tech explorers

Exploration Journal

Name	
Team Name	

the smart, playable city
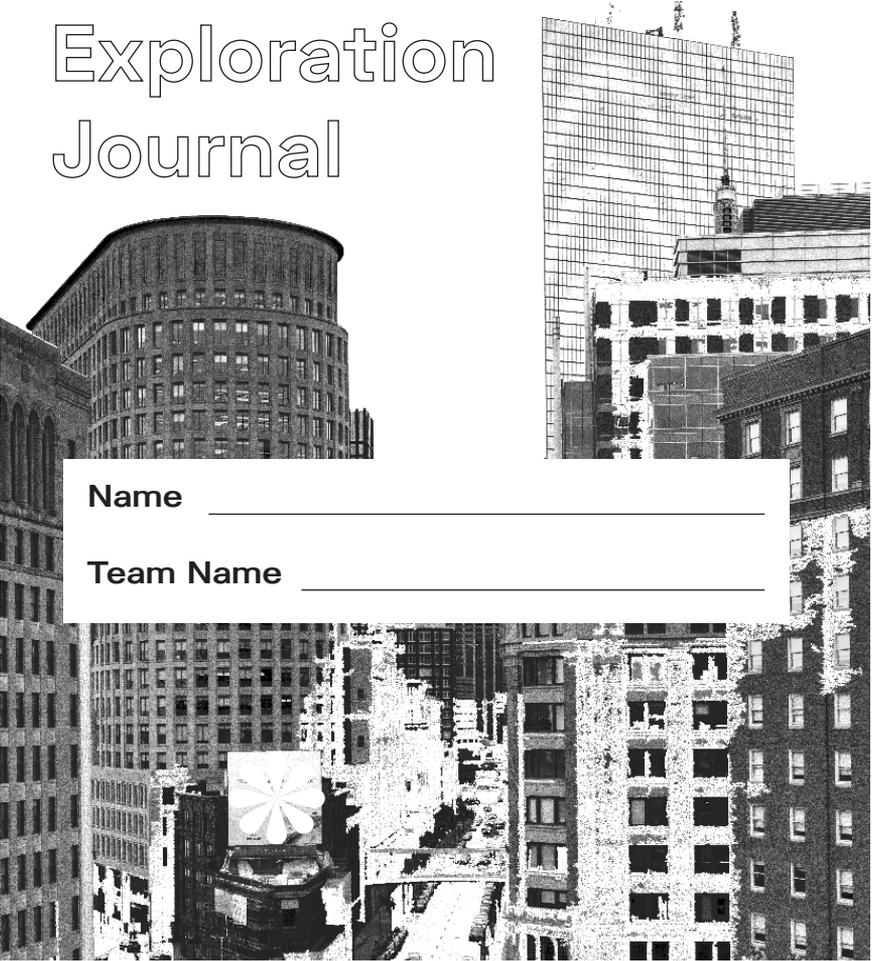
Hello, Tech Explorer!

"All knowledge is incomplete, and ... the best knowledge is gained by bringing together multiple partial perspectives."

CATHERINE D'IGNAZIO AND LAUREN KLEIN, "DATA FEMINISM"

We are going to design a data-driven story about technology in

neighborhood

WHAT IS A DATA-DRIVEN STORY?

We tell stories every day. Stories capture how we view the past and how we envision the future. Stories can hold powerful rhetorical force that can be channeled into social change. Here, the "plot" of our stories will be decided by data that we collect and our interpretations of this data.

WHY "DESIGN" A STORY?

Whenever we make choices of "how" something is created, whether we know it or not, we are making design choices. If our goal in data storytelling is social change, we can start with awareness of **how** we choose to convey a story (for example, through writing, performance, visualizations), **to whom**, and **for what purpose**.

We will be collecting qualitative and quantitative data to help us better understand people's differences in perspectives, and to write a recommendation for technology in our neighborhood.

Big Data vs.

WE LIVE IN A DATAFIED SOCIETY.

For the first time ever as a species, we are able to **create**, **store**, and **analyze** massive amounts of data. This is known as **big data.**

50X GROWTH FROM 2010 TO 2020

90%
of the world's data
was created in the last
2 YEARS

VOLUME IN EXABYTES

9000
8000
7000
6000
5000
4000
3000

WE ARE HERE

Sensors & Devices

Social Media

VoIP

Enterprise Data

2010 ——————→ 2020
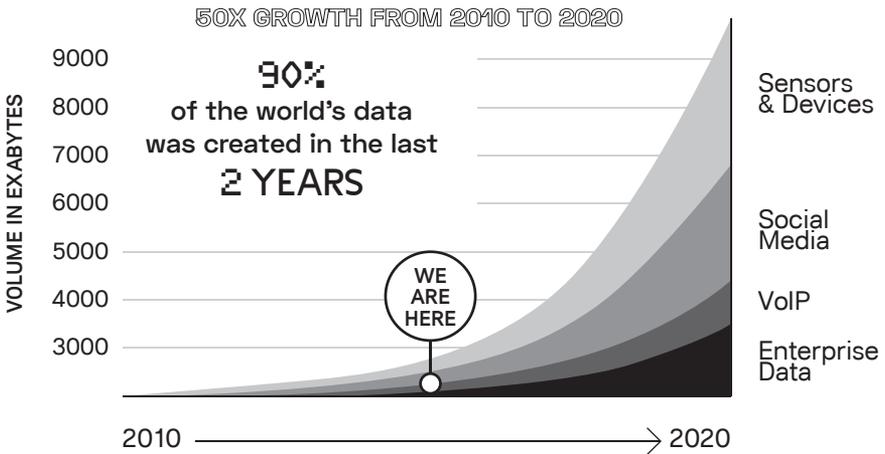
Today, decisions ranging from which products to stock in Walmart before a hurricane, or which citizens to mark as "high risk" for recidivism or terrorism, are increasingly being made by automated systems (using **Artificial Intelligence**, or **AI**) sifting through large amounts of data. For example, Walmart combines weather data with consumer "purchasing pattern" data to know what items to stock if a hurricane is coming. Looking at data, they found things like flashlights and generators in high demand, plus surprises like spikes in Pop-Tart sales during severe weather.

Cities around the world are adopting new digital technologies to help governments make more data-driven decisions. These urban visions are called **Smart Cities**. The earliest Smart Cities (ex. Songdo in South Korea) were eco-friendly, efficient, but often isolating and overly-planned. So how do we make technology work for us?

Because the best knowledge is gained by bringing together multiple partial perspectives, we want to better understand *how* and *why* technologies should be adopted by City governments. For that, we need small, local data.
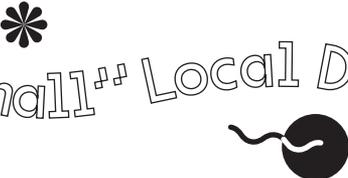
"Small" Local Data

NEVER DOUBT THAT A SMALL GROUP OF THOUGHTFUL, COMMITTED CITIZENS CAN CHANGE THE WORLD; INDEED, IT'S THE ONLY THING THAT EVER HAS.

— Margaret Mead, anthropologist

Telling stories with "small" datasets can help residents track progress, improve local policies, and advocate for change.

In 2016, over 6 weeks, youth from several Chinatown community organizations (Asian Community Development Corporation (ACDC); Chinatown Main Street) created a data-driven pedestrian safety campaign. The goal was to reduce pedestrian fatalities and make streets safer by figuring out the problems in the current street design, so that these problems may be fixed. Focusing on the most dangerous intersections, youth collected data by observing intersection activity, measuring car speeds, and counting pedestrians. They also interviewed residents on their pedestrian experiences. After analvyzing their data, the youth presented possible changes to street design to the Boston Department of Transportation (BTD).

THIS WORK RESULTED IN —

1. A LARGER "SLOW STREETS" INITIATIVE
2. MORE SIGNAGE + CLEARER MARKINGS ON STREETS
3. EXTENDED WALK SIGNAL TIMES

Data Collection Methods:
How can we use different types of data?

QUALITATIVE DATA

Qualitative research is interested in **understanding human behavior** from the "informant"'s perspective (meaning from the other person's perspective). Generally, qualitative data is collected through **observation**, **interviews**, **surveys**, and **focus groups**. As much as possible, the researcher (you) tries to understand their informant in their natural settings and in their own language. What does this mean to you?

QUANTITATIVE DATA

Quantitative research is interested in discovering facts about social phenomena (events). Data is generally collected through measuring things (using **surveys**, tools), running tests, or found or mined (archives, **open data**, data mining). The result of quantitative data is numerical. Qualitative and quantitative data can be used together to tell more complex, nuanced stories.

DATA COLLECTION METHODS

Method	What is it?	When you're looking for...?	Example Question
Observation	Examining contexts, relationships, and behaviors to gain information	Data about how something happens; time-consuming and inherently subjective	How does this group self-regulate phone use?
Interview	A conversation, usually face-to-face or over the phone, to discuss a particular topic. Good for relationship-building.	Details about how a particular person feels about a topic	Can you tell me about when you...? Could you elaborate?
Focus Groups	Getting a particular group together to do activities or answer questions.	Information that depends on group conversation; co-design results	Let's all share some issues we've had with this shoe.
Survey	A series of qualitative and/or quantitative questions that can be shared with a lot of people; generally done after some initial qual research.	Patterns across a population	How would you rate your experience, on a scale of 1-10? Why?
Open Data	Existing datasets that are collected and shared by orgs or government as a resource.	Common data, like weather or public records	Try searching for "open data" tools, like data.boston.gov

Technology Profile
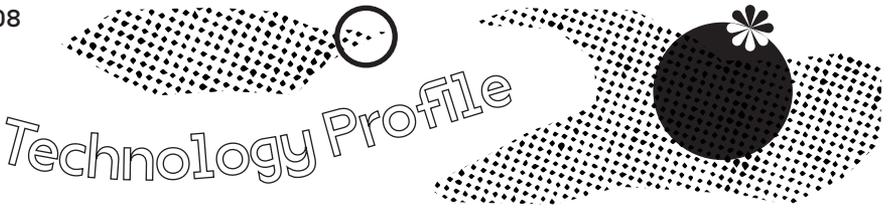
Name of Tech: _____

Tech Company: _____

What does it look like?

Describe the tech. Draw you standing next to this product or using this.

What data does it collect?

e.g. MAC addresses, video, audio.

What is the business model?

e.g. How does the product generate revenue and sustain itself?

Functions e.g. records video	Pros e.g. could catch bike thieves	Cons e.g. could recognize faces	Questions for tech company e.g. do the videos record audio too?
1			
2			
3			
4			

feel free to split up these rows into more rows

Other general questions for the technology's company?

Story Template 1.0

{your team's POV}

IF _____ WERE INSTALLED IN

name of tech product

_____, THEN THE TECHNOLOGY

your neighborhood

WOULD NEED TO AT LEAST:

1 _____

some desired function

From _____ data, we learned:

2 _____

some desired function

From _____ data, we learned:

3 _____

some desired function

From _____ data, we learned:

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THIS CONNECTED TECHNOLOGY

SHOULD CONTRIBUTE TO A FUTURE

_____ THAT

your neighborhood

IS _____ FOR

adjective

_____ SO THAT THEY CAN

group

_____.

action

BOSTON

PROPS

Draw a scene from this future neighborhood:

Interview

Dos

☺ Ask for consent before recording audio

☺ Write or print questions on paper; phones are distracting

☺ Ask for elaboration ("How so? Why do you think so?")

Don'ts

☺ Don't jump into questions; get to know your informant a little

☺ Don't force your questions; prioritize having a conversation

☺ Don't lean on recording; take some notes

QUESTIONS

Your Role: QUESTION-ASKER   NOTE-TAKER   MOOD-CHECKER

Interviewee: _____   Age (Est.): _____

Occupation: _____   Interview location: _____

1

Greet, Context, Consent

Hi, I'm _____!

Thank you for making the time to talk with me / us. In this conversation, we're hoping to talk about _____ and learn more about your experiences _____.

Do you mind if we record this conversation?

2

Introductions

Could you please start by telling me a little about yourself and how you got interested in _____ (ex. air pollution, your company)?

3

Positives

We want to know what a _____ (tech) in _____ (neighborhood) might need to be useful. Based on your experiences, what are some things that you think might make this technology useful? Why?

4

Negatives

What are some things that would make this technology useless, or even harmful in _____ (neighborhood)?

5

Data Uses

This technology collects _____ data. Do you think this data could be useful? How? For whom? Could the data be useless, or harmful? How? For whom?

6

Designing with interviewees

If you had access to this [air quality] data, what would you do with it?

7

Closing

Any other thoughts you'd like to share? Any questions? Do you know who else we might talk with? Thank you for your time and insights.

Observation
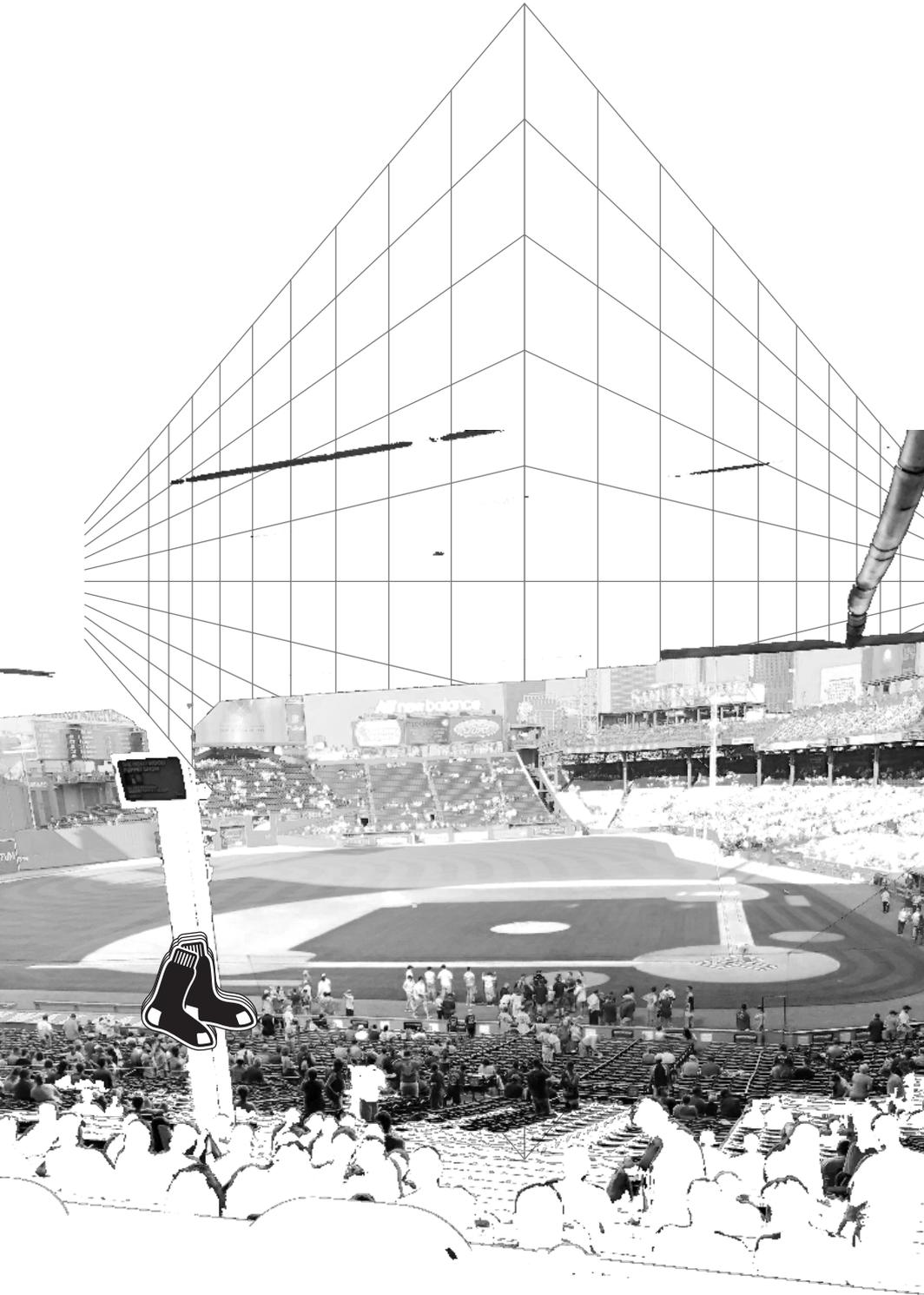
Dos

☺ Be patient and curious

☺ Withhold judgment and stay **descriptive** with **what** you're seeing (less why)

☺ Record details!

Don'ts

☺ Don't crowd the informants

☺ Don't openly advertise your research incentives

☺ Don't assume this is representative data

QUESTIONS

We are interested in how people navigate and use technologies in public spaces in this neighborhood.

Location of observation: _____

1

Sidewalk

List the technologies people are using. How are they using them? Is anything unusual?

Who uses this sidewalk? What are things most people are doing? Is there anything unusual happening? Find a common pattern and count it.

2

List the technologies people are using. How are they using them? Is anything unusual?

Traffic

Who uses this intersection? What are things most people are doing? Is there anything unusual happening? Find a common pattern and count it.

ANALYSIS

Major themes

What are some patterns or common things you noticed?

Imagine your technology product was installed on the street.

Based on your observations, how do you think people would react to the technology? Why do you think so?
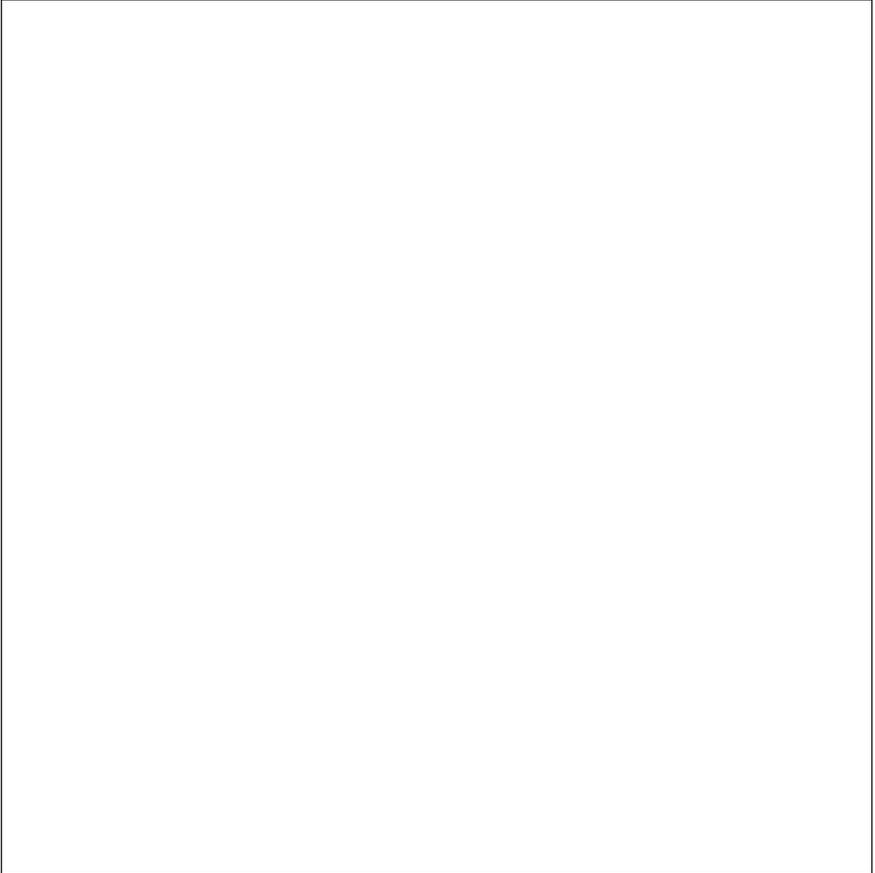
Adding Quantitative Data

✳
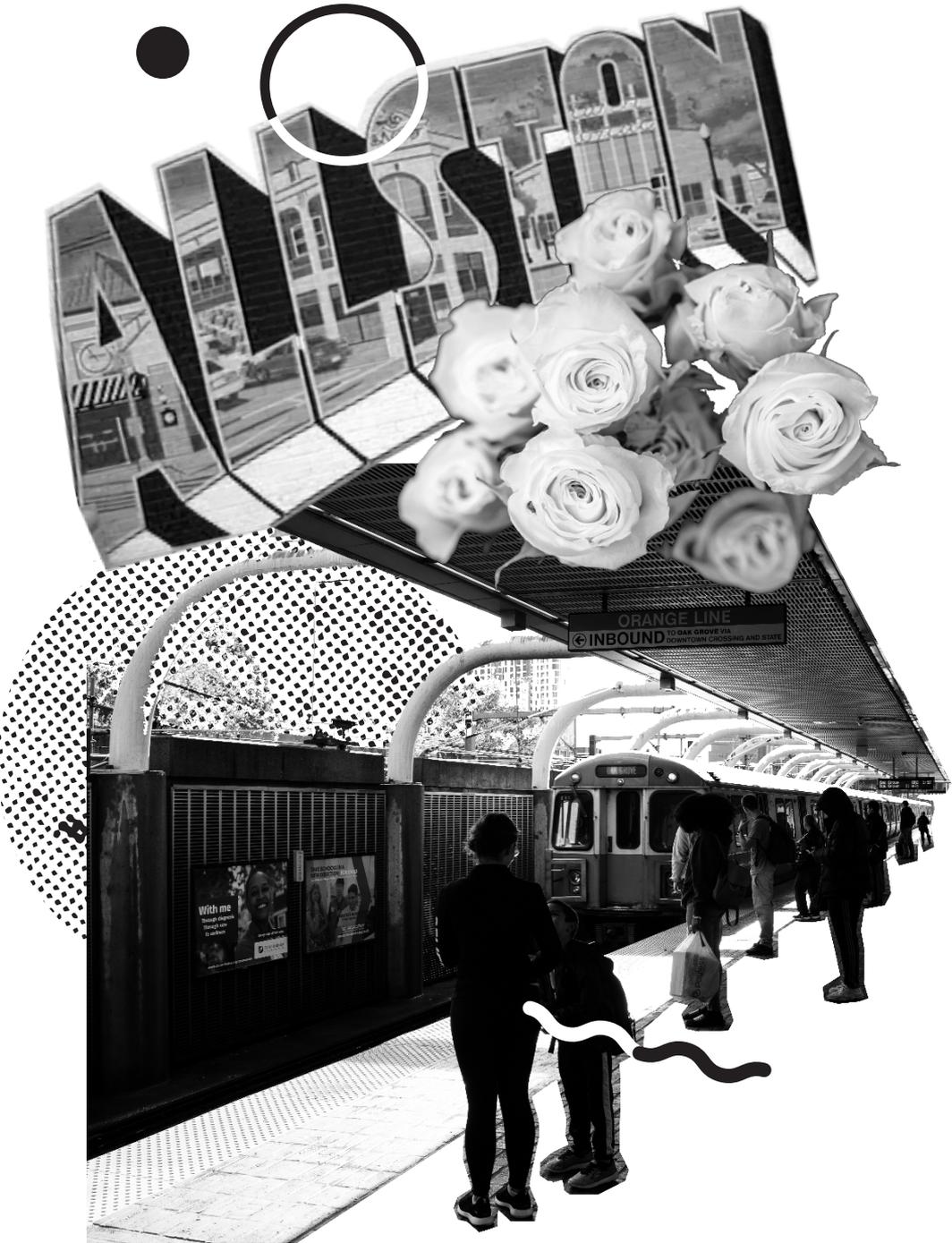
Data Set Name: _____

Where does it come from?

What are the categories (columns)?

What are some questions you could ask of this data?

Any patterns or oddities that you notice in this data set?

Sketch a visualization of your data set:

Finding a story based on the qualitative & quantitative data

COMPILE ALL THE DATA/INFORMATION WE KNOW

Takeaways from Observational data:

Takeaways from Interview data:

Takeaways from Quantitative datasets:

FINDING A STORY IN YOUR DATA

Common patterns between the datasets?

Are there contradictions?

Is there an emerging theme, pattern, or even story?
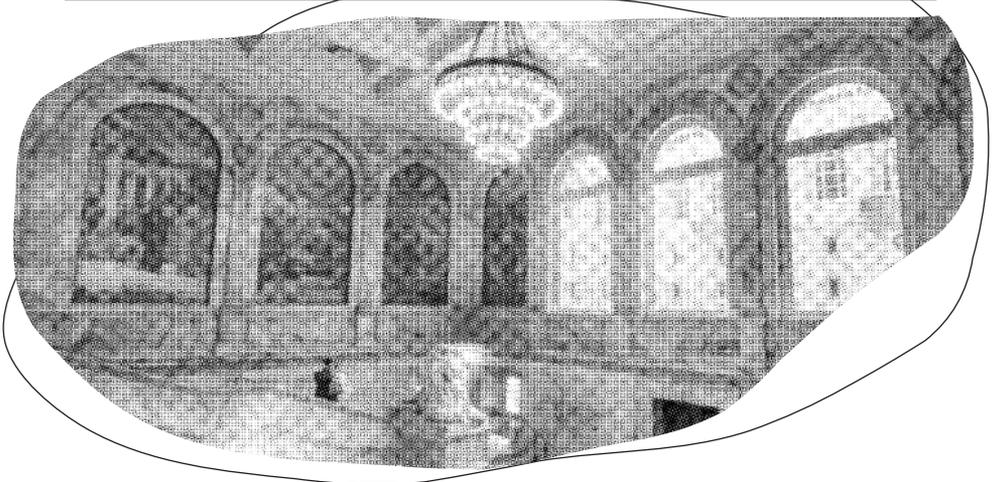
**Choose 1 intriguing pattern/theme or story or data point that your group would like to visualize.**
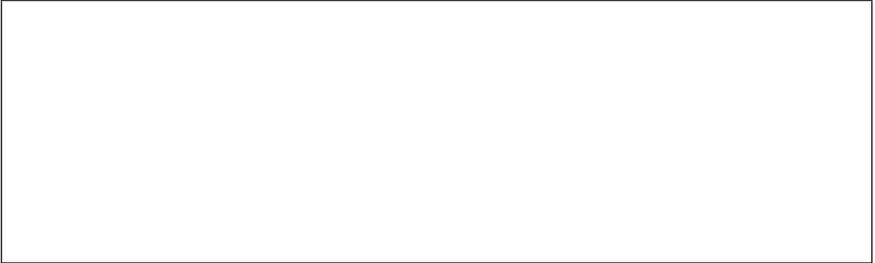
Sketch a visualization idea:

What parts of the story might you want more information?

Sketch a visualization idea:

Story Template 2.0
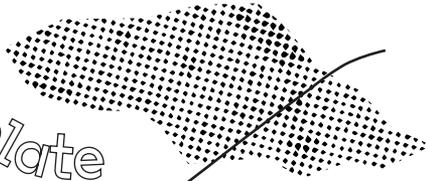
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[ ]

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[ ]

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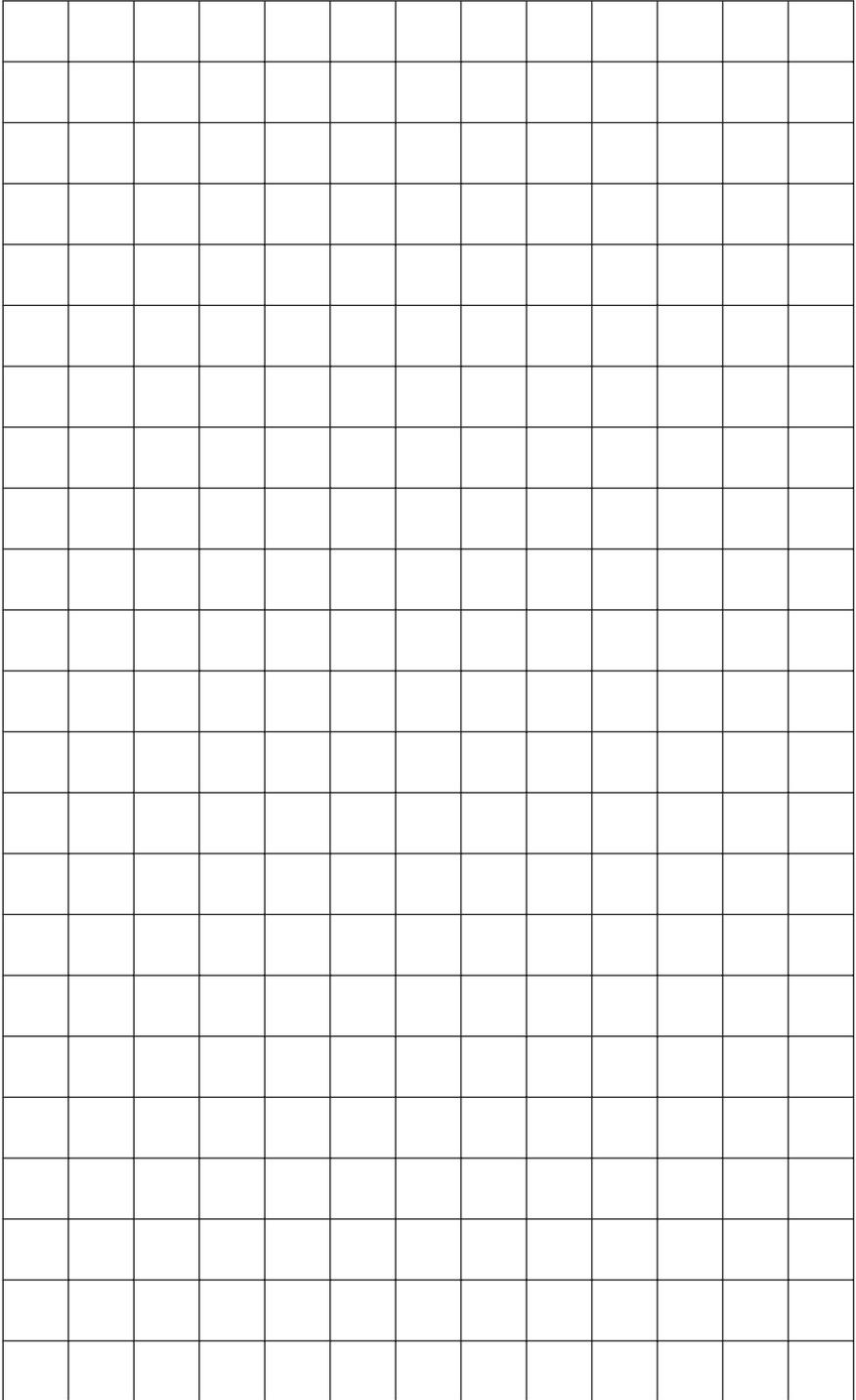
ABOUT BETA BLOCKS

In the last 10 years, one of the most sweeping trends in cities around the world is the adoption of 'smart' digital technologies by municipal governments. These technologies commonly take the form of internet-connected sensors, monitors, and screens that live on sidewalks, street lights, or other public spaces. More often than not, these technologies are installed by city governments without public knowledge and for the explicit purpose of gathering data to optimize the allocation of government resources.

The City of Boston recognizes this paradigm as invasive of privacy, exclusionary of community members, and undemocratic, and "Beta Blocks" is an initiative to explore how a 'smart' Boston can include the voices of those who will be affected by digital technologies in public spaces. The Beta Blocks team will be working with residents from these "Zones" in a series of programs, including Tech Explorers, to offer opportunities to reflect on and experiment with technologies in public spaces.

**TECH EXPLORERS IS A
TEEN PROGRAM THAT
ASKS:**

**Why is data literacy important
today?**

**How can stories be found through
collecting and synthesizing data?**

**How can storytelling with data be a
tool for social change?**

Beta Bl•cks