

Bianchi Dy



Hi, I'm Bianchi.

I research, tell stories, code,
sing, dance, design and
make art.



While I started out in environmental engineering, I've found enjoyable, exciting parallels in using code to solve problems. Nothing excites me more than analysing either big data sets or rich qualitative ones, as well as using data visualisation to explore questions, create stories and sometimes, make art!

My favorites are the projects where I or the team have to produce the data ourselves. It's a reminder for me to always consider the context and intent behind a dataset. No dataset is truly objective, and every data visualization has an agenda behind it.

One theme I always come back to is simplifying complex ideas and data sets into visuals. I aim to bridge the gap between research and the public – and nowhere else do I see that being necessary than in communicating the findings of urban science. But it's not just planners who need to be data-literate – citizens should have these tools at hand too, which is why I'm committed to making my work accessible to a more general audience using accessibility, design, and storytelling.

How would you describe your time?

What does your safe space look like?

Encourage more for self-acceptance

Opinions of other ppl are ops of yourself

I don't have to be afraid of navigating alone

Everyone has secrets & it

Considers

Would you like to offer this and pleasure?

Old Guards, Gatekeeping, Limited Belief

03

Women's access to leisure through mobility in South and Southeast Asia

✦

06

A new world of airports:
forecasting aviation networks
in 2050




10

What's the state of Southeast Asian Sci-fi?



13

Text analytics for understanding citizen feedback



16
Figure drawing

★ Art and design

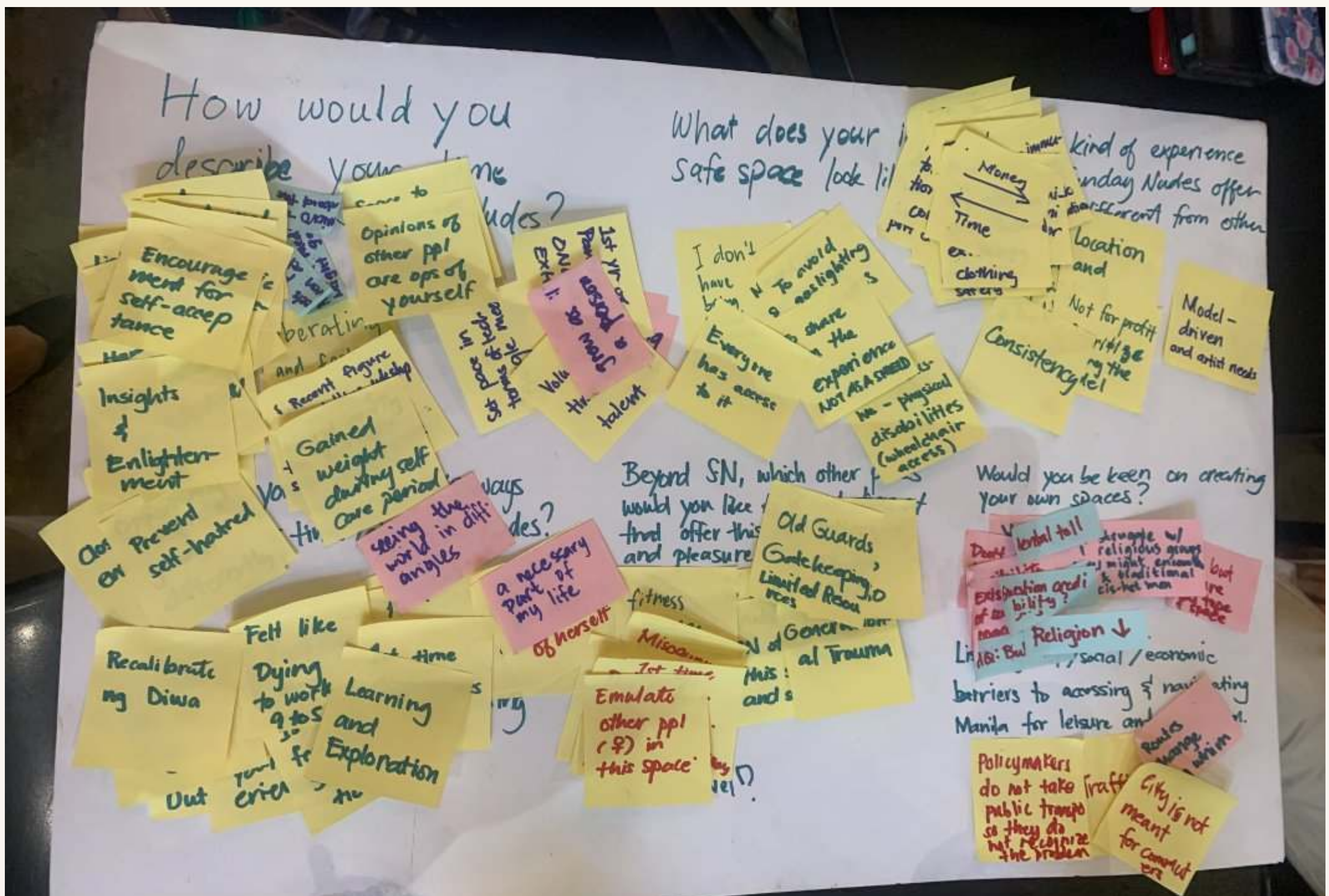
★ Research

★ Data storytelling

✦ Programming and data analytics

★ Active

★ A Woman's World: Creating Spaces for Joy, Leisure, and Resistance in South and Southeast Asia

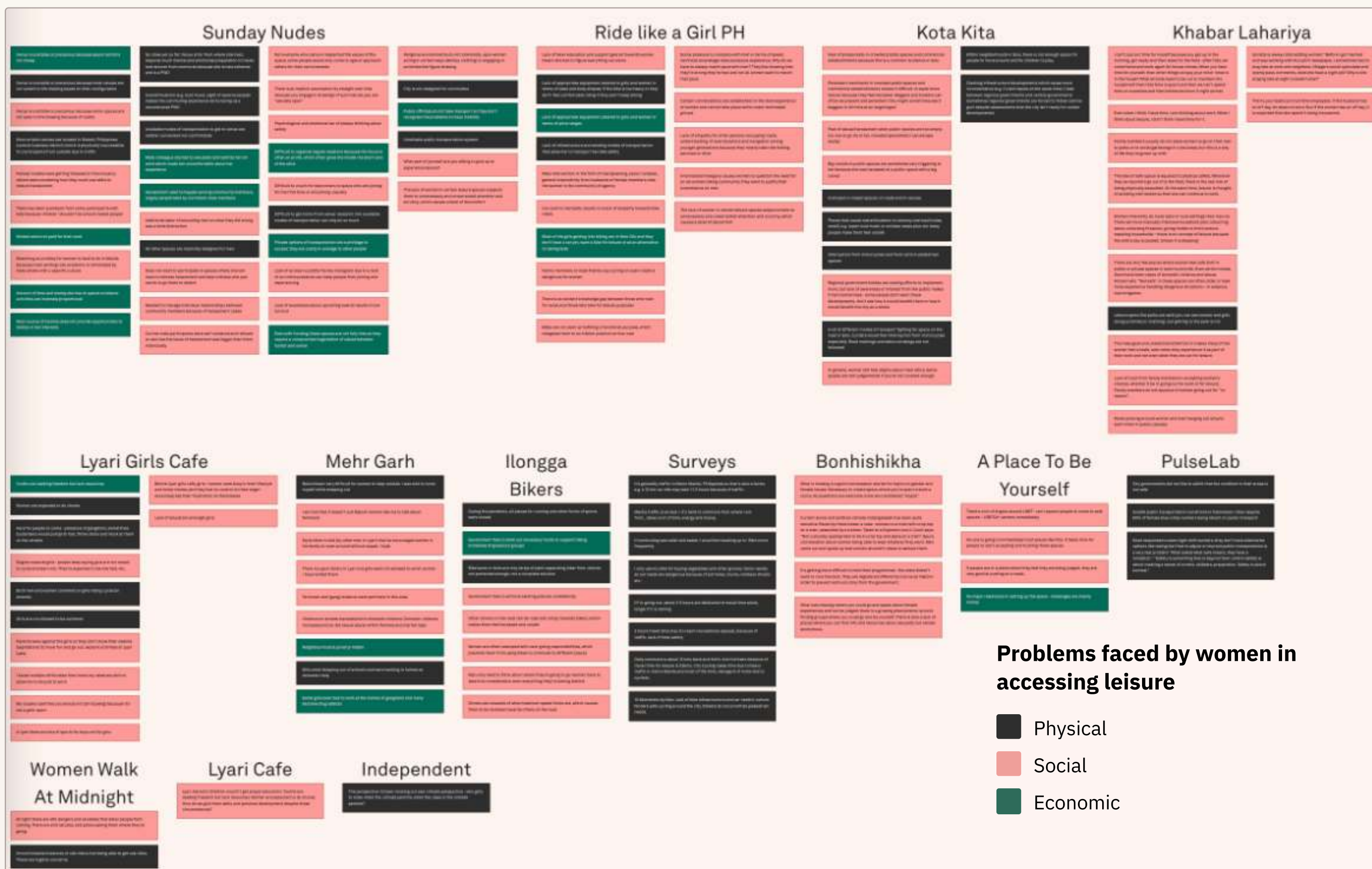


Enhancing women's mobility and safety in cities is a long-standing concern in the ongoing fight for gender equity. Previous research has largely looked at mobility through the lens of work, study or errands, mostly focused on commuter safety in public transportation, and the differences in travel behaviour between women and men. However, women deserve equality in their access to cities beyond simply safety and utility concerns, and current research neglects how women access cities for leisure. Recreation is critical for productivity, creativity and quality of life, and yet is often overlooked.

On behalf of Kontinentalist, I lead an ongoing collaboration with journalist Mariyam Haider and digital social media enterprise Chambal Media. We are investigating the challenges faced by women in accessing, experiencing and creating opportunities for leisure in South and Southeast Asian cities. More importantly, We map the creative initiatives of feminist grassroots groups and safe spaces in taking ownership of their leisure experiences despite having little say in the design of mobility options and the built environment. Based on surveys, interviews, focus group discussions and life-logging, we are creating a data story and social media campaign that celebrates how women and LGBTQ persons in South and Southeast Asia are actively creating a world they can move through with ease.

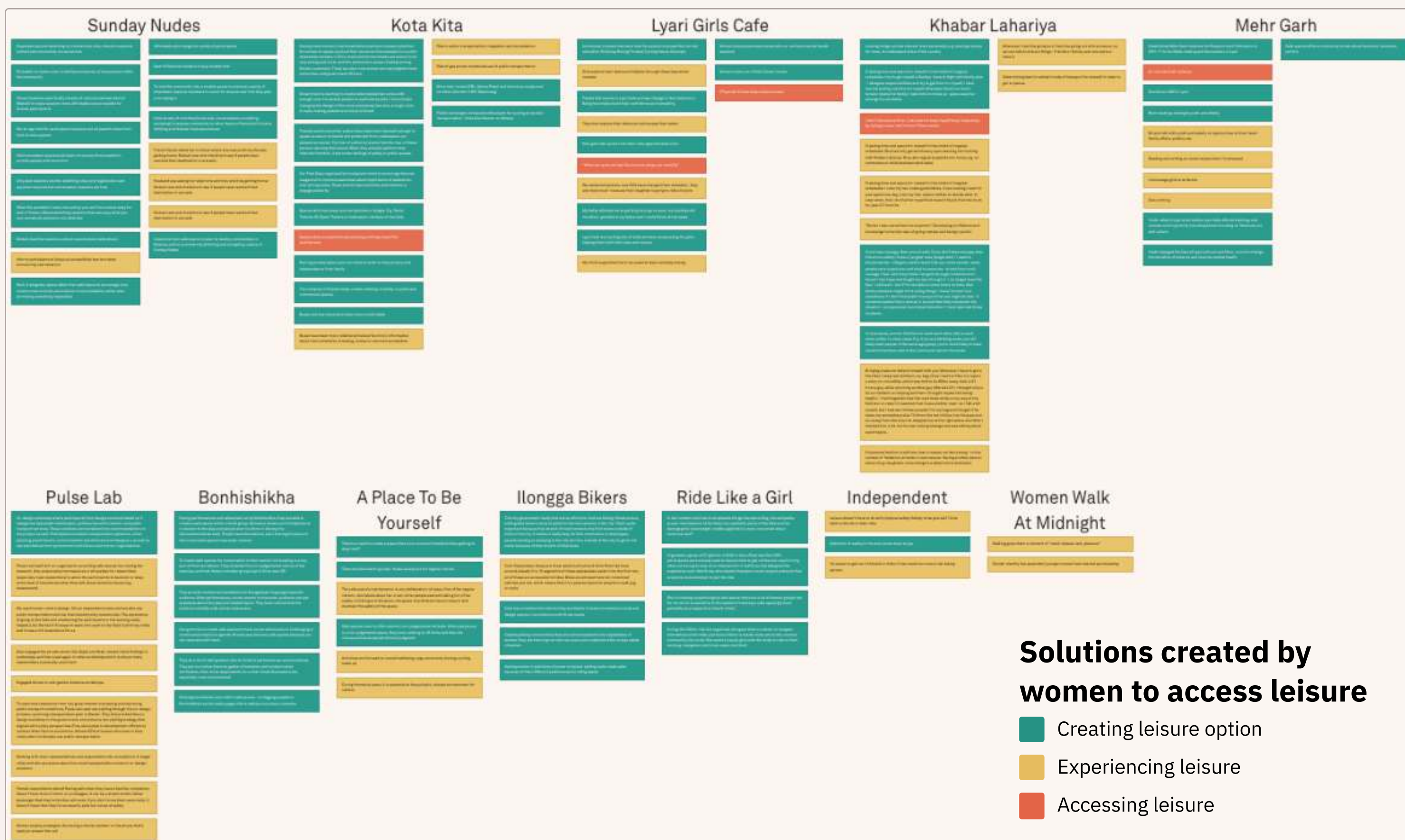


My proposed design for presenting the statements from our respondents. I focused on highlighting patterns in the responses, while also allowing readers to go through each statement in our data story.



Problems faced by women in accessing leisure

- Physical
- Social
- Economic



Solutions created by women to access leisure

- Creating leisure option
- Experiencing leisure
- Accessing leisure





Photo 3 - Safe

Characteristics (function, time): Market/commerce, public, daytime

What makes/would make it unsafe?	What makes/would make it safe?
Too crowded	Balanced crowd. This is especially good and expected in a market setting
	Presence of women merchants. Especially because they're known to be strong and vocal!
Cramped or closed space	Open space and easy access to roads (this means that if anything goes wrong, you can easily run)
Sense overload - noise, smell	Cleanliness and tidiness



Photo 1 - Safe

Characteristics (function, time): Eatery, public, daytime

What makes/would make it unsafe?	What makes/would make it safe?
Excess noise	Less sense overload
Huge crowd or cramped spaces that makes it easy to pickpocket	Not too crowded - less fear of pickpockets
Very empty	Not too empty - the feeling of having friends or people around to turn to.
Persistent or intimidating merchants	Strict regulation or general politeness among people
Night	Daytime, good lighting

Methods & Rundown

Agenda	Facilitation Methods	Tools
What does your ideal safe space look like? (20')	Facilitators will prepare five (5) photos of a public space with different characteristics (printed on a single board) and show the photos to participants.	Red and green sticker dots
Participants share and describe the ideal safe space according to them	Participants will then be asked to identify what they perceive as safe and what is perceived as unsafe using green (safe) and red (unsafe) dots. In the discussion session, we will review the 'votes' and discuss the reasons.	
What are the social barriers that prevent you from accessing and navigating Solo to the fullest? (20')	Facilitators will ask participants to share about: 1) What is their favorite public place in Solo?; 2) What is a place in Solo they always want to go to but have not been to (whatever the reasons)?	Sticky notes Flip chart paper
How about the physical barriers?	The answer will be written in sticky notes by each participants and discussed afterwards with following questions: - What are the barriers (social? physical?) when accessing that favorite space? - What prevents you from going to those places?	
Break (10')		Snack
If the Solo roads were clear and had less congestion, what would navigating Solo feel like? (30')	Facilitators will distribute five (5) copies of a street photo to participants and prompt them to draw/put post-it notes on what could be improved with the following prompt: Be more safe? Be more accessible to others? Be more suited to your needs?	Street photo (3 options) Tracing/transparent paper Permanent marker / Artline
Given a picture of a street in your neighborhood, how would you change it to (maybe they can draw on a picture or put post-it notes on the picture of the street): Be more safe? Be more accessible to others? Be more suited to your needs?	Facilitators will ask participants to discuss the following prompt: - Have you ever participated in or seen campaigns/activities that encourage you to enjoy public space? - What is your advice and hope for the city government to make Solo more accessible and safe for women?	Sticky notes Flip chart paper

Women's leisure and safe spaces - survey

Kontestant and Chantal Media are currently working on a data story that aims to explore women and LGBTQ+ (queer, trans, and gender non-conforming) people's access to safe spaces and leisure in Asian cities.

For the purposes of this story, "leisure" is defined as a way to own one's time, and to spend it doing things one likes, or even doing nothing at all.

Safe spaces may include women-centred and/or queer spaces.

We are curious to know how women and LGBTQ+ people (aged 20-40 years) define these for themselves. We would really appreciate it if you could fill up this survey form (it should only take 5-10 minutes). Your responses will support us in writing a meaningful and impact-driven story. Thank you.

Search@kontestant.com (not shared) Switch account

Required

How old are you? *

☐ 20-25

☐ 25-30

☐ 30-35

☐ 35-40

What gender do you identify with?

OO-data-summary

Women Leisure Story Outreach Tracker

File Edit View Insert Format Data Tools Extensions Help Last edit was seconds ago

	A	B	C	D	E	F	G
	Organization/Person	Location	Country	Survey	Interview	FGD	Life-logging
1							
2	KL journalists	Uttar Pradesh and Madhya Pradesh	India	y	n	y	n
3	Kota Kita	Solo	Indonesia	y	y	y	n
4	Sunday Nudes	Manila	Philippines	y	y	y	n
5	A Place to Be Yourself	Siem Reap	Cambodia	y	y	n	n
6	Lyari Girls Cafe	Karachi	Pakistan	y	y	n	y
7	Mehr Garh	Karachi	Pakistan	y	y	n	n
8	Chambal Media + Women Walk at Midnight	Delhi	India	n	n	n	n
9	Women Walk at Midnight	Cities in India	India	y	y	n	m
10	longga Bikers	Iloilo	Philippines	y	y	n	n
11	Ride Like A Girl PH	Pasig	Philippines	y	y	n	n
12	Bonhishika	Dhaka	Bangladesh	y	y	n	n
13	Spoke and Bird	Singapore	Singapore	y	n	n	n
14	Monday Media Women's Group	Philippines	Philippines				

Phrase

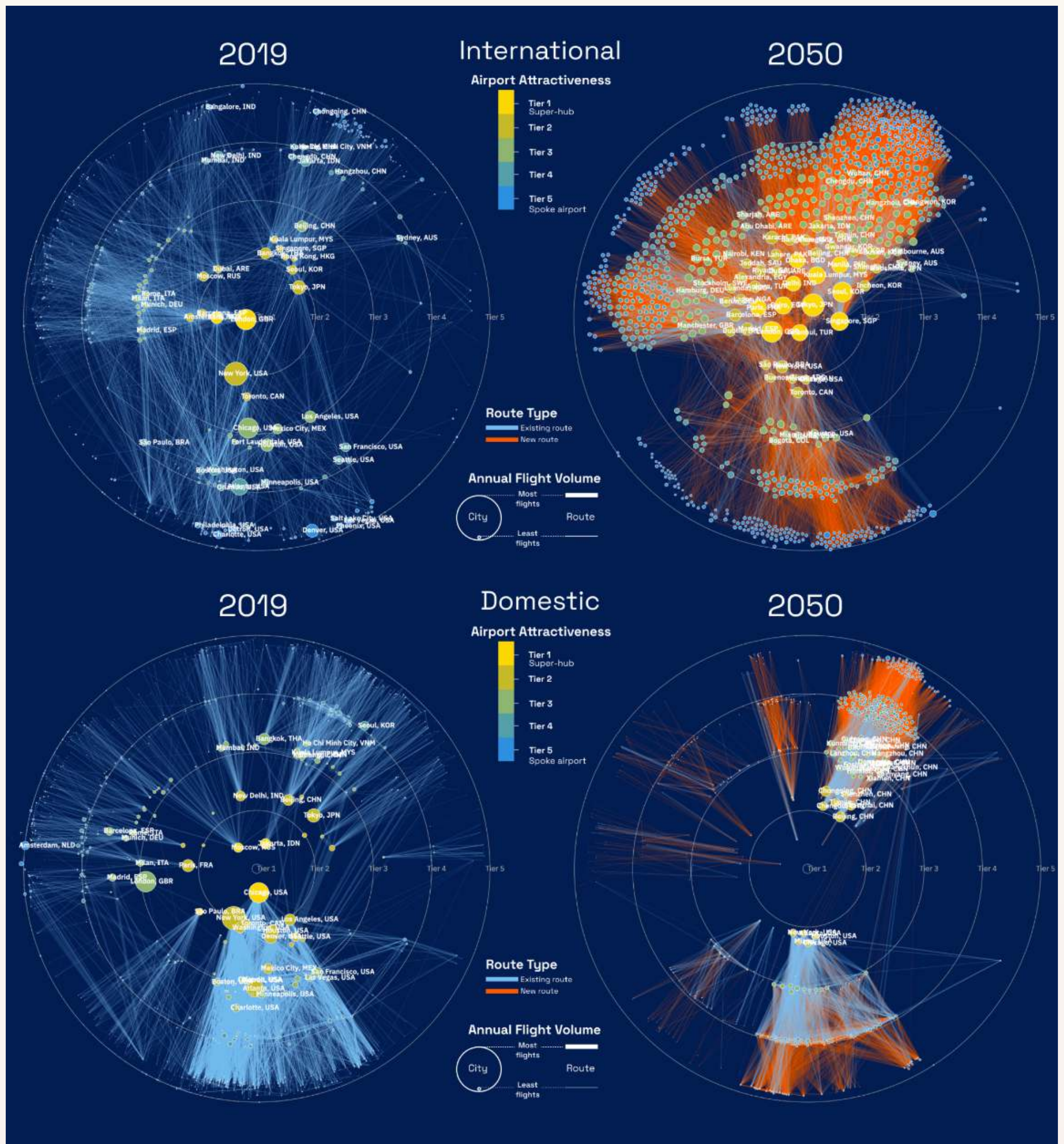
Phrase	Category (Physical, social, economic)	What is the context of the challenge?	Source	Organization	City	Country	
1	Indicate as p, s, e to reduce error	creating space or option - c accessing leisure - a experiencing leisure - e					
32	Religious environments do not look kindly upon women acting in certain ways (skinny clothing) or engaging in activities like figure drawing	a,e	Chenese	Sunday Nudes	Bulacan	Philippines	
33	City is not designed for commuters	a,c	Diane	Sunday Nudes	Manila	Philippines	
34	Public officials do not take transport so they don't recognize the problems in mass mobility	a	Diane	Sunday Nudes	Manila	Philippines	
35	Unreliable public transportation system	a	Diane	Sunday Nudes	Manila	Philippines	
36	During the pandemic, all places for running and other forms of sports were closed	p	a,e	Sol	Ilongga Bikers	Iloilo	Philippines
37	Government fails to shell out necessary funds to support taking initiatives of grassroots groups	e	c	Sol	Ilongga Bikers	Iloilo	Philippines
38	Bike lanes in Iloilo are only strips of paint separating biker from vehicle, not protected enough, not a complete solution	p	e	Sol	Ilongga Bikers	Iloilo	Philippines
39	Government fails to enforce existing policies consistently	a	a,e	Sol	Ilongga Bikers	Iloilo	Philippines
40	Other drivers on the road can be rude and unruly towards bikers, which makes them feel harassed and unsafe	a	a	Sol	Ilongga Bikers	Iloilo	Philippines
41	Women are often swamped with care-giving responsibilities, which prevents them from using bikes to commute to different places	a	a	Sol	Ilongga Bikers	Iloilo	Philippines
42	Men only need to think about where they're going to go; women have to take into consideration even everything they're leaving behind	a	a,e	Sol	Ilongga Bikers	Iloilo	Philippines
43	What part of yourself are you willing to give up to experience leisure?	a	a,e	Chenese	Sunday Nudes	Bulacan	Philippines
44	Drivers are unaware of what maximum speed limits are, which causes them to be reckless towards others on the road	s	e	Sol			
45	Lack of bikar education and support geared towards women meant who had to figure everything out alone	e	a,e	Ana	Ride Like A Girl PH	Davao	Philippines

With the help of Kota Kita, a participatory design firm based in Solo, Indonesia, we engaged women from different backgrounds (freelancers, mothers, disability advocates, salaried employees) to understand their perceptions, wishes and personal stories around access to and experience of safe spaces for recreation and religion.

- 1-2. Examples of the photo prompts presented to participants and their responses
3. Facilitation methods and questions used during the focus group discussion.

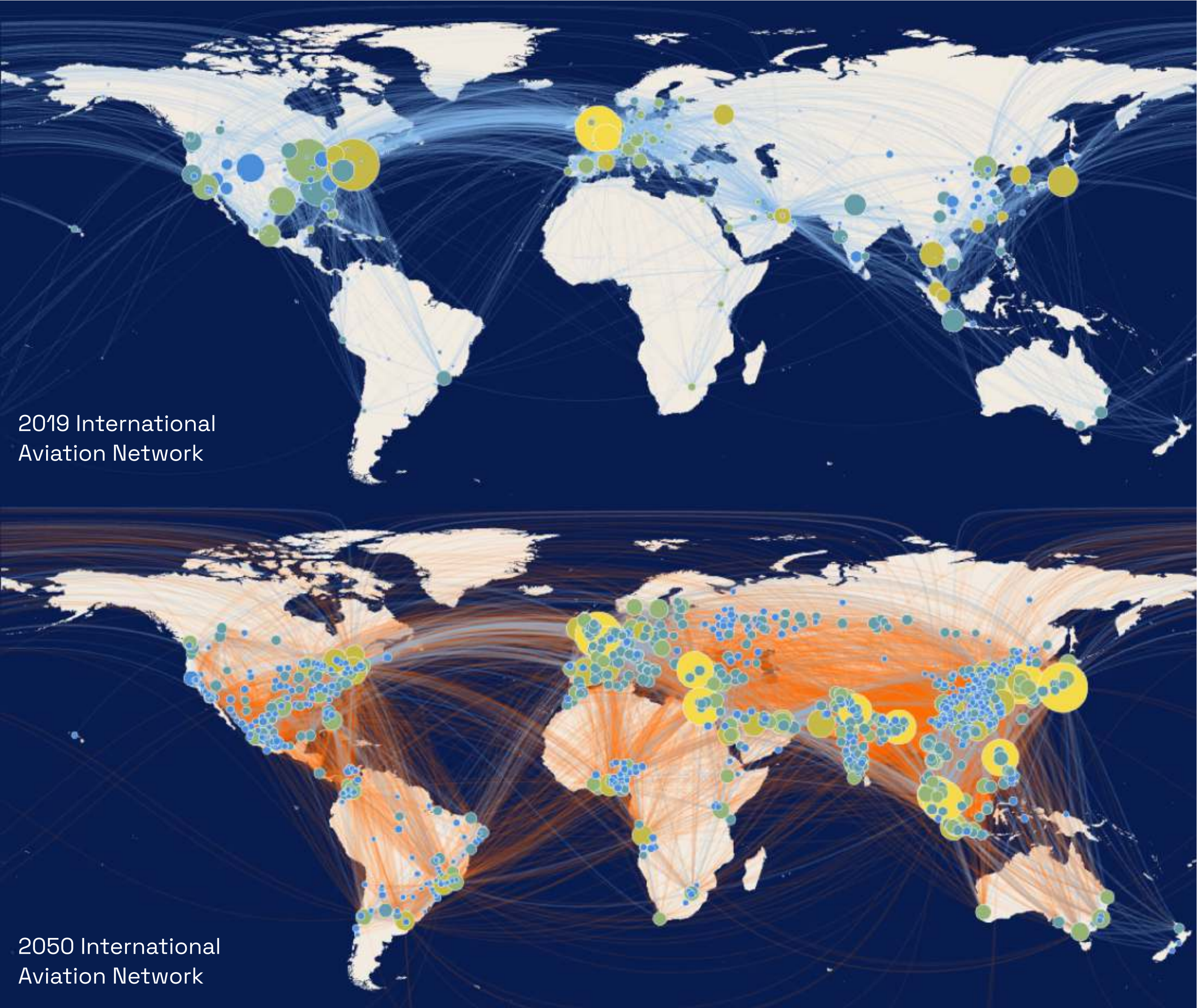
1. Preview of survey sent to women and LGBTQ persons living in South and Southeast Asian cities for period of September to October.
2. Organisations and persons reached out to for the research phase
3. Examples of outputs from the qualitative coding I developed to capture insights into physical, social and economic challenges to women in creating leisure spaces, accessing recreation and experiencing leisure. We also coded solutions raised by respondents with the same system. The team applied this method to our interviews, short answers from survey results and focus group discussions. Each interview was coded by at least two people to gain consensus on the definition of the assigned codes. As such, sometimes we had to re-code a statement due to new information that made us rethink our prior judgement.

★ A new world of airports: forecasting aviation demand in 2050



What will aviation look like in 2050? I use networks to model flight data from 2019, and map network properties to aspects of global and domestic aviation networks to derive present and future aviation demand. PageRank serves as a proxy for the demand on a city as a destination based on access to advantageous business, tourist, or social opportunities. I combine this network analysis with Central Place Theory – specifically, gravity models – to capture the spatial function of the airport as a gateway between member cities of the global aviation network.

Aviation mirrors the expansion of urban centres through increased airport-city linkages, infrastructure enhancements, and passenger numbers. These have all accelerated over the last two decades, especially in Asia and Africa. The industry supports vital information flow of people and goods, and it is a key driver of countries' economies and business productivity, despite the recent impacts of COVID on commercial travel. This project explores how the symbiotic relationship between global aviation networks and urban centres will evolve and grow in response to projected changes in city populations and gross domestic product.

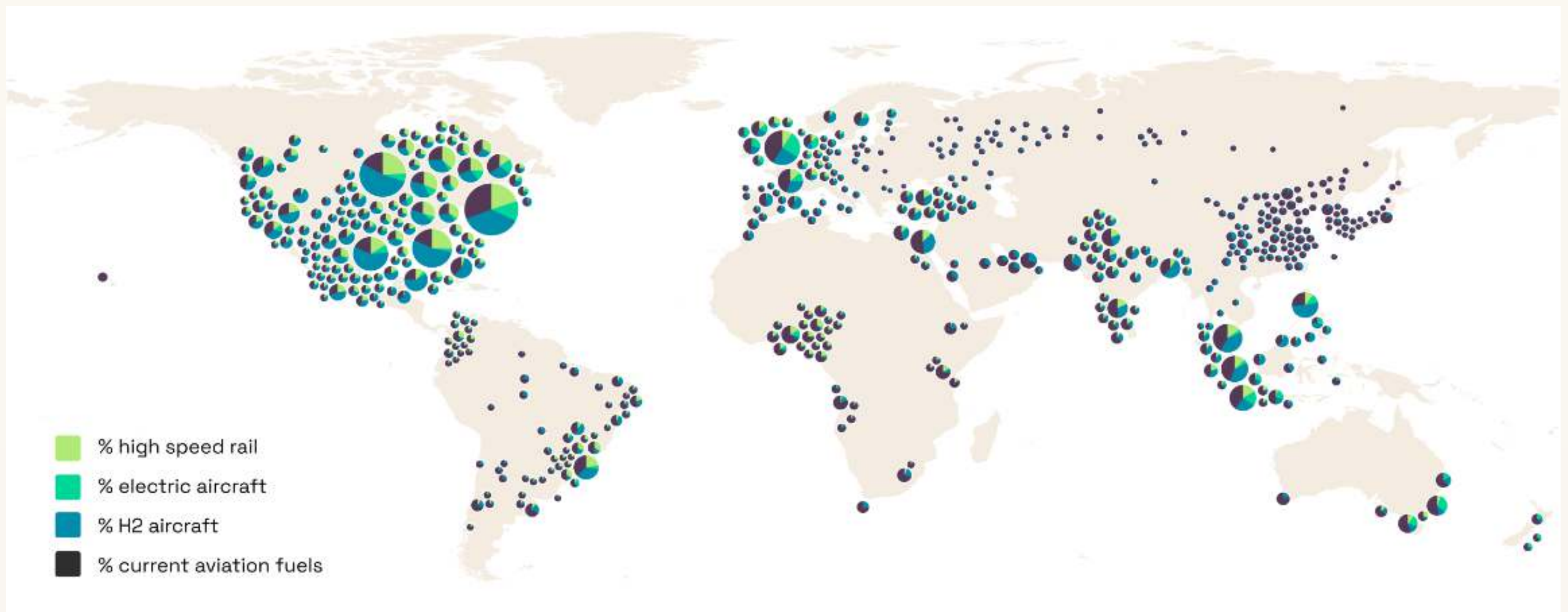


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By 2050, the combined forces of population and GDP shifts will change the configuration of the global aviation network from being concentrated in cities like London, Paris and Amsterdam to more aviation hubs in South and Southeast Asia, e.g. Dhaka, Delhi, Seoul, Kuala Lumpur, Manila.

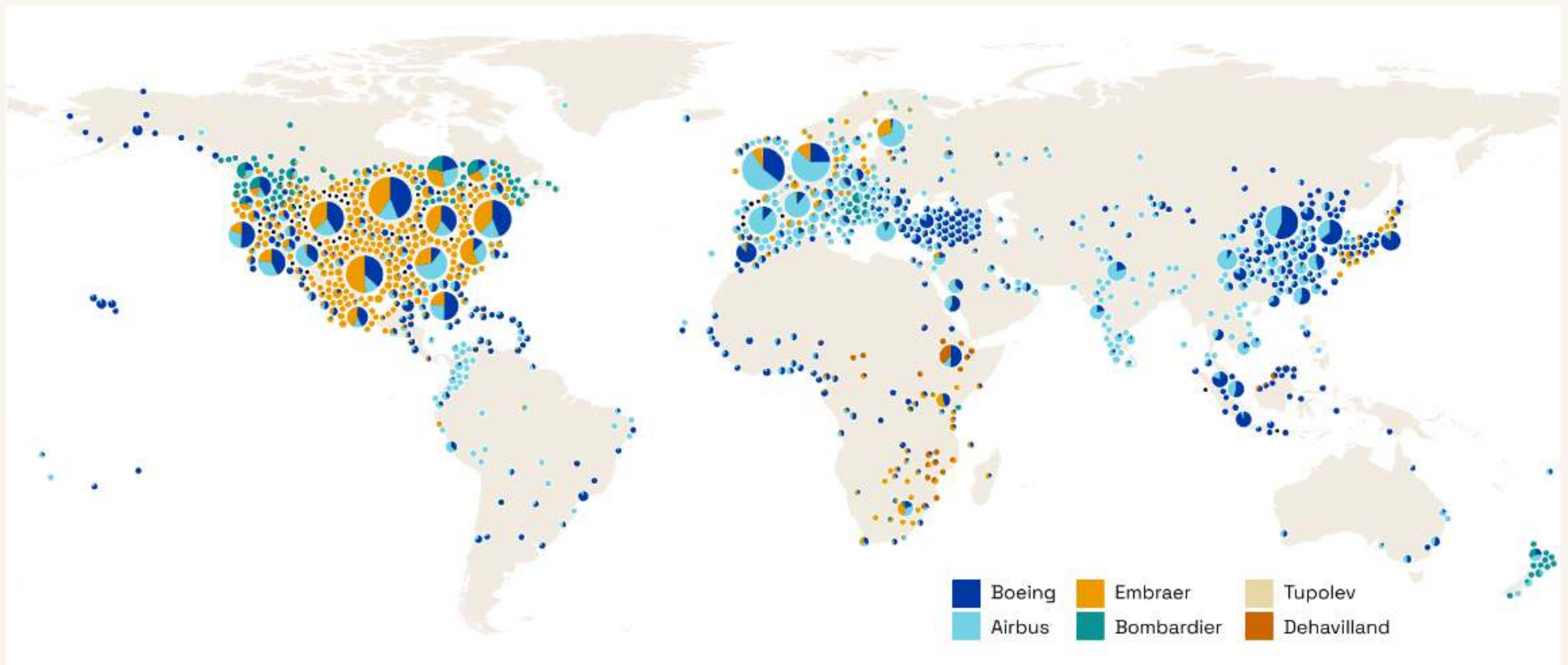
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The difference in connectivity between the global 2019 and 2050 aviation networks is highlighted by new connections in orange.



Part of projecting the future of aviation is looking at how cities are poised to shift certain routes into more sustainable options like high-speed rail, electric or hydrogen modes. I computed the proportion of each city's projected annual flights in 2050 that would be possible to shift over to each of the modes. This was based on the distance between city pairs, presence of continuous landmasses, and current aircraft specifications. This model currently does not take into account geopolitics or drastic advances in technology.

I'm also involved in the creation and design of an atlas of future aviation. The next few images are excerpts from my work in visualising the state of modern aviation and logistic demands on the world's busiest airports.



I played around with the flights data from 2019 to discover interesting patterns in the aviation industry. For example, certain aircraft manufacturers dominate different regions.

PUBLICATIONS

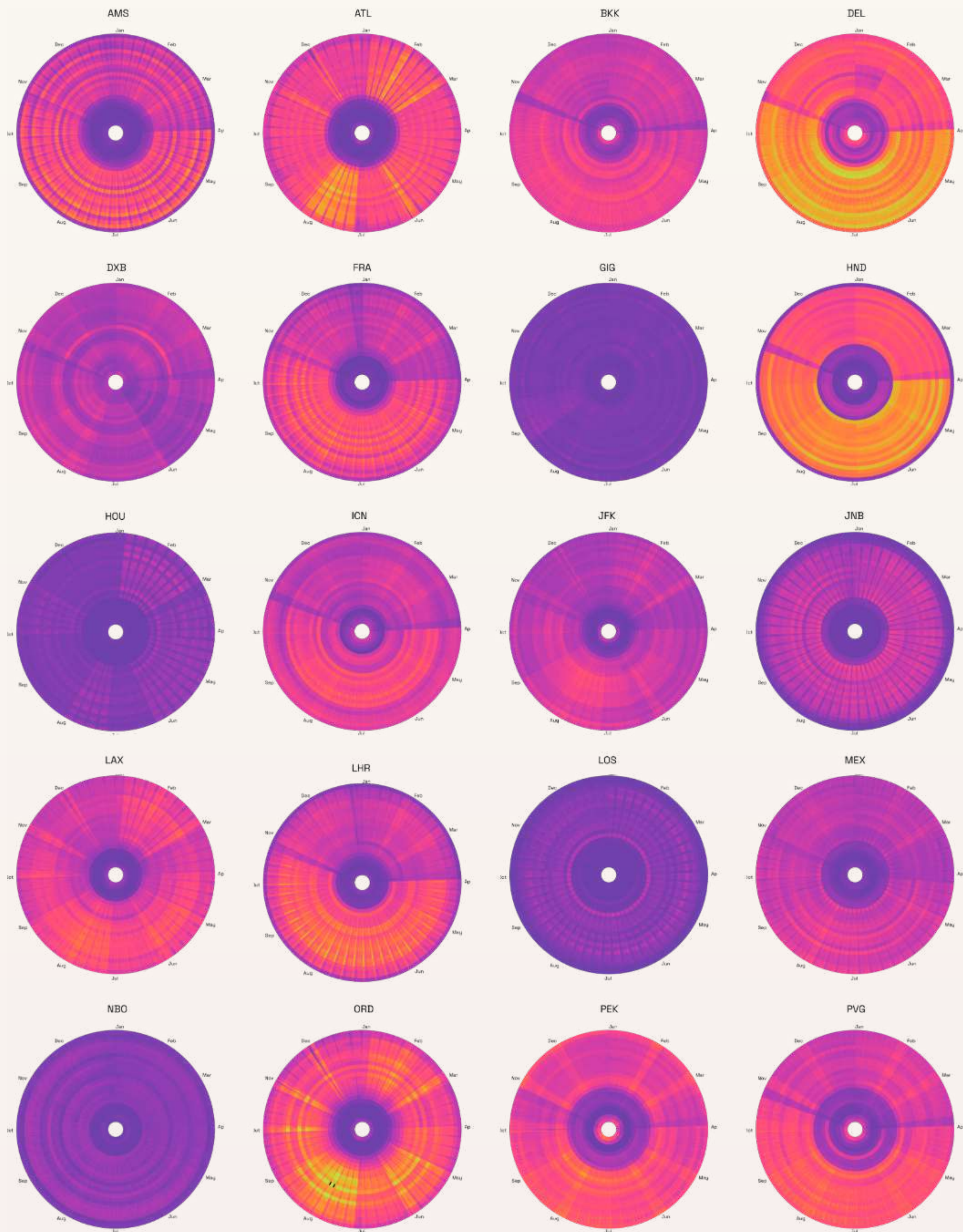
The New World Order of Airports: A Population and GDP driven model for Forecasting Aviation Demand in 2050

Science of Cities Symposium, World Cities Summit 2022 B Dy, A Meeran, A Agrawal, SC Joyce. Also selected for presentation [READ WEBSITE](#)

Limits to Adaptive Capacity of Airports using Aerial Imagery and Machine Learning

Science of Cities Symposium, World Cities Summit 2022A Meeran, B Dy, A Agrawal, SC Joyce [READ](#)

Using the same flights data from 2019, we could also look at the normalised levels of flight movements for every hour of every day in 2019 for some of the world’s busiest airports!



Flight movements per hour Least  Most

★ What's the state of Southeast Asian Sci-fi?



Illustration by Griselda Gabriele

Asians have rarely been the stars of modern mainstream science fiction. Japan has had a long history of science fiction media from Godzilla to Akira, while Chinese sci-fi literature is currently in its golden age with writers gaining recognition globally through translations into English.

But what about Southeast Asia? With its rich tradition of storytelling, diverse cultures and a growing community of creators, Southeast Asia deserves its own spotlight.

Our story maps out the state of Southeast Asia's science fiction by showcasing the region's diverse collection of sci-fi stories and their talented creators. Drawing from the story structure of the Hero's Journey, we wrote a data story in the second-person point of view that resembled an actual sci-fi novel, pulling from historical research and our crowd-sourced database of Asian sci-fi works. We combined an exciting plot with natural language processing, data visualisations, breathtaking illustrations in the style of comics, and a "choose-your-own-adventure" mechanism. **This was a labor of love that paid tribute to the books, anime, and movies I and other team members grew up with.**



Aside from project management, story pitching and data collection, I drove the creative direction of the data story, and contributed writing and editing. I also produced the dataset of ASEAN sci-fi works by tagging each work with tropes and keywords based on reviews, personal knowledge of the work, and sourcing the work itself in person. I performed data analysis on the crowdsourced database by applying TFIDF and t-SNE onto keywords that described each work's key tropes.

We relied on crowdsourcing to augment our knowledge of the landscape of books, movies, shows and comics in the region. This was particularly helpful in the context of identifying very old movies and books that had long gone out of print.



Southeast Asian science fiction database (with public facing form)

At Kontinentalist, we want to explore the present state of Asian science fiction by mapping out key historical developments and themes that shaped it over the years. Chinese and Japanese science fiction are currently in their golden age and receive much global attention and recognition. But not much is known about their surrounding countries and contemporaries.

That's why we need your help! You can help us map the landscape of Southeast Asian science fiction across different mediums by filling out this survey on published Southeast Asian science fiction works.

Instructions

Please create a new entry for every work entered. We show the current database in Notion to help you identify which works have not yet been added to the dataset. The work itself does not need to be in English.

If you're wondering what counts as a work of Southeast Asian science fiction, here are some questions you can ask yourself before adding works to this database:

1. Was this work (movie, novel, novella, comic) created by a person based in Southeast Asia or of Southeast Asian/Southeast Asian diasporas descent?
2. Does this work rely heavily on scientific facts, theories, and principles as support for its settings, characters, themes, and plotlines?
3. Does this contain realistic speculation of possible future events?
4. Does this contain the reaction of human beings to changes in science and technology?

If your answer to Question 1 is "yes" and you answer "yes" to any of Questions 2-4, then it definitely counts! Please include a source as a URL so we can check it out too. **Do note that sources need to be filled in a valid URL format, with http:// or https:// at the front.**

Title	newTropes	Tropes/themes	Anthology/Mix of Film x	y	Main country
Marooned		space ships, space travel, multinational team, military, alternate hist			Malaysia
Apokalis X		gangs, post-apocalypse, nuclear radiation, warfare, decline of human			Malaysia
Cikak Man		superheroes, superhuman abilities, virus, capitalism is bad, mad sci			Malaysia
Cikak Man 2: Planet Hitam		limited resources, mad scientist, superheroes, superhuman abilities,			Malaysia
Cikak Man 3		superheroes, superhuman abilities, virus			Malaysia
Duality		martial arts, feminism, dystopia, amnesia, superhuman abilitie			Malaysia
Biohazard		virus, medical horri	Yes		Malaysia
Gugurnya Azazi		colonialism, ancien	No		Malaysia
Faith and the Machine		horror, near-future,	Yes		Malaysia
Resesif		romance, virus, pla	Yes		Malaysia
Doktor Satan		medical horror, secret formula,		4.0959325	-6.584425 Philippines
Geko on the Madre de Cacao Tree (Tuko sa Madre Kakaw)		fantastical serum, animal transi	fantastical serum, animal transformation,	-16.357832	-8.951794 Philippines
The Heart of Mathilda		medical horror, heart replacem	medical horror, heart replacement, surger	4.138948	-6.9372487 Philippines
If We Dream Too Long		materialism, urbanization, indu	materialism, urbanization, industrializatio	-4.7035556	14.346121 Singapore
Getaran		high technology, aliens, space t	high technology, aliens, interplanetary voy	-14.713095	5.1033235 Indonesia
Jatuh ke Matahari		space travel, hurl it into the sun	interplanetary voyage, hurl it into the sun	-17.777775	-0.1994989 Indonesia
Ricky Star		corporate ladder, materialism,	corporate ladder, materialism, lonely at th	17.427572	4.481973 Singapore
Apollo Centennial		political commentary, lunar trav	political commentary, lunar expedition, lu	-11.579841	3.8713374 Philippines
Petualangan Ke Planet Tu Cati		space travel, space opera	interplanetary travel, space opera	-15.8071	0.8607799 Indonesia
Star Sapphire		omnidisciplinary scientist, space	omnidisciplinary scientist, intergalactic tra	-15.843285	-6.348066 Singapore
Penjelajah Antariksa: Bencana di Planet Poa		planet terra, aliens, space trave	planet terra, aliens, interplanetary travel,	-15.07364	8.446591 Indonesia
Penjelajah Antariksa: Kunin Bergolak		planet terra, aliens, space trave	planet terra, aliens, interplanetary travel,	-16.366617	7.6848187 Indonesia
Penjelajah Antariksa: Sekoki Penyelamat Antariksa		planet terra, aliens, space trave	planet terra, aliens, interplanetary travel,	-16.268623	9.229152 Indonesia
Sabotase di Bulan		space battle, lunar travel	space battle, lunar expedition	-12.988141	4.5716767 Indonesia
Project Pawali		cyberpunk, nuclear threat, emvin	cyberpunk, nuclear threat, environmental	15.43885	-4.165785 Philippines
Trip to Tagayat		dystopia, flying cars, multimedia:	dystopia, flying cars, multimedia wrist-de	-13.796159	1.7953587 Philippines
Supernova: Ksatria, Puteri, dan Bintang Jatuh		digital avatar, artificial intellige	digital avatar, artificial intelligence, quant	-14.112433	-12.282995 Indonesia
Supernova: Akar		stateless persons, an immigra	the illegal, an immigrant's tale, political c	-15.750076	-12.950986 Indonesia
Area X: Hymne Angkasa Raya		aliens, government conspiracy	aliens, government conspiracy	7.081792	8.420177 Indonesia
Supernova: Petr		witch doctor, lightning powers,	witch doctor, shock and awe, lighting can	-15.177903	-12.215012 Indonesia
Hollow Girl		cybematics, artificial intelligenc	robots, artificial intelligence, body modifi	4.4235106	-13.069245 Philippines
The God Equation		Internet, math, existence of god	internet, math, existence of god, supercon	13.602132	-8.210232 Philippines
Lanang		genetics, plague, supernatural,	genetics, plague, supernatural, mysticism,	-3.1674926	10.79868 Indonesia
A Retrospective of Diseases for Sale		disease, emails, viruses, biotec	disease, emails, viruses, biotechnology, de	10.377038	-4.4332156 Philippines
A Strange Map of Time		time travel, flying vehicles, the	time travel, flying vehicles, the future	-2.9248614	0.10608276 Philippines
The Great Philippine Space Mission		space travel, rockets, human go	space travel, rockets, human gossip, energ	-14.424139	-3.201094 Philippines
RPG Metañoia		mmorg, virus, online gaming,	mmorg, virus, online gaming, metaverse	-9.188335	-7.6941714 Philippines
Oysters, Pearls and Magic		earth colonists, space travel, fa	earth colonists, space travel, fantasy	-15.474953	-2.896468 Singapore
Malinky robot: collected stories & other bits		dystopia, robot, cyberpunk, poll	dystopia, robot, cyberpunk, c	-8.961128	2.0168095 Singapore

keyword grouping

Aliens

- 'xenotransplantation',
- 'sufficiently advanced alien',

Environment

- 'volcanic eruption',
- 'wildlife conservation',
- 'wasteland',
- 'sustainability',
- 'pollution',
- 'population decimation',
- 'population growth',
- 'natural disaster',
- 'environmental activism',
- 'environmental crisis',

Supernatural, fantasy

- 'witch doctor',
- 'vampirism',
- 'spirit medium',
- 'spirit advisor',
- 'spirit world',
- 'supernatural powers',
- 'superhuman abilities',
- 'mysticism',
- 'magic vs science',

Political commentary

- 'tyrannical society',
- 'totalitarian regime',
- 'surveillance state',
- 'military experiment',
- 'military service',
- 'military technology',
- 'satire',
- 'stateless persons',
- 'imperialism',
- 'oppressed minority',
- 'oppression',
- 'oppressive government',
- 'government conspiracy',
- 'government intervention',
- 'conspiracy',

Character narrative

- 'trauma',
- 'superhero',
- 'coming of age',

Social commentary

- 'xenophobia',
- 'world domination',
- 'world gone mad',
- 'weaponization',
- 'warfare',
- 'urban segregation',
- 'urbanization',
- 'transphobia',
- 'survival',
- 'queer themes',
- 'suicide',
- 'social anxiety',
- 'social commentary',
- 'social engineering',
- 'societal order',
- 'refugees',
- 'labor exploitation',
- 'limited resources',
- 'human evolution',
- 'human experiments',
- 'human gossip',
- 'human trafficking',
- 'humans are divided',
- 'humans are the real monsters',
- 'humans are warriors',
- 'humans need aliens',
- 'humans through alien eyes',
- 'racism',

Setting (place/time)

- 'underground society',
- 'walled city',
- 'utopia',
- 'underwater city',
- 'space opera',
- 'space battle',
- 'space colony',
- 'space pirate',
- 'space station',
- 'space terrorism',
- 'space travel',
- 'spaceship',
- 'space isolation horror',
- 'space nomads',
- 'sea voyage',
- 'apocalypse',
- 'futuristic prison',
- 'futuristic society',
- 'post-apocalypse',
- 'pre-apocalypse',
- 'alternate realities',

Institutions/organisations

- 'world government',
- 'cults',

Relationships

- 'human relationships',
- 'interspecies relations',

Crime

- 'war crime subverts heroism',
- 'serial killer',
- 'sexual assault',
- 'smuggling syndicate',
- 'terrorism',
- 'battle of good versus evil',

Bodies

- 'transferred consciousness',
- 'transformation horror',
- 'memory alteration',
- 'mutation',
- 'body and host',
- 'body augmentation',
- 'body horror',
- 'body snatcher',
- 'body swap',
- 'body transformation',

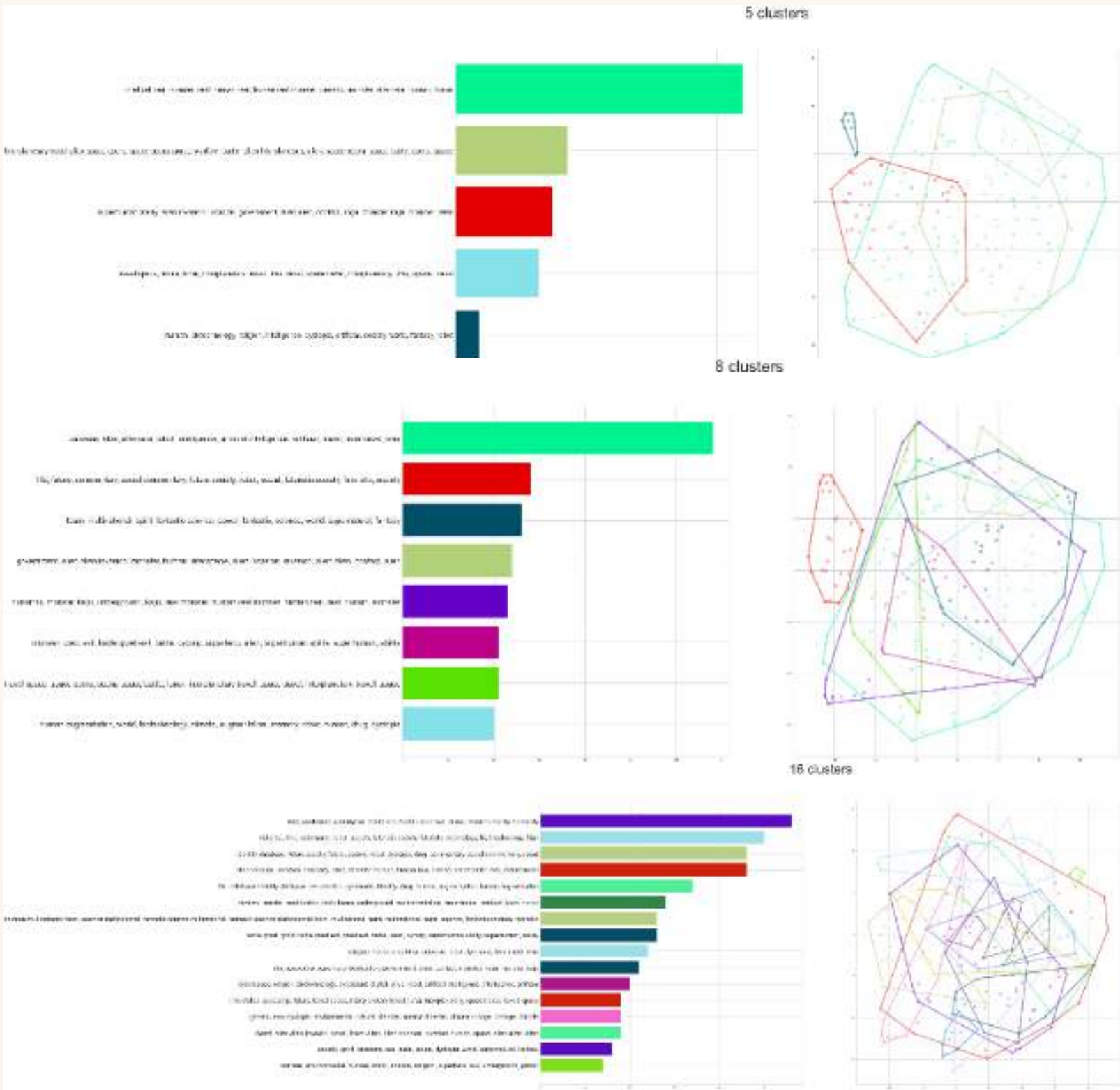
Science and technology

- 'zero gravity',
- 'wormholes',
- 'virus',
- 'virtual reality',
- 'tracking technology',
- 'totalitarian technologies',
- 'time machine',
- 'time travel',
- 'robot girl',
- 'robot labor',
- 'robot soldier',
- 'robot war',
- 'robot replacement',
- 'techno dystopia',
- 'quantum physics',
- 'the power of science',
- 'science fantasy',
- 'science is bad',
- 'scientific prediction',
- 'scientific study',
- 'zero gravity',
- 'lunar colony',
- 'lunar travel',
- 'cybernetics',
- 'medical horror',
- 'medical technology',
- 'synthetic plague',
- 'nuclear power',
- 'nuclear explosion',
- 'nuclear waste',
- 'planet terra',
- 'planetary colonialism',
- 'planetary destruction',
- 'online gaming',
- 'artificial human',
- 'artificial food',
- 'artificial gravity',

Belief systems

Crucial Note: Griselda and I identified key themes for the tropes and key words we would tag each work by. I used a mix of synopses, reviews and personal experience (i.e. we read/watched the work ourselves) to ascribe tags to each. Our goal was to identify works with similar themes, settings and sci-fi mechanisms across the vast landscape of books, movies, shows and comics. I fed these keywords into TF-IDF and t-SNE to visualise similarities between works.

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APPLYING MACHINE LEARNING TO SCI-FI WORKS

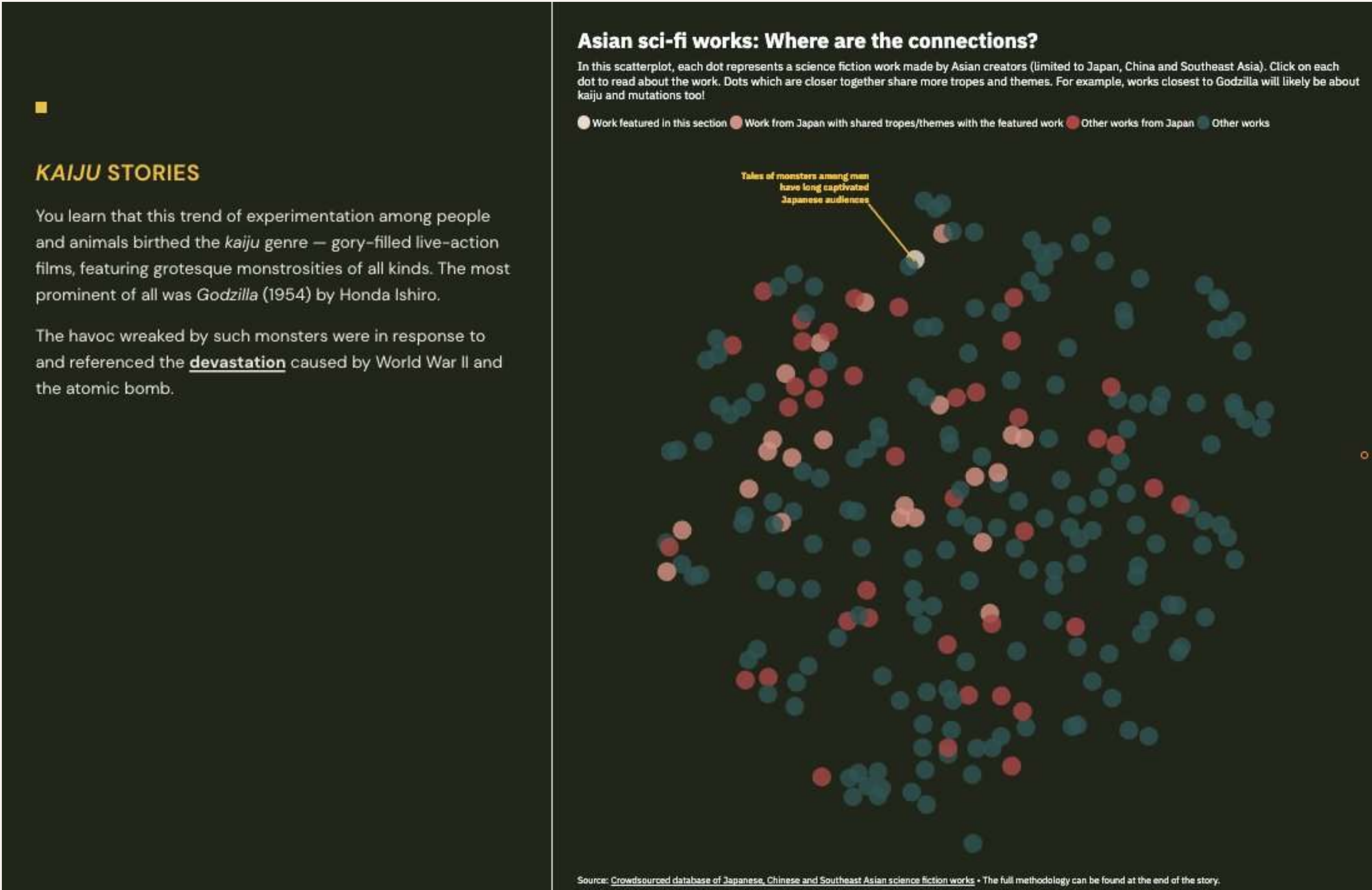
Some of my initial tests to find groups of similarly-themed works among our Asian Sci-fi database.

I created scatterplots from our database of combined SEA, Japanese and Chinese scifi works based off of t-SNE and highlighted key franchises/standalone stories, working with Angel closely to match these pieces of media to historical events or trends within each country.



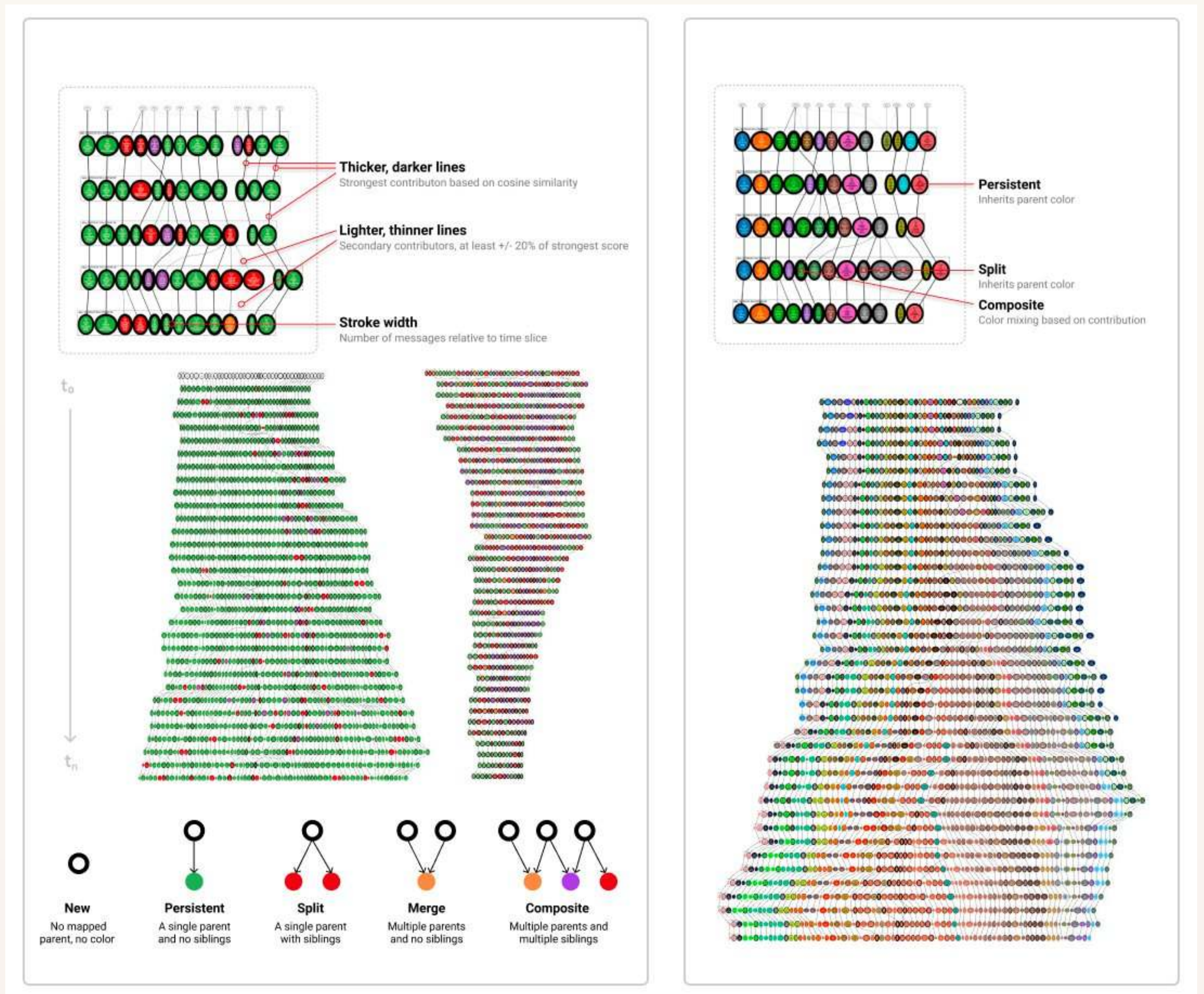
SHOWING SIMILARITIES BETWEEN ASIAN SCI-FI WORKS

For each country we featured, I picked out pivotal works and elements to feature. These were highlighted in the scatterplot, along with other works that had similar themes or that were from the same country.





Text analytics for understanding citizen feedback



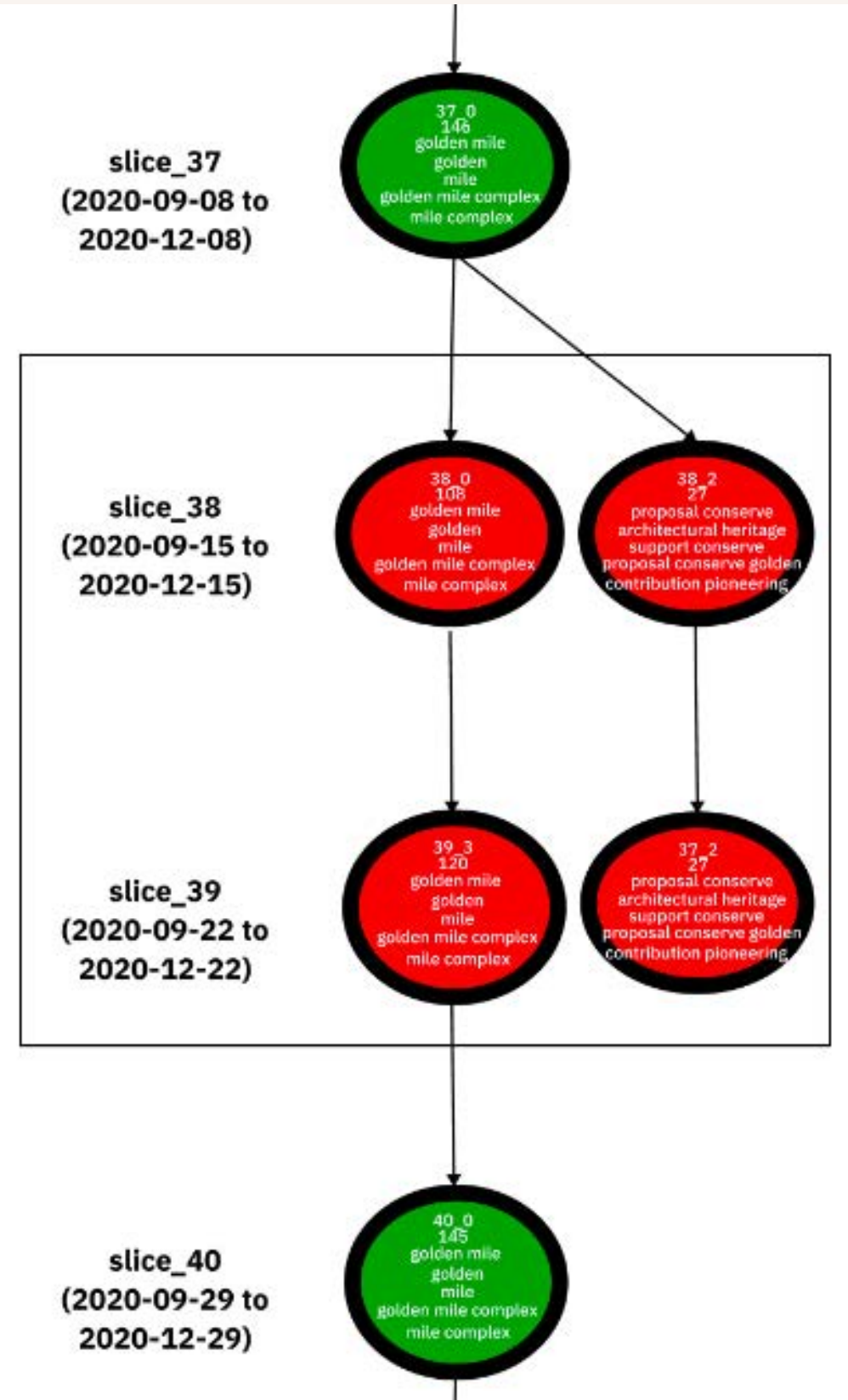
High-quality dialogue between the government and the public is a necessary component of the urban planning process. Data from public surveys, online feedback portals, and social media platforms are standard sources of public opinion on current issues and developments. However, deriving area or issue-specific insights from unstructured text requires planners to read individual messages – a tedious and siloed process that prevents planners from learning across related issues and cases. In this project, we worked with planners to understand their workflows, how they currently use citizen feedback in their day-to-day decision making, and what they prioritise in responding to citizen feedback.

Aside from coordinating expectations, meetings and deliverables with the DPL team, I developed a workflow to process unstructured text using natural language processing and machine learning into clusters or 'topics', with an emphasis on identifying and assessing the quality of persistent ('evergreen') and 'emergent' topics across time. I explored different metrics for assessing cluster quality and the similarity of clusters to one another temporally, based on the shared occurrence of key words.

One major challenge we faced in turning citizen feedback into a source of planning insight was converting it into forms that can give an overview of planning concerns across time and space, while still allowing investigation of individual feedback messages. From our discussions with DPL and planners, we identified four crucial items to show based on the data: **message volume**, **cluster quality**, **level of similarity between clusters**, and **keywords**.



I investigated the use of t-SNE and UMAP to temporally visualize clusters or ‘topics’ derived from feedback messages and to integrate these four crucial items into the visualizations. While t-SNE produced fast results, it does not preserve global structure well and cannot adequately visualise cluster quality or similarity in one view. UMAP was able to address the issue of showing temporal cluster development, but planners found this method difficult to analyse for historical trends.



We designed data visualizations to solve this problem of showing volume cluster quality, similarity and text all in one view. Based on cluster quality and similarity metrics I developed, Nazim Ibrahim and I designed temporal cluster trees that would show relationships or ‘lineages’ between clusters over time. The top five keywords per cluster were included as text inside bubbles, and each bubble was colored depending on its relationship to previous clusters through two color schemes.

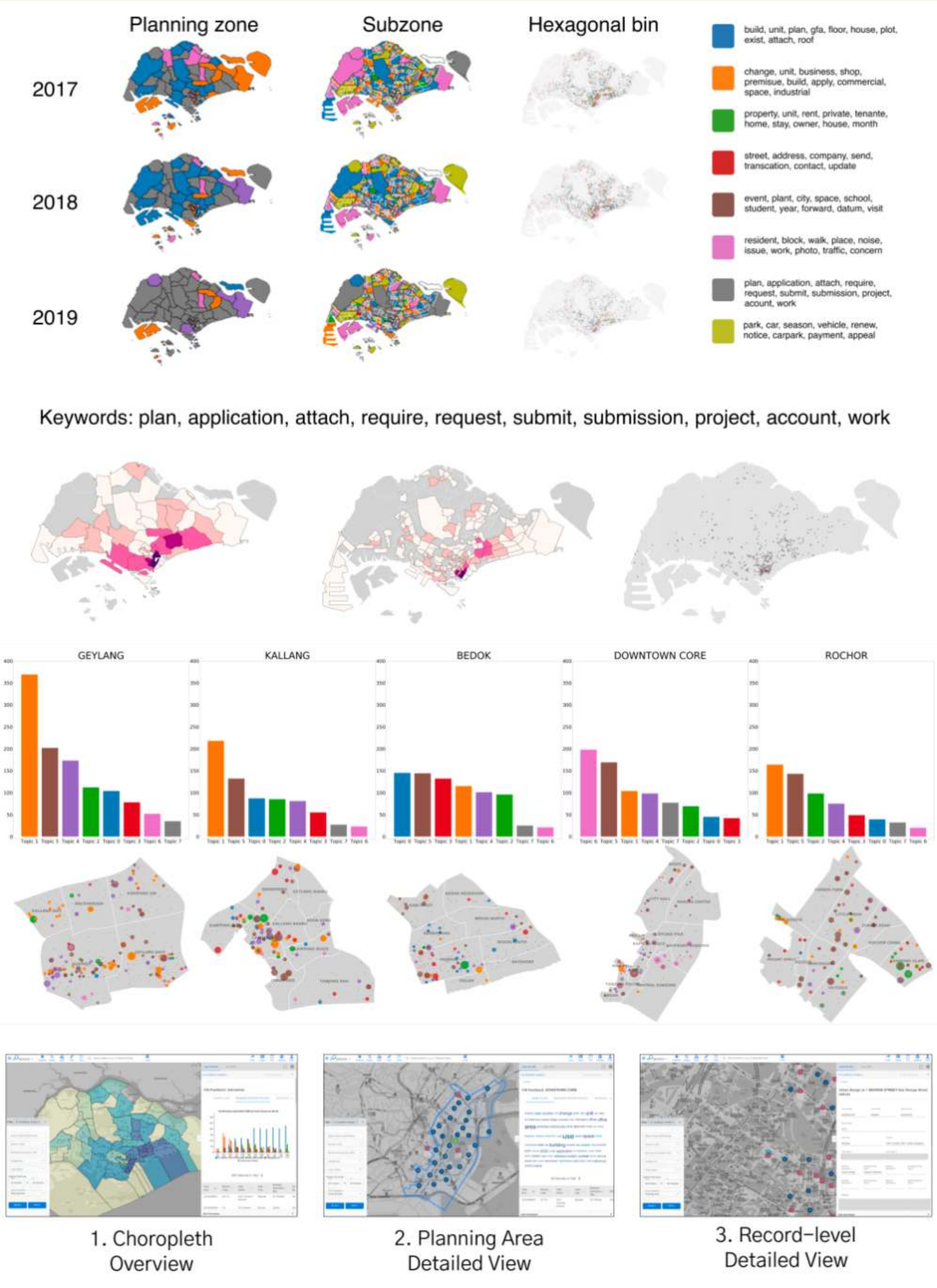
Both the workflow and data visualisations are currently in the process of being integrated into the ePlanner, a planning support system where datasets are layered onto one another through maps, dashboards and database views for easy consultation by planners.

LEFT
Example of message keywords from temporal cluster tree using search term “golden mile”, referring to the Golden Mile Complex, recently given historical conservation status.

PUBLICATIONS

B Dy, I Nazim, S Koh, A Chua, “Topics Through Time: Clustering and Visualizing Unstructured Public Feedback for City Planning”, under review (2022).

This dataset had never been visualised before! Planners used to ask other planners what cases to refer to for their decisions. Part of our initial exploration was to cluster the data according to keywords and then plot incidences of these clusters on a map. The last row image shows how our visualisations were adapted into the ePlanner.



★ Figurative art



In my last year of university, I took an elective on Graphic Storytelling and was told during the first class that my “drawings were sh*t” by the instructor– animation veteran Hans Bacher*. But he quickly followed this up with “you should go to life drawing class.” So I did – starting what is likely a lifelong affair with creating and appreciating figurative art. As I read more drawing books and attended classes, I began to look at both code and drawing as two sides of the same coin. Both have basic concepts and workflows that everyone needs to learn in order to become more skilled, require deep technical knowledge of the limits of the medium or programming language in order to produce efficient, effective, expressive art or code.



RIGHT

The figure drawing community in Singapore outside of schools is composed of both hobbyists and professional artists. One of the biggest struggles in hosting sessions is finding affordable venues that can accommodate enough participants to cover the cost of the venue and the model. Organizers have no profit margins—this is a community-driven effort. I organized bi-monthly sessions from 2019 to 2020, sourcing both venues and new models. This series of posters advertising the sessions contains works by me and my fellow artists Denis, Fanny, Bel, Damien and Chit Seng (indicated in the posters).