



Design of Movement: Transportation

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Meet the Team



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Computer Science
Minneapolis, MN



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Symbolic Systems
Los Angeles, CA

**Equity and
Accessibility**

**Universal
Experience**

Domain Selection

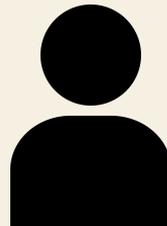
**Personal
Experience**

Sustainability

Needfinding Methodology

- WHO: Random selection of Caltrain passengers
- WHY: Unique experiences moving around the Bay Area
- HOW: Spontaneous interaction
- WHERE: On Caltrain, around SF Caltrain Station

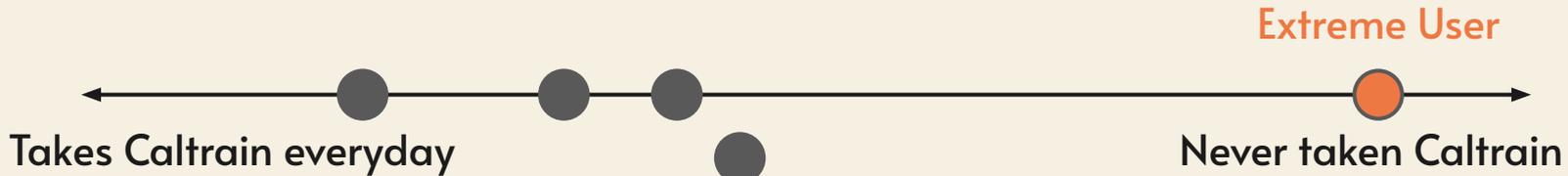
Lead Interviewer



Supporting Interviewer
&
Notetaker

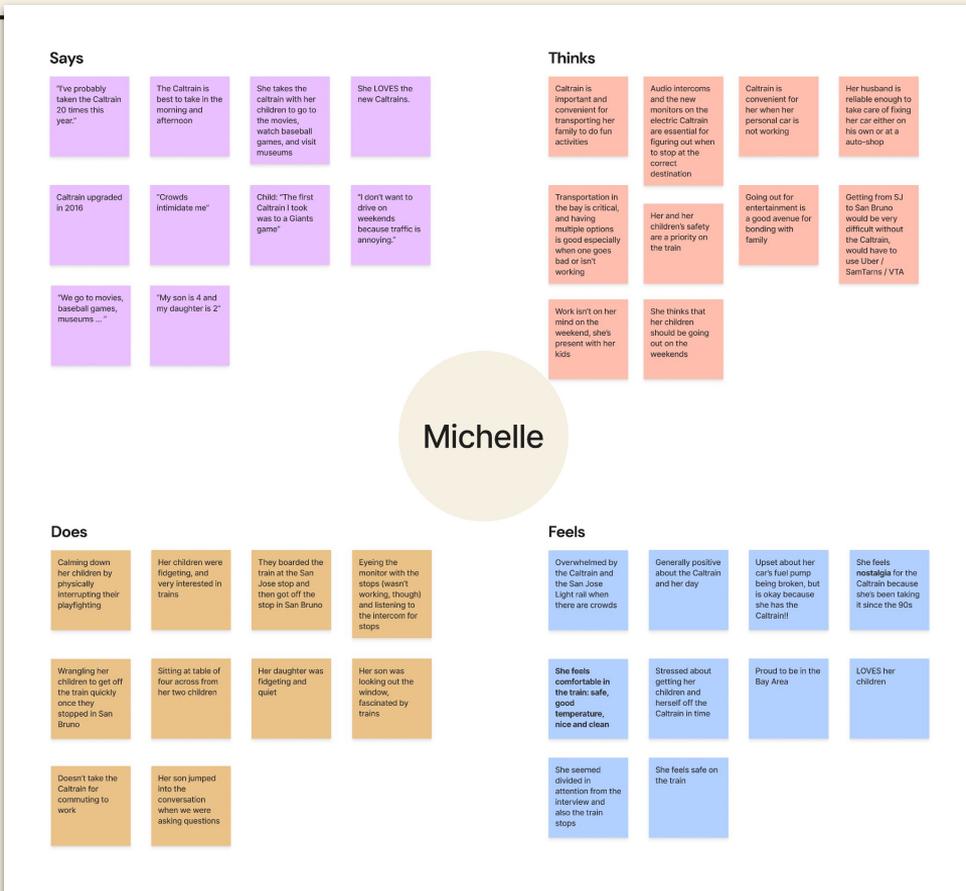
Needfinding Methodology

- How **long** have you been using CalTrain?
- What do you **think about or do** when you're commuting?
- What are your **other** transportation options?
- Do you remember your **worst** experience with public transportation?
- What **digital tools** do you use for your own navigation, transportation, or perhaps deliveries, if applicable?
- What would make your commute more **convenient** ?



Empathy Map for Michelle

Mid-30s, mother of two young children, San Bruno native



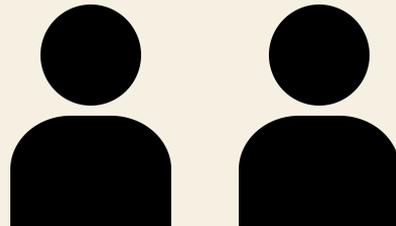
Quote, Need, and Insight

WHO: Michelle

QUOTE: “Crowds intimidate me.”

NEED: Calmer environment when Caltrain is busy to take care of her children and herself

INSIGHT: Parents are susceptible to many distractions on the Caltrain



Empathy Map for John

Says

"I'm quite gregarious but I don't feel the need to talk to people on the train."

Describing the noise of the caltrain: "It's quiet, I hate neighbors who used to hate hearing the old caltrains, but with this new one, its not longer a problem."

On driving to SF: "If you can't find parking, it's a pain in the neck."

He only started using the Caltrain post-COVID

"I'm happy to spend \$12 [found trip] for the new Caltrain."

On using the Caltrain app: "It's brainless. It's like 3 touches on my phone."

The South SF Caltrain stop is very close to his work.

Parking in SF is expensive

The Caltrain gives John more flexibility with work.

Described himself as "too old" to use autonomous vehicle services (i.e. the learning curve isn't worth it)

Thinks

The caltrain has vastly improved in the last year

Public transportation options in SF are better than LA

Caltrain encourages productivity (you can get stuff done)

The weather in CA makes using public transportation even easier

It's more convenient and productive to work from home (even with great transportation options)

Too much digital clutter for transportation in the Bay Area

There should be a more streamlined process to access all the information and to pay for the interconnected transit systems in the Bay Area

Isn't bothered by the noise from the previous Caltrains

Empathetic towards his neighbors who were bothered by the noise from older Caltrains

Has a family man: his family is clearly important and views attending sports games as quality time with his family

John

Early 60's, NBC sports broadcasting, SF native

Does

listens to music and does work on the train

Takes the last car on the train because no one goes in it

only drives to SF if he's picking up / driving his daughter around or has to drive around a client

Uses SpotHero in SF to find public parking, but the service is expensive

Got off at San Carlos stop, listening to intercom because monitors were broken

Chose seat at table booth to sit at

Flirt bump/ friendly slap

Eager to share his past

Sitting calmly and speaking in a fatherly manner

More than happy to pay \$12 for a round trip from San Carlos to SF on the mobile app

Feels

At peace on the Caltrain

Love for his daughter

feels generational divide between him & his daughter concerning autonomous vehicles

Proud to be a SF resident

Ecstatic about new Caltrain

At peace about modern tech (i.e. Caltrain and Waymo), but doesn't personally take Waymo

Self-assured in his opinions

Financially stable

Loves his home - Caltrain feels like home

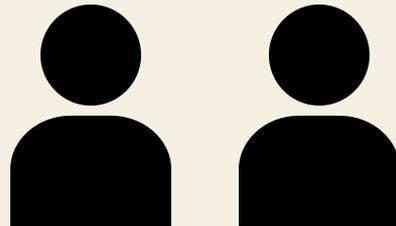
Nostalgia for his time growing up in there

Quote and Insight

 WHO: John

 QUOTE: “I’m quite gregarious but I don’t feel the need to talk to people on the Caltrain.”

 INSIGHT: Even open, friendly users would rather keep to themselves on public transportation



Empathy Map for Tanvi

Extreme User

Says

"I like that the walk mentally sets me up for the day and helps me to decompress after work and before coming home."

"I find it [the Bay Area] much more walkable compared to Southern California."

In Orange County, it takes 25 minutes to walk to the bus to get to the mall."

When I was 13 years old, my cousins from the UK visited and in order to show them the mall, we had to take the bus."

She would use the Caltrain again if she needed to get to South Peninsula and didn't have access to a car

"I feel fortunate that I can walk through the 'nice' parts of the city"

"I'm from Southern California, so I usually fly"

"10 years ago when I had to park my car, it was a pain because there was a lot of street cleaning"

"Technology is too involved in mundane tasks"

"I would rather Uber"

Thinks

Apps like Waymo scrape personal data

Taking the Caltrain is more convenient than taking an Uber from Lawrence to S.F.

Parking is unobtainable in the city

Walking is a good way to decrease from work

Values independent activities (e.g. listening to podcasts, going for walks)

Technology is overly trusted for tasks that may not need it like mundane tasks

The creation of more digital apps feels like a data grab and is a personal privacy concern

Money is not a pain point

Thinks cleanliness is important

Thinking she may not be best candidate because this is her first time on the Caltrain

Tanvi

Does

Walks around SF with headphones on during summer, no headphones during the winter for safety concern

Listens to one podcast (Pivot)

Works in dental health

Stuffy eyes/reluctant about doing the interview

Expressive with her hand gestures when talking about the caltrain

Knees were crossed

Mentally prepares and decompresses for the day with walks in SF for 30-45 minutes

Nods in disapproval when skeptical (autonomous vehicles)

puffed out her ticket to show us she purchased one

uses Uber

Feels

comfortable and safe in her neighborhood in SF

cautious about walking in SF when it's dark outside

values time in the outdoors and alone

nervous that I (zcy) was checking whether she purchased a ticket for the Caltrain ride

fearful/skeptical of burgeoning technology (Waymo, for example)

satisfied with her first time experience taking the Caltrain

values her personal privacy

values rituals and routines

seemed hesitant to talk to us and a little weary

at ease on the Caltrain

Late 30s, healthcare, SF resident for the last 16 years

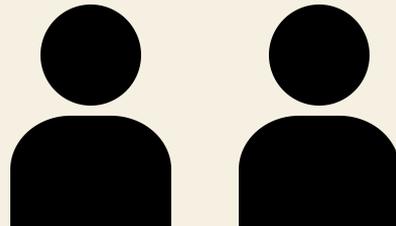
Quote, Need, and Insight

 WHO: Tanvi

 QUOTE: “Technology is too involved in mundane tasks [like riding transportation]”

 NEED: To feel authentic, have autonomy, and have freedom from technology

 INSIGHT: There is too much digital dependency which is a cause of distrust



Brainstorming

- Skeptical of using Waymo because of privacy and safety concerns but no issue using Uber
- People openly accept the new electric Caltrain
- Personal car ownership yet still opt to take public transportation (Millbrae)
- Fares are not a concern
- Parking, safety
- Use clipper card app to pay for ticket
- Public transportation payment system isn't trustworthy, so this leads them exhibit anti-social behaviors due to their assumptions about other passengers
- Extremely anti-social atmosphere of public transportation (muted Johns "gregariousness")
 - Caltrain rides are non-social even with the addition of new tables
- People like to feel relaxed on the train while on their way to 'be' busy
- Passengers traveling as a group: families with children can use public transportation to reach entertainment

Surprise



**Generational
divide in trust in
autonomous
vehicles**



**Cost of tickets are
not a main
concern**



**People are
accepting of new
electric Caltrain**

Tensions



Public
transportation
mistrust and
antisocial
behavior



Non-social
atmosphere vs.
design efforts



Anti-social
environment vs.
group travel

Contradictions



[dis]trust in safety
in public
transportation



Car ownership vs
public
transportation



Tech
empowerment vs
skepticism

Insights

- Cleanliness and relaxing on Caltrain is a relief, especially when compared to BART's stigma and incidents
- Public transportation systems in the Bay Area are *VERY disconnected* physically but also as in the lens of user experience
- Entertainment like ball games, movies, and museums were common reasons to take the Caltrain to SF, especially with family

Needs

- Safety, low cost, and convenience features such as the audio intercoms and the new monitors are essential for passengers
- Unified experience for managing public transit, where all route planning, cost prediction, and fare payments can be done through a single platform, eliminating the inconvenience of using multiple apps and systems
- Entertainment / Distractions for children with parents ON the Caltrain

Expert Consultation Interview

Seek expert opinions to validate assumptions about transportation convenience, safety, privacy, affordability and its impact on people

Narrow Down and Filter needs

Improving family transit experience, integrating digital tools for seamless route and payment management, sports entertainment?

Experience Prototyping

Testing assumptions, exploring POVs and HMWs, refining needs

Next Steps



Thank You!

 Questions?

