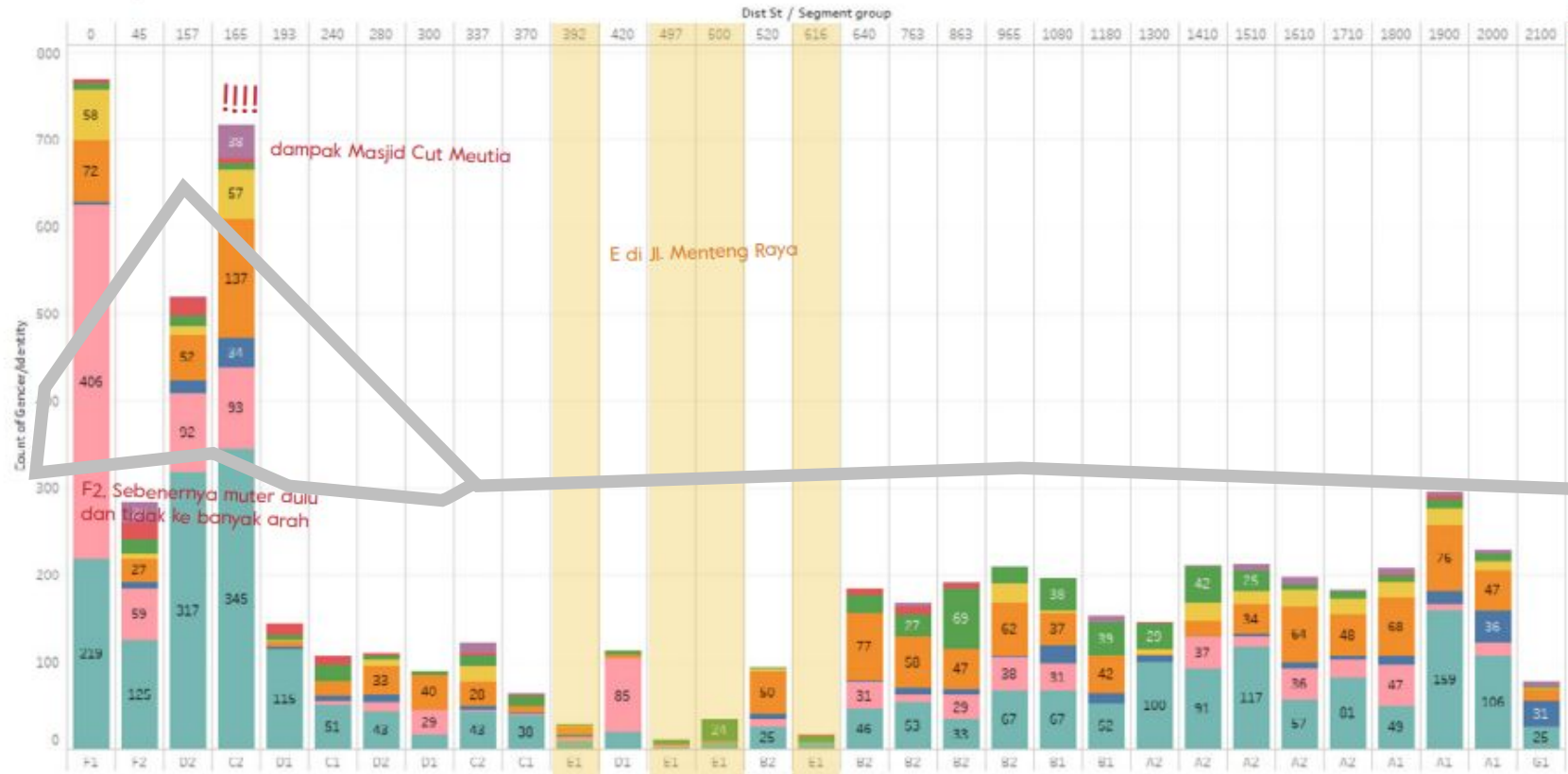


Sheet 17 (2)

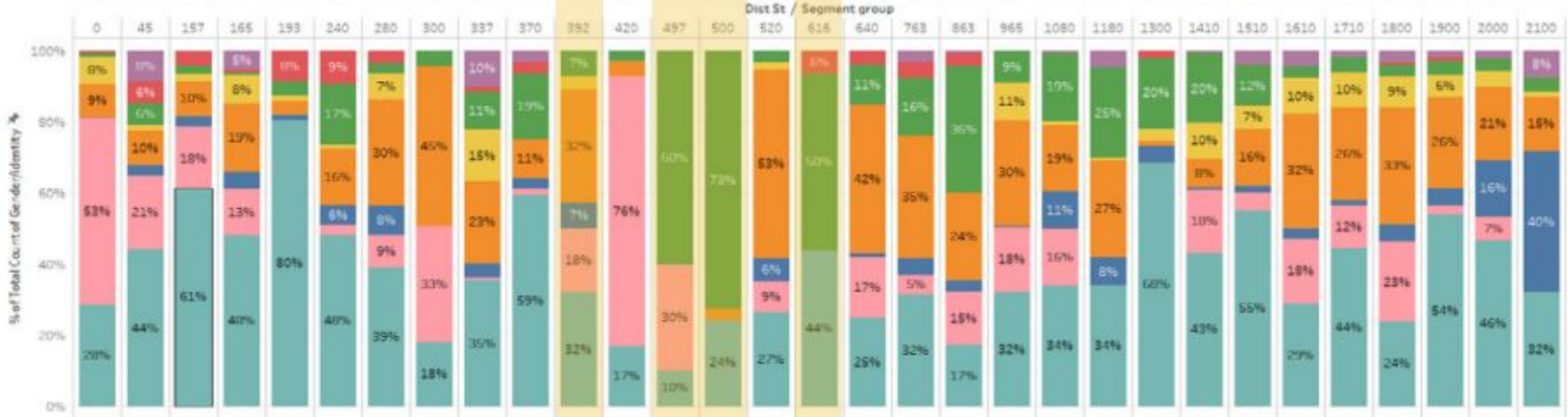
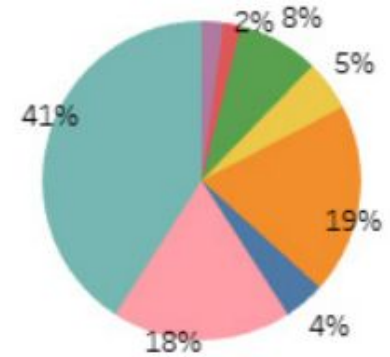


Phase 3

Statistical Analysis



Bedasarkan dari jarak dari stasiun Gondangdia





Our 2021 internship program invited a team of statisticians, data scientists and urban planners to test the potential of the KOTANATOMI data for drawing conclusions about the nature of informality in public spaces.

The first analysis confirmed **significant differences** in the level and composition of informal economic activity over time, **within and between 24-hour cycles**. It also confirmed that informal enterprises **increase in response to the number of pedestrians** in a given area, particularly medium mobility and occupancy permanence typologies.

The second analysis indicated the **significant role of the informal economy** in **place-making**, identifying a positive correlation between non-permanent enterprises and the level of **social and consumptive behaviour**, particularly in times and places which would otherwise likely be largely inactive.

The third analysis found that while **low-permanence typologies increase crowding** in streetside areas, the number of informal enterprises at any given time is not the only factor, **nor the most significant factor**, determining pedestrian density.

PHASE 4: Promotion and Public Participation



Phase 4

The KOTANATOMI Archive



The intention of the KOTANATOMI project is to **provide a platform** for wider engagement with contemporary informality, by academics, state institutions, urban planners and members of the public.

Promoting the methodology itself, as well as the preliminary findings, is crucial for expanding the scope and depth of understanding in Jakarta and beyond.

The entire KOTANATOMI dataset, including videos, maps and datapoint excel sheets **is available for free on our website**, alongside a **manual** for how to use the data, a series of **reports detailing the research methodology**, and the full version of our **preliminary analyses** up until this point.

Longitude	Latitude	ID	Day	Time	Form	Information	Coor_X	Coor_Y	Route	Inside/out	segment_jala	Category	Gender/identity	Age/size/lapangan	Posture/commodity/Akses
106.8325645	-6.186356596	21	Fri	7	P		1846.392	-770.9943383	R1	TRUE			Female	Adult (18-50 yo)	Leaning
		38	Fri	12	P		2667.278	-761.726	R1	FALSE			Female	Adult (18-50 yo)	
		40	Fri	12	P		2381.355	-752.2700441	R1	TRUE			Female	Adult (18-50 yo)	
		57	Fri	18	P		2599.038	-807.523	R2	TRUE			Female	Adult (18-50 yo)	
		66	Fri	18	P		2873.55	-806.944	R4	TRUE			Female	Adult (18-50 yo)	
		68	Fri	22	P		2654.635	-810.05	R2	TRUE			Female	Adult (18-50 yo)	
		69	Fri	22	P		2609.215	-824.165	R2	TRUE			Female	Adult (18-50 yo)	
		74	Fri	22	P		2354.079	-760	R1	FALSE			Female	Adult (18-50 yo)	
		116	Fri	18	P		2520.367	-802.547	R2	TRUE			Female	Children (< 18 yo)	
		117	Fri	18	P		2520.521	-804.328	R2	TRUE			Female	Adult (18-50 yo)	
		125	Fri	2	P		2610.25	-806.009	R2	TRUE			Female	Adult (18-50 yo)	
		153	Fri	2	P		3602.473	-672.258	R3	FALSE			Female	Adult (18-50 yo)	
		154	Fri	2	P		3607.49	-686.585	R3	FALSE			Female	Adult (18-50 yo)	
		158	Fri	2	P		3614.873	-712.623	R3	FALSE			Female	Adult (18-50 yo)	
		162	Fri	7	P		2618.084	-807.623	R2	TRUE			Female	Adult (18-50 yo)	
		164	Fri	7	P		2441.068	-810.517	R2	TRUE			Female	Children (< 18 yo)	
		172	Fri	7	P		1972.178	-813.946	R2	TRUE			Female	Children (< 18 yo)	
		179	Fri	7	P		1864.096	-817.976	R2	TRUE			Female	Adult (18-50 yo)	
		184	Fri	7	P		1756.685	-826.714	R2	TRUE			Female	Adult (18-50 yo)	
		207	Fri	7	P		3364.039	-834.017	R4	TRUE			Female	Adult (18-50 yo)	
		213	Fri	7	P	F.C.Z2.K1	3583.053	-707.613	R4	FALSE		People	Female	Children (< 18 yo)	

Phase 4

Golongan Kartun



We understand that the full potential of the KOTANATOMI project is beyond limitations of our small (but brilliant) team, and we believe strongly that everyone has a role to play in understanding how their city functions as a living system.

That's why we always try to present our findings in an easily digestible format, and try to show people that in a city like Jakarta... **urbanism is for everyone!**



KOTANATOMI Going Forward



1. Getting deeper into the data, investigating specific relationships
2. Exploring the evolution of informality in the post-pandemic era
3. Replicating the study, expanding the database, enabling comparisons
4. Predictive modelling, reverse engineering informal spaces
5. Collaboration with academic, state and community-based institutions
6. Policy recommendations and advice for designers
7. and more!



Thanks for your time!

rameramejakarta.org/kotananatomi

