The T-Space Model: Maximizing Value and Revenue of Transit Real Estate Assets

by

Manuel Velazco

B.S., City and Regional Planning, 2012

California Polytechnic State University, San Luis Obispo

Submitted to the Program in Real Estate Development in Conjunction with the Center for Real Estate in Partial Fulfillment of the Requirements for the Degree of Master of Science in Real Estate Development

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Massachusetts Institute of Technology

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Signature of Author‾‾

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Center for Real Estate
July 15, 2020

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John F. Kennedy
Lecturer, Center for Real Estate
Thesis Supervisor

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Accepted by‾‾

<div align="right">

Professor Dennis Frenchman
Class of 1922 Professor of Urban Design and Planning
Department or Urban Studies and Planning
Director, MIT Center for Real Estate

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ABSTRACT

We founded T-Space in response to the underutilization of transit stations and the opportunity it presents itself being a high volume, small footprint space with a strong network to residential neighborhoods and employment centers. As a team, we found ourselves asking: Can transit stations be an alternative space for retail service? Can we bring convenience to commuters? Can we add to the neighborhood identity through modernization and wayfinding strategies? Can we help transit agencies improve their real estate source of income? This thesis articulates the T-Space business model developed through MIT's DesignX accelerator program. T-Space, short for Transit Space, is a real estate company focused on modernizing stations and improving the quality of life for commuters. Our mission is to revitalize these untapped assets and incorporate innovative retail technology for convenience. By modernizing transit stations across the United States, we have an opportunity to better connect transit stations to its community while increasing the real estate revenue source for the transit agency. At the same time, retailers can test new markets, while commuters benefit from automation and self-service. In our efforts of developing a business model that works for transit agencies, retailers, and commuters, we hope the success of projects contribute to an increase in ridership.

Thesis Supervisor: John F. Kennedy
Title: Lecturer, Center for Real Estate

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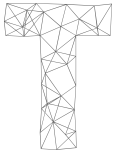
Executive Summary

The Problem

The issue discovered is threefold. First, for many transit agencies, the classified real estate source of income is among their lowest performing— yet they hold assets with high-volume foot traffic in condensed spaces. Secondly, retail is evolving with online ordering, self-service, and automation and could benefit from this new type of marketplace platform. Finally, and most importantly, commuters are frustrated with increases in fares but do not see improvements, modernization, nor basic amenities. From our analysis, transit stations are not particularly viewed as part of the neighborhood experience. Instead, it's viewed as a space where people stressfully try to avoid. As a result of our extensive study, we found that there is a need to improve the ridership experience across American transit stations, while maximizing value and revenue of these real estate assets.

Our Mission

The mission of T-Space is to transform transit stations and incorporate innovative retail space for a better commuter experience. We see an opportunity to better connect transit stations to the neighborhood, a new platform for retailers and placemaking, and an improved source of revenue for transit agencies.

The Start-Up and Management

T-Space was founded at MIT in Fall of 2019 by three students: Manny Velazco (MIT Center for Real Estate), Takanori Kakishita (Sloan School of Management), and Daisha Martin (Harvard Graduate School of Design).

Through a competitive pool, T-Space was accepted into MIT's 2020 DesignX cohort to further develop the business model, which is described throughout this document.

Our Services

Our clients are transit agencies, retailers, and commuters. Through a contract and in-good-faith partnership, we provide a renovated space in transit stations that is designed with the community and neighborhood in mind. We also provide a mobile application for commuters to track their train, add cash value, and order goods and/or services at their desired transit station. All stations will offer Wi-Fi, improved seating, art installations, informative electronic boards, and improved wayfinding.

Market Analysis

Across the United States, there are 5,414 total transit stations, with the top 50 transit agencies managing 49% of those. Transit Oriented Communities (TOC) and Developments (TOD) have been booming in recent years, making a resurgence from the early 1990's and connecting sprawling residential neighborhoods to urban and/or employment centers. From our analysis, we're using data analytics to help us paint a better picture of each transit station. Among many other data points, we're looking at journeys to home and work, employment centers, surveys and interviews, consumer preferences, and tapestry segmentations to incorporate the appropriate design elements and services. Our studies suggest that the most beneficial stations to initially target are those that are:

1. Located in Tier 1 or Tier 2 Employment Centers (as defined internally and explained in this document) OR
2. Within High Development Potential Zones AND
3. Have more than 12,000 Average Weekday Boardings AND
4. Offer limited retail service AND
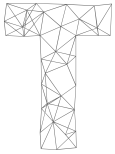5. Are NOT architecturally iconic

Competitive Analysis

In the market today, T-Space is unique in targeting transit stations. Brokers

and leasing consultants for transit agencies that currently offer retail may be viewed as competition, but indeed, T-Space views this an opportunity for collaboration and partnership. Our model is most similar to those of airports, where, of course, the wait time is much longer, but offer convenient amenities and retail services. What sets us apart is the innovative retail we seek to incorporate, the careful placemaking and design considerations, a unified mobile application and our customer service.

Financial Projections & Financing Requirements

Our financial projections deeply rely on the local and neighborhood market, as well as our arrangement with the transit agency. In exchange for modernized transit stations and attracting the appropriate businesses in each station, we are seeking transit station platforms free of charge, or with discounted lease rates to begin our venture. As we reposition the stations, we'll lease the space to retailers and charge commissions fees which will then be allocated to the Company (T-Space), and the transit agency or asset owner. Because our footprint is smaller, we still intend to be at market-rate for leasing purposes—the benefit comes from being a self-service amenity in a smaller footprint space. We also intend to have income from advertisement, which may also be allocated to the two entities. Due to renovation costs being so high and, indeed, risky, we concluded to start our pilot partnership with a fast-growing transit agency, like Los Angeles Metro, to start at a planned station to reduce upfront cost. With the acceptance into MIT's DesignX, T-Space won $15,000 to jump-start the venture once incorporated. As of today, T-Space is currently in the process of incorporating and in discussions with several transit agencies to pilot our business. Additionally, T-Space is also asking for grants, public funding, and in communications with investors for private funding.

T-Space

Maximizing Value and Revenue of Transit Real Estate Assets

Table of Contents

Introduction

In Fall of 2019, through an entrepreneurship course at MIT, we founded a development company named T-Space. As three students having diverse backgrounds in Urban Planning (Daisha Martin/Manny Velazco), Real Estate Development (Manny Velazco) and Finance (Takanori Kakishita) from Harvard's Graduate School of Design, MIT's Center for Real Estate and MIT's Sloan School of Management, respectively, we began exploring transit stations and ask the question; are transit stations really maximizing value?

Transit stations across the United States are typically nothing more than places where people catch a train, or bus, and leave off to their next destination. From personal experience, observations and interviews, we found that often there is a place for a quick coffee, souvenirs, or newspaper stand, especially at multi-modal terminals, but for the most part, people track their train or bus on a mobile device and try to spend as little time possible waiting at the station.

Our goal at T-Space is to transform transit stations and incorporate a higher level of service. T-Space would work hand-in-hand with transit agencies and private retailers, retrofit stations to be modernized, attractive destinations, provide a reliable digital platform and improve the overall commuter experience. We believe our solutions will increase ridership, provide a unique opportunity for the ever-evolving retail sector and maximize the value of these real estate assets.

This document will share with you the research we conducted, our main findings, and the business model following MIT DesignX's sixteen pillars under the four main subject headings: Context, Solve, Envisioning and Scaling.
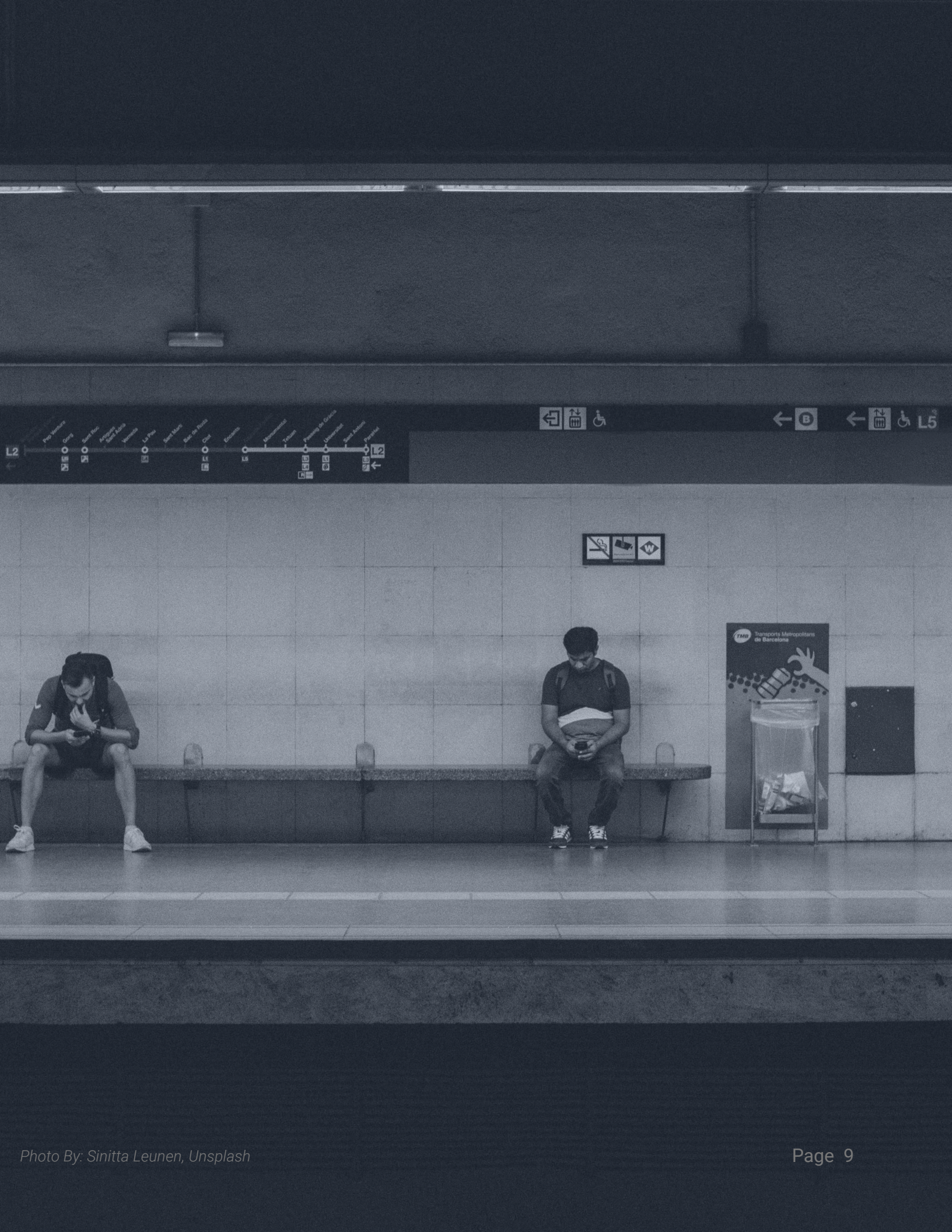
CONTEXT & UNDERSTANDING

Transit Oriented Communities & Transit Oriented Developments

Transit Oriented Communities (TOC) and Transit Oriented Developments (TOD) have been booming all across the United States, where even the sprawling Los Angeles neighborhoods will soon benefit from new transit connectivity. The concept of TOD, which has made it's resurgence since the early 1990's, features mixed-use buildings at or adjacent to transit facilities while TOC, a relatively newer terminology, has a more encompassing view—acknowledging that neighborhoods built around transit hubs are complex ecosystems that should address not just the physical form (buildings and infrastructure), but also mobility dynamics (how people get around) and social resilience (community input).

The success of transit-oriented communities is unique to each state, region, county and neighborhood, but all likely share these three common features to create a model for sustainable development:

- Public-Private Collaboration
- First-Last Mile Connections
- Community Engagement in the Planning Process

Transit Oriented Communities require collaboration and partnership between the transit agencies or providers, municipal governments, and

private developers to develop the mix of uses such as housing, office, and retail needed to create a vibrant, walkable community. First-Last Mile Connections is a strategic approach that looks beyond the adjacent uses and analyzes development opportunities within a quarter-mile, half-mile or mile. This highlights the importance of how people travel within the access ring. Community engagement in the planning process is imperative for transit agencies, municipal governments and developers to move forward with any TOC project. By having community input, projects can follow newly created guidelines that include local concerns and desires.

EXAMPLE OF PROJECT PARTNERSHIP -

Inspired by:
L.A. Metro's Blue Line
First/Last Mile Plan

TRANSIT AGENCY

COMMUNITY MEMBERS

NONPROFIT
Community-based Organizations

CONSULTANTS
Transportation Engineers/Planners
Architects
etc.

MUNICIPAL GOVERNMENT

FIRST MILE   **SUBWAY/LIGHT RAIL**   **LAST MILE**

TRIP
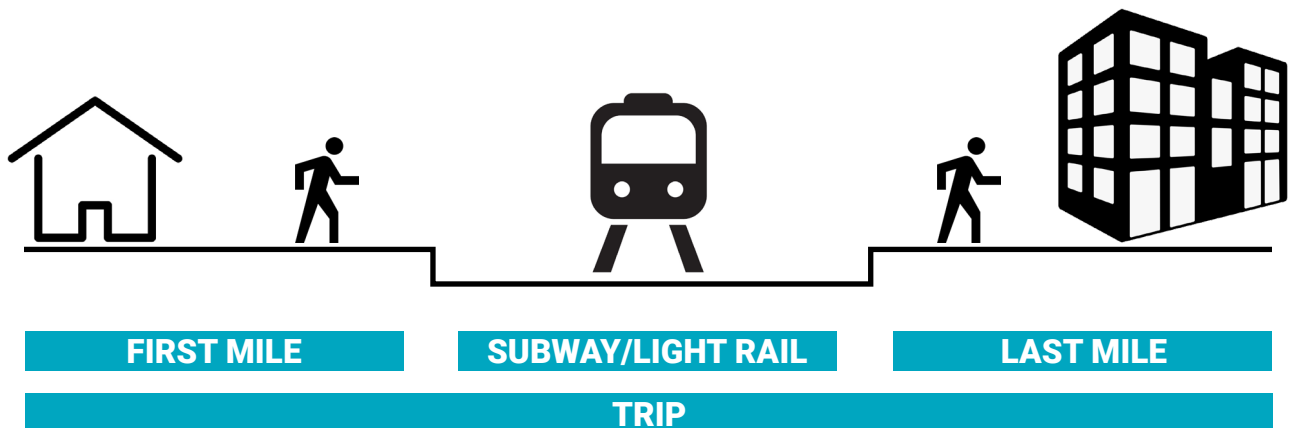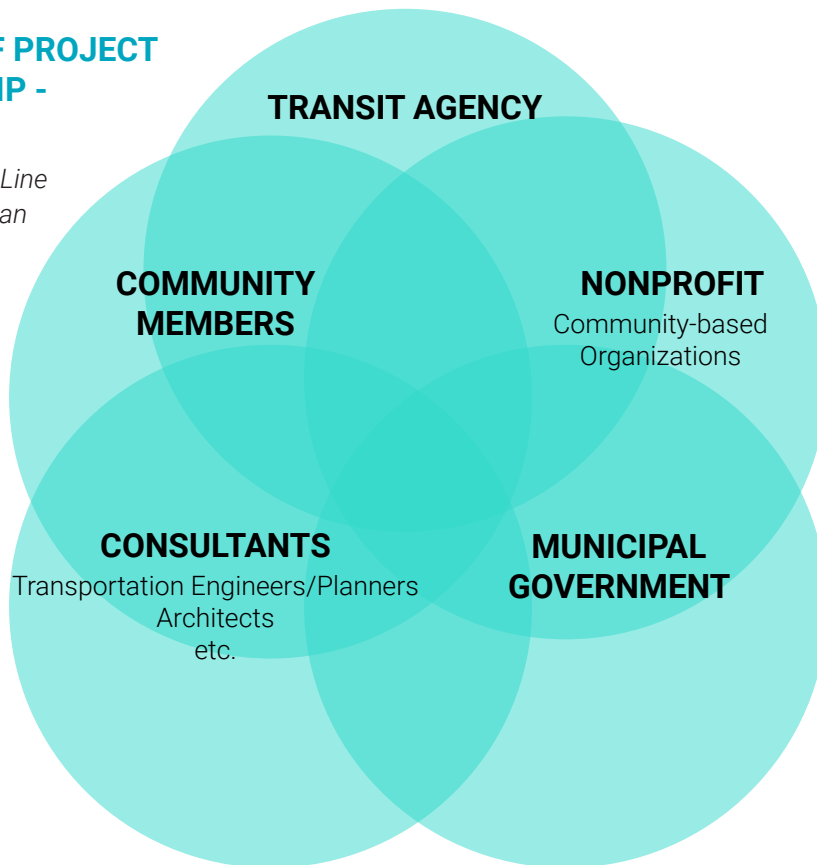
Example of TOC: North Hollywood Joint Development Project
Rendering by Gensler

Rail & Rail Station Research Across the United States

According to the 2019 American Public Transportation Association (APTA) Fact Book, public transit in the United States is more popular, widespread, accessible, efficient, convenient, and receiving more private investment than ever before. There are currently 15 heavy rail transit systems and 42 light rail/ streetcar systems in the United States, including Puerto Rico. Since 1997, rail ridership has increased more than 60 percent, and is continuing to grow. For purposes of understanding the different "systems," heavy rail systems are commonly referred to as "subways" or "metros" and do not interact with any other mode of transportation. On the contrary, light rail and streetcars predominantly operate on street level traffic, often having their own lane. Commuter rail typically connects people from suburban areas to downtown city centers, such as Providence, Rhode Island to Boston, Massachusetts. These services are more direct, having less frequent stops and are higher capacity trains.

Figure 1.1 shows the increase in the number of rail systems across the United States over a 30-year time frame, and is projected to grow. With this in mind, the number of transit stations will continue to grow as well. Figure 1.2 shows a table of new rail infrastructure added in 2017 which has resulted in

Figure 1.1 - Count of Rail Systems from 1987 to 2017

SOURCE: APTA FACT BOOK ANALYSIS

Heavy Rail   Commuter and Hybrid Rail   Light Rail and Streetcar
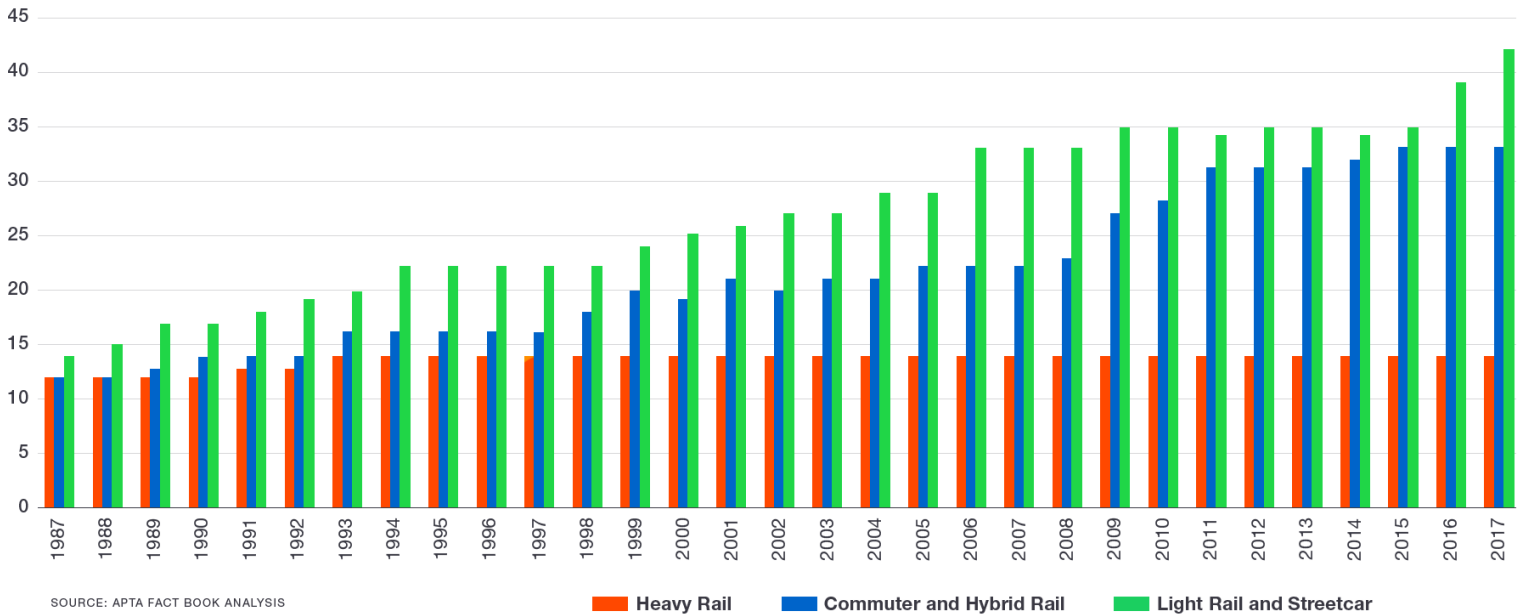
Figure 1.2 - New Rail Infrastructure (including Number of Stations) in 2017

Table of New Rail Infrastructure Added in 2017						
Urbanized Area	Organization	Mode	Segment (mi)	No. of Stations Added	Date Opened	Project Type
New York, NY	New York MTA	Heavy Rail	2	4	1-Jan-17	Extension
Houston, TX	Metropolitan Transit Authority of Harris County	Light Rail	0	2	11-Jan-17	Extension
Denver, CO	Regional Transportation District	Light Rail	10.5	8	24-Jan-17	Extension
San Francisco, CA	San Francisco Bay Area Rapid Transit	Heavy Rail	5.4	1	25-Mar-17	Extension
Detroit, MI	M-1 Rail	Streetcar	3.3	12	12-May-17	New System
San Francisco, CA	Sonoma-Marin Area Rail Transit	Commuter Rail	43	10	25-Aug-17	New System

37 newly added stations. For our business, that means 37 potential stations T-Space could be part of in one year.

Additionally, total public transportation expenditures were $67.7 billion, with 14%, or approximately $9.4 billion, being spent on Passenger Stations. To-date, there are 5,414 total transit passenger stations across the United

Stations. As defined by APTA, a passenger station refers to a boarding area with a platform. According to their data, amenities still tend to be slow moving with 21% of all stations having WiFi as of 2019, and the number of rail stations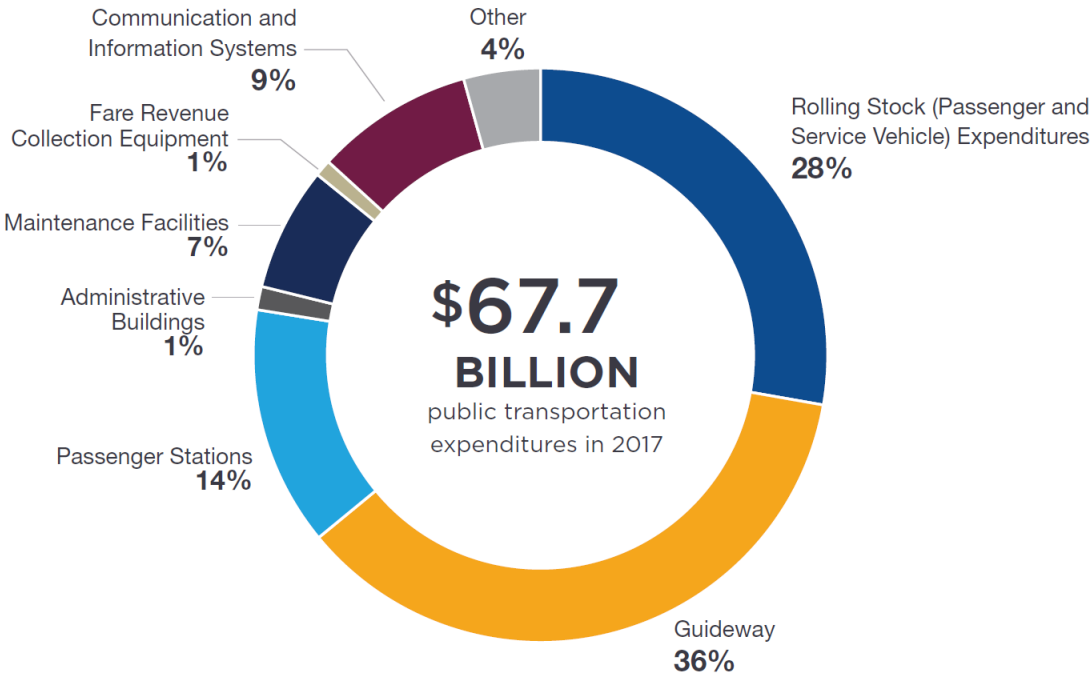 with informational video displays has grown from 12% to 47%. Transit agencies are also evolving their payment systems to "smart cards" as well as open payment systems which accept contactless debit or credit cards and mobile phone payments. This is important for us, T-Space, to understand because transactions and services are rapidly transitioning to be contactless. This evolution is addressed in future sections as we discuss the Digital Platform by T-Space.

There are 5,414 total stations across the United States

Figure 1.3 -Capital Expenditures by Type, 2017

Communication and Information Systems
9%

Other
4%

Fare Revenue Collection Equipment
1%

Rolling Stock (Passenger and Service Vehicle) Expenditures
28%

Maintenance Facilities
7%

Administrative Buildings
1%

$67.7 BILLION
public transportation expenditures in 2017

Passenger Stations
14%

Guideway
36%

SOURCE: APTA FACT BOOK ANALYSIS

Figure 1.4 -Rail Stations Adding Customer Amenities and Improving Access

Chart showing percentages for 2000 (orange) and 2018 (blue):

- Public Address Systems: 2000 ~47%, 2018 ~78%
- Vehicle Arrival Time Displays: 2000 ~3%, 2018 ~70%
- Security Cameras: 2000 ~23%, 2018 ~55%
- Wi-Fi: 2018 ~21%
- ADA Accessibility: 2000 ~52%, 2018 ~68%

Legend: 2000 (orange), 2018 (blue)

SOURCE: 2018 APTA INFRASTRUCTURE DATABASE

FREE WI-FI
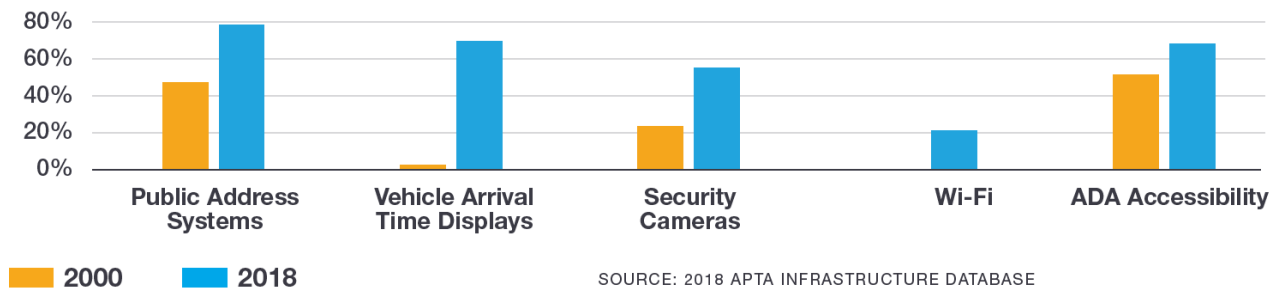
Connect to:
TransitWirelessWiFi

Transit Wireless WIFI.com

Figure 1.5 - List of the 50 Largest Transit Agencies (by Unlinked Passengers)

List of The 50 Largest Transit Agencies (According to APTA)			
Transit Agency	**Commonly Known-As**	**Urbanized Area**	**No. of Rail Stations**
MTA New York City Transit	NYCT	New York, NY	472
Chicago Transit Authority	CTA	Chicago, IL	146
Los Angeles County Metro. Transp. Auth.	LA Metro	Los Angeles, CA	93
Massachusetts Bay Transp. Auth.	MBTA	Boston, MA	53
Washington Metro. Area Transit Auth.	WMATA	Washington, DC	91
Southeastern Pennsylvania Transp. Auth.	SEPTA	Philadelphia, PA	73
New Jersey Transit Corporation	NJ TRANSIT	Newark, NJ	166
San Francisco Municipal Railway	Muni	San Francisco, CA	33
San Francisco Bay Area Rapid Transit District	BART	Oakland, CA	48
King County DOT	King County Metro	Seattle, WA	13
Metropolitan Atlanta Rapid Transit Authority	MARTA	Atlanta, GA	38
MTA Bus Company	MTABUS	New York, NY	
MTA Long Island Rail Road	MTA LIRR	Jamaica, NY	124
Maryland Transit Administration	MTA	Baltimore, MD	90
Tri-County Metro. Transp. District of Oregon	TriMet	Portland, OR	94
Denver Regional Transportation District	RTD	Denver, CO	50
Port Authority Trans-Hudson Corp.	PATH	Jersey City, NJ	13
Miami-Dade Transit	MDT	Miami, FL	42
San Diego Metropolitan Transit System	MTS	San Diego, CA	53
Metro. Transit Authority of Harris County	METRO	Houston, TX	39
Metro-North Commuter Railroad Co.	MTA-MNCR	New York, NY	124
Metro Transit		Minneapolis, MN	19
Northeast Illinois Reg. Commuter Rail Corp.	Metra	Chicago, IL	242
Honolulu Authority for Rapid Transportation	HART	Honolulu, HI	21
Dallas Area Rapid Transit	DART	Dallas, TX	74
Reg. Transp. Comm. of Southern Nevada	RTC	Las Vegas, NV	4
Port Authority of Allegheny County	PAAC	Pittsburgh, PA	27
Alameda-Contra Costa Transit District	AC Transit	Oakland, CA	
Central Puget Sound Regional Transit Authority	ST	Seattle, WA	70
Utah Transit Authority	UTA	Salt Lake City, UT	73
Orange County Transportation Auth.	OCTA	Orange, CA	11
Bi-State Development Agency	Metro	St. Louis, MO	16
Greater Cleveland Reg. Transit Auth.	GCRTA	Cleveland, OH	52
City of Phoenix Public Transit Dept.	Valley Metro	Phoenix, AZ	35
Santa Clara Valley Transportation Authority	VTA	San Jose, CA	60
VIA Metropolitan Transit	VIA	San Antonio, TX	
Milwaukee County Transit System	MCTS	Milwaukee, WI	
Pace - Suburban Bus Division	PACE	Arlington Heights, IL	
Capital Metropolitan Transp. Auth.	CMTA	Austin, TX	9
Broward County Transit Division	BCT	Plantation, FL	
Westchester County Bee-Line System	WCBLS	Mount Vernon, NY	
Niagara Frontier Transp. Auth.	NFT Metro	Buffalo, NY	4
Central Florida Regional Transp. Authority	LYNX	Orlando, FL	16
Nassau Inter County Express	NICE	Garden City, NY	
Long Beach Transit	LBT	Long Beach, CA	6
Charlotte Area Transit System	CATS	Charlotte, NC	62
City of Detroit Department of Transportation		Detroit, MI	
New York City Department of Transportation		New York, NY	
Washington State Ferries		Seattle, WA	
Ride-On Montgomery County Transit		Rockville, MD	

Transit Retail in the U.S.

In sharp contract with the flourishing and vibrant transit-oriented communities above ground, transit stations themselves have remained relatively the same throughout time. The typical transit station can be described as a place to simply catch the train or bus for the final destination and offers a generic coffee shop, vending machines and a newspaper stand. Indeed, some exceptions are made for major transportation hubs like the Oculus in New York City, where the larger, iconic stations offer more variety in retail.

The concept of transit retail is newer for the United States and not as widespread but it continues to prove as a space to adopt and accommodate the ever-evolving retail industry. It hasn't been more than a few years that developers, brokers, and planners have started to view transit stations as viable locations for small format convenience retail. According to a CBRE study, 20% of American and Middle Eastern store brands have started targeting transit hubs, whether airport or train stops, as their models have shifted and see potential in the high volume of foot traffic.

As it relates to transit stations, there are various forms of retail and locations within each station. Retail can be found:

   • Before the turnstiles, either at-grade or below-grade
   • After the turnstiles, either at-grade or below-grade

Example of various types of turnstiles
Source: Howell Protection Systems [India] Pvt. Ltd.

Tenant mixes at transit stations vary, generally offering quick food stands, coffee shops such as Dunkin Donuts or Starbucks, and grab and go items. In general, the mix of retail in transit stations benefits commuters, private companies and the transit agencies. The commuters have options and convenience, private companies are benefiting from the sale, and transit agencies have another source of income. The issue with retail transit, however, is that it is limited in innovation. In other words, there is value to be unlocked in these real estate assets.

This is where T-Space saw an opportunity to reimagine the physical spaces at transit stations.

Examples of current retail conditions in various subway stations

Needs Analysis

In this module, practical analytical techniques are applied to design a solution for people. The idea here is when the focus is on people's everyday experience, or in this case ridership experience, we begin to understand any unmet, and even unknown, needs or problems in the market. We begin to hone in on what users are lacking, missing, or wants, and how we can improve. Who are we designing a solution for?

In conducting our own research and observations at various stations in U.S. cities such as Boston, New York, Los Angeles, Washington D.C. and Chicago, we quickly came to our problem statement:

"There is a need to improve the ridership experience across American transit stations."

Heavy rail transit systems were, on average, built 76 years ago, and light rail transit systems were, on average, built 36 years ago. With this in mind, many transit stations have not been modernized from a design incentive since their opening date. Most stations have only been retrofitted to be more accessible for disabled persons by providing wheelchair ramps and elevators. In addition, many stations still have poor lighting and HVAC systems, outdated services, no sense of arrival, and uninviting waiting experience.

In Fall of 2019, our team conducted a series of interviews to understand riders' issues and desires. Through this process, we learned that there is tension and frustration with agencies and the actual commute itself. While all of our questions were geared towards the physical transit space and its use, many commuters volunteered their opinions on the increase in fares, but lack of known improvements, and the miscommunication with delayed trains and construction detours. Holistically, this was great feedback regardless because we are in the business of solving issues of the ridership experience.

As it relates to the transit stations themselves, people found that it is "very crowded" and not very enticing to just wait inside of a station. Instead, commuters are trying to track their train on their mobile device and wait as little as possible at the station. However, when asked what sort of amenities they would like to see, we learned that people want on-demand options. Riders want to have better cellular signal or WiFi service, improved seating and lighting, music, art or some sort of entertainment, more precise information on when their train is coming, grocery-like convenience stores, and trendier shops like lifestyle pop-ups and robotic cafes. This feedback led us to believe our problem statement has validity and our next resource are the transit agencies.

Aside from government funding, main streams of income for transit agencies come from ticket fares (ridership) and advertising. With millions of daily riders, the transit stations offer an ideal platform for advertisers to market. Another source of income is Real Estate, where the agencies manage property rentals, leasing, sales, and transit-oriented development. In researching transit agencies' budgets and performances, real estate is among the lowest performing sources of income. It hasn't been until recently that transit agencies such as New Jersey Transit (NJT) have focused their role to implement a strategic plan that maximizes the value and revenue of real estate assets. We learned that our T-Space business model has potential to add value and therefore embellishes our problem statement to include not just people, but also agencies. Our more inclusive problem statement is as follows:

"There is a need to improve the ridership experience across American transit stations, while maximizing value and revenue of these real estate assets."

Lastly, our team researched trends in the retail industry. There is no doubt transit-oriented development and communities create vibrant environments that attract many retailers, restaurants, and service—which all adds significant value to the local neighborhoods. The issue here, however, is

that when land value increases, it becomes very expensive to lease space and pushes out local mom-and-pop shops who can't afford the high-priced, large square-foot spaces near transit stations. We also learned about the trend in smaller footprint retail, similar to pop-up retail, as it has become a more affordable compromise. Additionally, it is well-known e-commerce and touchless delivery is the rapidly growing trend of consumer preference. Therefore, we also see a need for creative retail spaces and experience.

Photograph By: Eddi Aguirre

Market Segmentation

The Market Segmentation module is focused on the process of understanding who are customers, or users, and identifying a beachhead market. A beachhead market is a location which has been identified as the ideal place to operate our business based on characteristics we understand works successfully. To begin, we started our research on the four types of segmentation: demographic, behavioral, psychographic, and geographic. For each, the following segment types touch on various factors:

Figure 1.6 - Four Types of Segmentations, Source: Qualtrics XM

DEMOGRAPHIC	BEHAVIORAL	PSYCHOGRAPHIC	GEOGRAPHIC
age	purchase	lifestyle	needs
education	consumption	personality traits	preferences
income	lifestyle	values	interests
family size	usage	opinions	based on location
race		interests	
gender			
occupation			
nationality			

As a strategic approach, data will tell us a story for each market and challenge or confirm any instinctive feelings. To do this, data will be collected and processed through various platforms such as Excel, R, and Geographic Information Systems (GIS). Using GIS, we are able to perform detailed analyses such as:

- Understanding where transit stations are located;
- Number of Passengers;
- Peak Days and Hours;
- Journeys to Home and Work;
- Employment Centers;
- Walksheds;
- Types of Local Businesses;
- Consumer Preferences;
- Demographics and;
- Tapestry Segmentations

Understanding Where Transit Stations Are Located -
Location is key for our business model. We want to understand as much as possible from each station. What condition is the station in? Is it an architecturally iconic station like Union Station? What transit line does it serve? What neighborhood is it in? What is above the station? What is below? How do you access the station from a pedestrian experience? How do you access the station from a vehicular experience? What are nearby attractions? How big is the station? Is there a wayfinding technique incorporated? Is this station located in an employment center? What amenities does this station offer?

Number of Passengers -
Foot traffic is also key for our business model. Retailers have a major interest in locations with high volumes. Known as the Capture Rate, retailers measure their ability to attract traffic from people in proximity and with millions of riders taking transit everyday, their exposure would be more widespread.

Peak Days and Hours -
For all locations, it's important to understand peak days and hours to help us find the right products offered. For example, if the station is located within an employment center, peak days will likely be Monday-Friday, and peak hours will likely be around 8:00 am and 5:30 pm. If, however, the station is located within an Entertainment District, peak days might be Friday, Saturday and Sunday, with peak hours in the evenings, for example.

Journeys to Home and Work -
Using U.S. Census data or public data, we are able to determine where commuters are entering and exiting stations, suggesting Point A might be home and Point B might be work. This commuting data helps us make decisions related to transportation infrastructure and design.

Employment Centers -
With location analysis, we are able to identify employment zones by extracting office data and using Rentable Building Area (RBA) to determine physical space, calculate number of employees, companies within the zone and salaries. Types of employers and salaries are important to understand as it relates to amenities offered and disposable income. For our analysis on Employment Centers, we are considering any predetermined ring aggregating over 2 million square feet of Class A or Class B RBA to be a

Tier 2 Employment Center and any predetermined ring aggregating over 5 million square feet of Class A or Class B RBA to be a Tier 1 Employment Center.

Walksheds -
Walkshed analyses are generally produced using a street or sidewalk network to calculate how far a person can walk in a given timeframe.

Figure 1.7 - Walkshed Analysis at Kendall/MIT Station; Kendall Square Employment Center

12:38
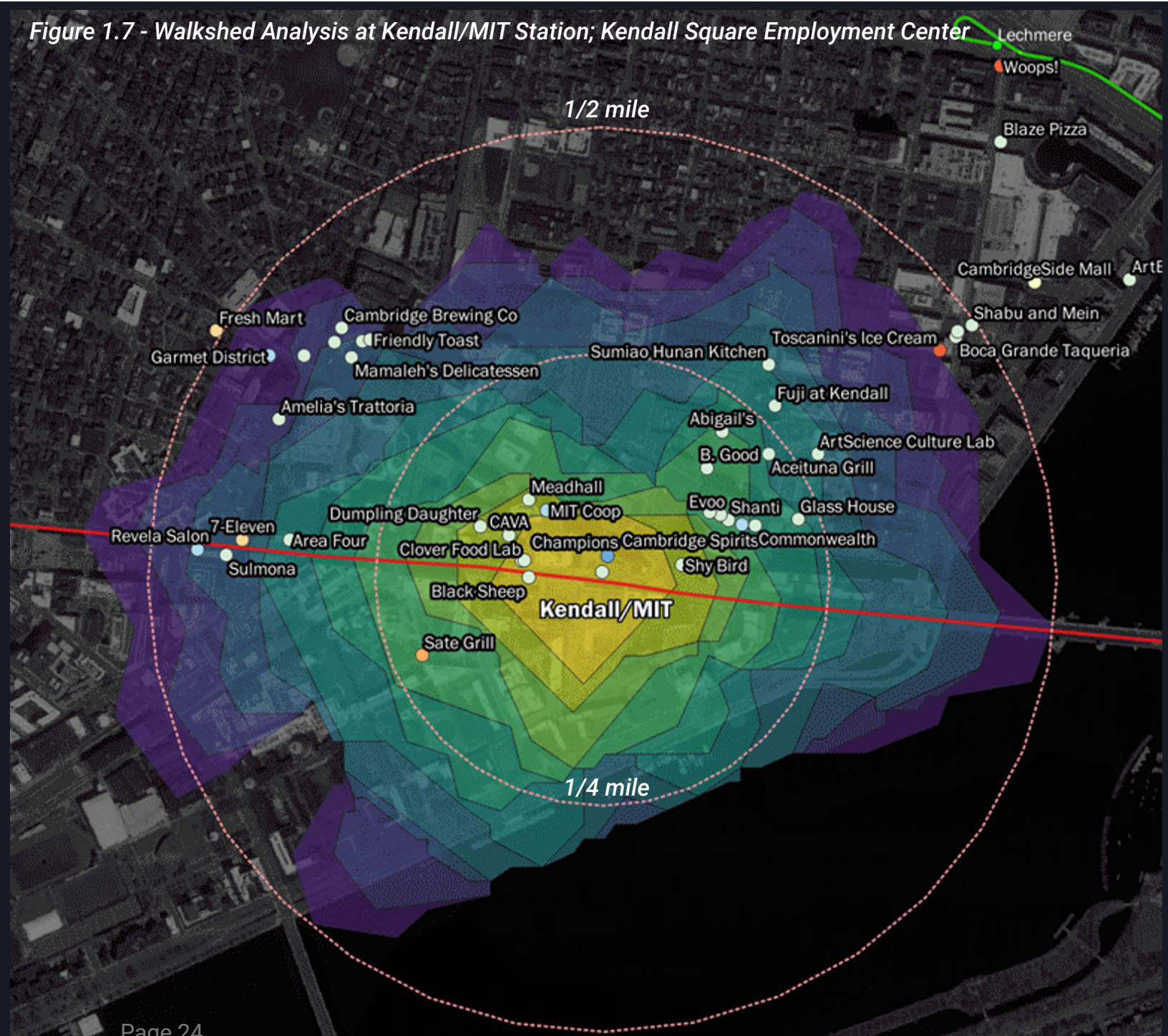
Types of Local Businesses -
For our model, we want to understand what's currently offered. Is there a grocery story? Is there an Amazon locker? Are there late night bars? What retailers are there? Are there restaurants? It's also important for us to understand hours of operation. What time do places open and close? Does it match the peak days and hours? This type of data can be gathered by ESRI, U.S. Census, and even social media platforms such as Yelp, Facebook, Instagram and OpenTable.

Consumer Preferences -
We want to know what people are interested in, buying and using. What's driving the market right now? We want to provide a space that helps the commuter start or end their day right. This helps us attract the ideal retail marketplace.

Demographics -
Of course, demographic data is key in all market segmentations. For our model we will be looking at population, income, age, households, housing, health, education, business, race and ethnicities, spending, behaviors, jobs and more. We want to ensure we know our markets well.

Tapestry Segmentation -
Using demographic and socioeconomic data, Environmental Systems Research Institute (ESRI) developed Tapestry Segmentations which classifies neighborhoods into 67 segments under LifeMode and Urbanization Groups. This is generally provided by zip code. For example, if we analyze the zip code 90401, which is where Downtown Santa Monica Station is located in the Los Angeles Metropolitan area, we would find the following information:

Figure 1.8 - Tapestry Segmentation for Zip Code 90401, Source: ESRI

90401 Santa Monica

Top Tapestry Segment

Metro Renters
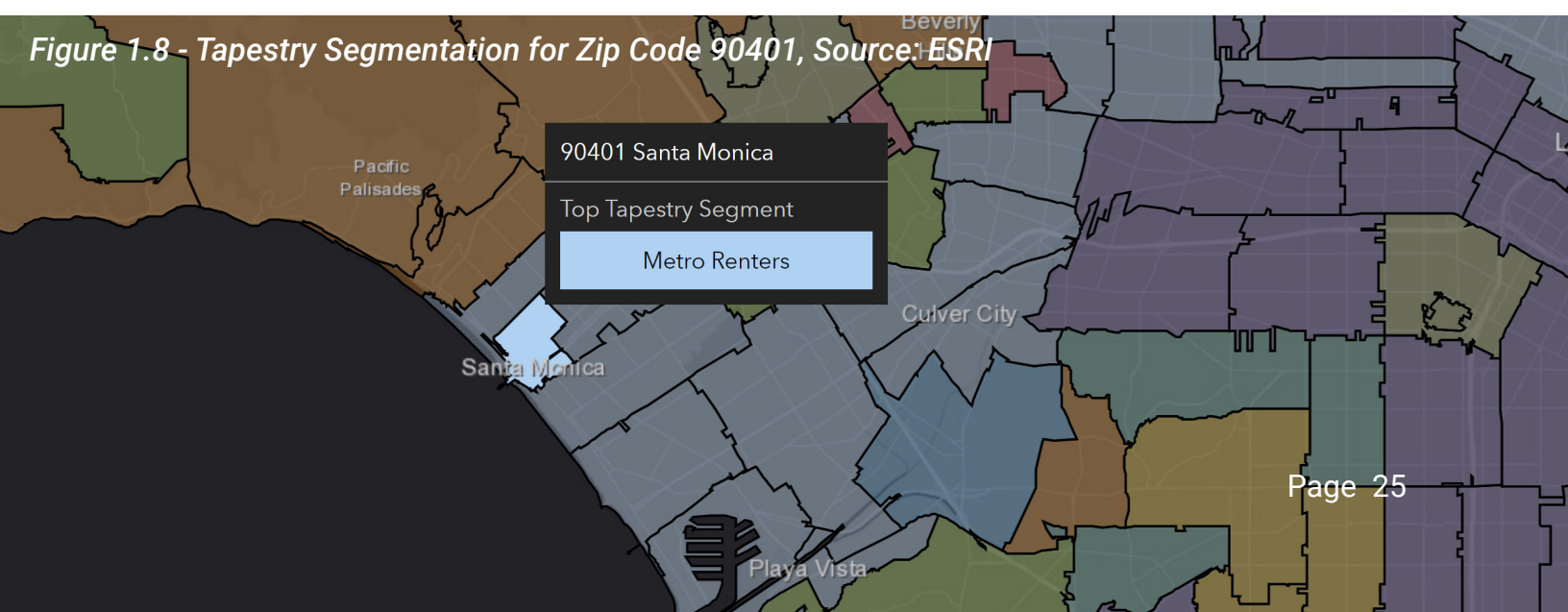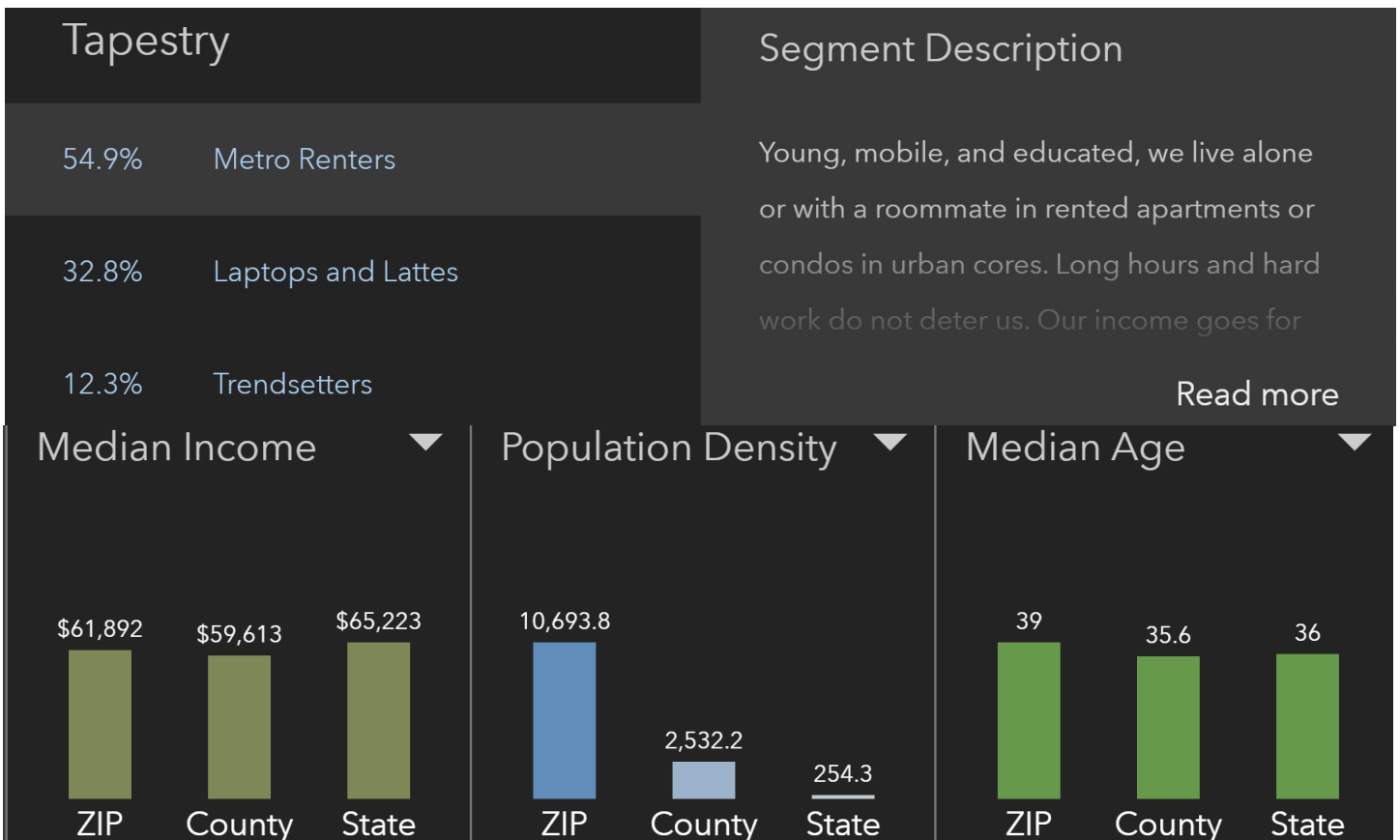
In order for our business model to be successful, we have determined the following criteria will guide us in targeting our initial stations.

1. **Stations located within a Tier 1 or Tier 2 Employment Center OR Stations within High Development Potential Zones AND**
2. **Stations with more than 12,000 Average Weekday Boardings AND**
3. **Stations offering limited retail service AND**
4. **Stations that are NOT architecturally iconic**

As a team, we found that Kendall/MIT Station in Cambridge, Massachusetts met our beachhead criteria after running all of the various platforms. Referencing the map above (Figure 1.7), Kendall/MIT Station is located within a well-known Tier 1 Employment Center, and according to Massachusetts Bay Transportation Authority (MBTA), had 16,576 average weekday boardings. Below is a graph of MBTA's Red Line Station Average Weekday Boardings (2013-2019):

Figure 1.9 - Gated Entries, MBTA (2013 - Dec 2019)
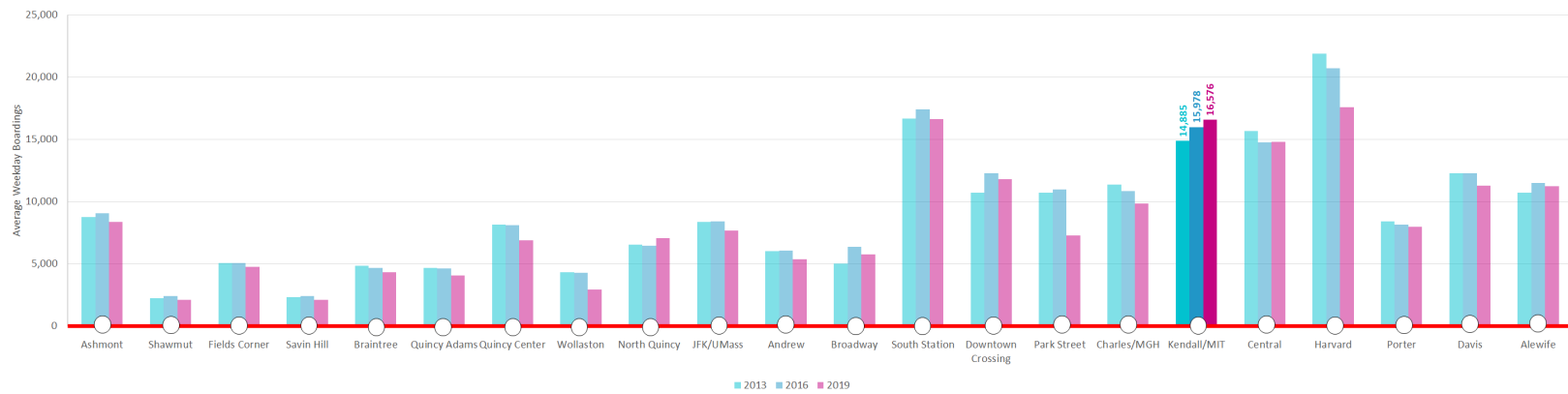
Additionally, Kendall/MIT Station offers no retail services within the station, while above ground offers trendy food and beverage options such as Blue Bottle Cafe, Starbucks, and Tatte. Kendall/MIT Station also has musical art installations from the 1980's but is unfortunately broken and therefore unplayable.
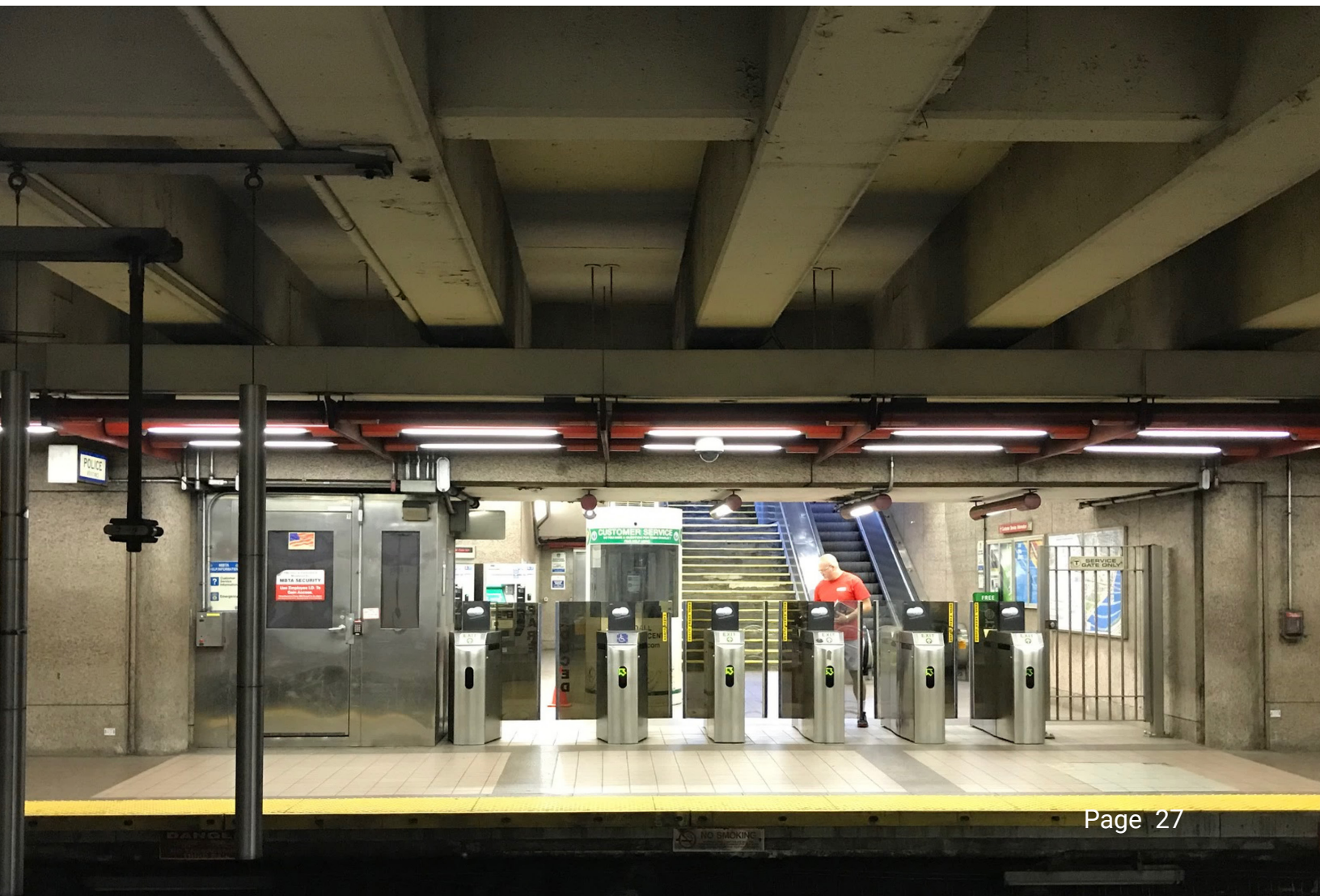
One of the most interesting findings we came across while performing a time lapse study was the hours of operation of local business to peak days and hours of ridership. We found that for Kendall/MIT Station, peak hours were between 8:00 AM and 9:00 AM in the morning, and between 5:30 PM and 6:30 PM in the evening. Peak Day was Tuesday.   However, many local businesses within the radius seen on Figure 1.7 opened much later than the morning peak hour, concluding that there is opportunity for higher levels of service for early commuters. The station was built in the 1980's and has not been modernized as of yet. Kendall/MIT also currently does not have WiFi or strong signal for most cellular phone carriers.

In performing our pilot analysis at Kendall/MIT Station, we felt our hypotheses and strategic business plan remained valid. For these reasons, the next step was understanding our stakeholders.

Stakeholder Mapping

Learned in our MIT DesignX course, the venture design process is grounded in stakeholders. According to Matthew Claudel, speaker at one of our workshops, "Stakeholder mapping introduces a process of finding, empathizing with and visualizing the entire constellation of people, communities, and systems that are connected to your venture." For each station we will create a stakeholder map to better understand our impact and make strategic decision making. As Kendall/MIT Station is our initial pilot location, Figure 1.10 is a stakeholder map with all persons, agencies, companies, groups, and nonprofits who might be connected.

T-Space is founded with the core belief that the company is community-driven. One of the ways we differentiate ourselves is by curating transit stations to be a positive reflection of the neighborhood we're working with. Sense of arrival and neighborhood identity is key to our success. In order to bring the redesign of a station together, we must be in direct communication with similar stakeholders listed in Figure 1.10 for each platform.

Figure 1.10 -
Example Stakeholder Map
for Kendall/MIT Station in
Cambridge, MA
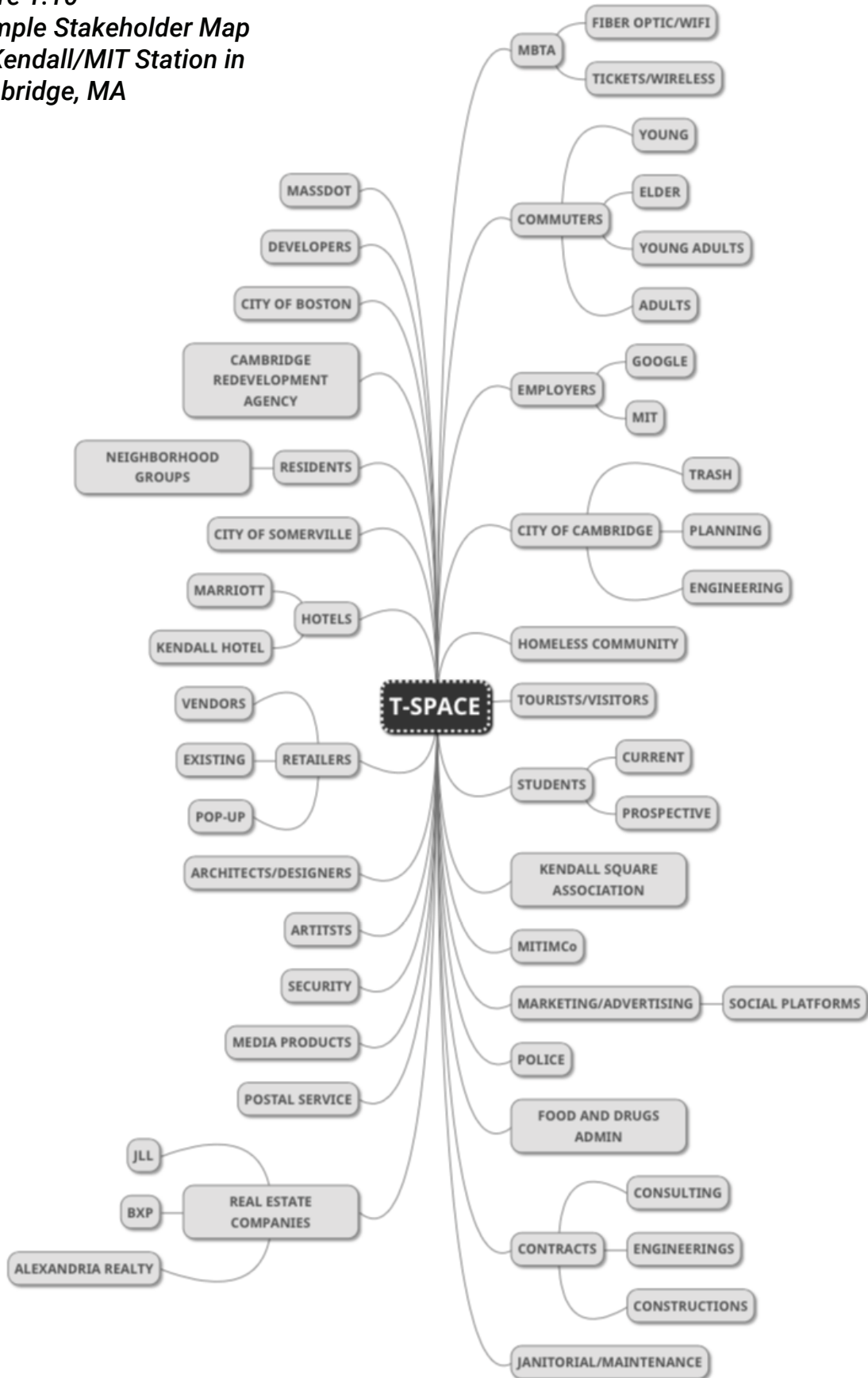
Design Sprint & Rapid Prototyping

As part of the DesignX curriculum, T-Space partook in a "Design Sprint," led by Jake Knapp, which was the effort of deconstructing and redesigning an idea based on new information. As a result, we determined that the experience of T-Space shouldn't just be at the arrival at one of redesigned stations; we should also have a digital platform. The digital platform would include the development of an Application (downloadable app on mobile phone), wireless connectivity, and provide as much information and convenience possible for the user.

In today's retail world, it's all about personalization. The T-Space Application would enable the users to order and pick-up, track their train in real time, and learn, through algorithms, good suggestions for the user based on their behavior or previous orders. It would be a single platform with all retail providers.

2:20
Wednesday, January 25

★ T SPACE   5m ago
Your Iced Coffee will be ready when you arrive at Downtown Santa Monica Station. Please visit CafeX.
Slide for more

The Beauty of Transit Stations

brought to you by
T SPACE

Good Morning Ramiro,
Where's your next stop?

Downtown Santa Monica

Transit Balance
$22.50

Explore   brought to you by
                           T-SPACE

Train A

Train C   Train B

Your Train Arrives in:
00:09:22

Convenience   View All

CafeX   Uniqlo

Grab &   Pharma-
Go   Box

SOLVE

02

Mission Design

The Mission Design Module led to create a clear and simple expression of what our venture is intended to do. It will outline the core purpose of who we are as a company and communicates the scope of operation, whom it serves and why. Our mission statement is inspired by the improvement of quality of life for commuters all across the United States. For those reasons, our mission statement, "...to transform transit stations and incorporate innovative retail space for a better commuter experience," is intended to be broad on purpose. People, retail, behavior, and real estate are always changing and we embrace it. We are purposely being broad to be adaptable and timeless. Concurrently, T-Space also wrote it's vision, which describes where we want to be as a company in the future.

For our Vision Statement:

"T-Space looks forward to transforming transit stations into comfortable and delightful spaces and being a leading transit space innovator."

"

Our mission is to transform transit stations and incorporate innovative retail space for a better commuter experience.

"

T-Space Mission Statement

Value Proposition

Value Propositions are statements telling prospects why they should do business with us. In this portion of the class, we developed our value proposition by answering What, How, Why. What are we asking for? How we do it? And Why should we work with you? For T-Space, our model is unique in that we're looking to please three groups; transit agencies, retailers, and of course, the commuters. However, first, we need the space. For that, we need to work with the transit agency to bring our amenities to the public. For this reason, our Value Proposition is geared to attract the transit agencies.

What: The transit station.

How: Signing a contract with us.

Why: Free Renovated Stations.

T-Space Value Proposition:

"Give us the space, we'll do the rest."

There are many pain points at transit stations, and all it takes is one late train to upset customers. While T-Space isn't involved in solving those types of issues, we are in the business of making the commuters visit a lot more pleasant. Transit agencies currently lease space, and make very little income from the tenant. We're asking transit agencies to let T-Space borrow their platform space for free, and we'll renovate at a high standard, provide a digital platform, and attract the ideal retailers for that particular station. The transit agencies will benefit from a renovated space, improved amenities and retail services, and a high probability of increased ridership.

Top Board — Customer Profile

The "cool"/"new" Factor · Something to look forward to · Convenience

Retail services · Entertainment/Arts · Source of Information · Wifi

Save Time · Have A Good start to their DAY · Cleaner T-station Environment

More Customers/ Capture Market Shares · **Gains** · **Needs/Problem**

HAVE A Productive DAY · CONVENIENCE SERVICE

Poor Customer Service · NO INTERNET SERVICE · Long Wait Times · **Safety**

Pains · INFORMED

No Affordable Service · NO CONVENIENCE MARKET

- Get on the train
- Buy A Ticket
- Get to their destination
- Find A space to sit
- Find where they are going, understand how to get to their destination.
- What's happening at their destination.

NO ENTERTAINMENT or DOESN'T WORK · NO IDENTITY · Quick Service

DARK, DIRTY & UNFRIENDLY

NO FIRE SAFETY/ EMERGENCY EVACUATION · Poor WAY FINDING · Noisy · Limited Space + seating

Bottom Board — T-SPACE (Value Map)

Engagement · Safety · Sense of Community Pride · Increases Loyalty · Lifestyle change · Increases Ridership

Mobile app · Transform the T into a creative Placemaking Space · Talent Retention · **GAIN CREATORS** · Time Efficiency

Retail · increases revenue · Changed Perception · Increase property value

Services (Dry Cleaning, Package Delivery) · F & B

Entertainment + Digital Tech · PRODUCTS & SERVICE

Pop Ups · Public Art · DESIGN COMPONENT/ IDENTITY · Wifi

Reducing stress of long wait time · Provide convenience goods/services (affordable)

Digital Signage/ Information · Better Moods · **PAIN RELIEVERS**

Customers are more informed about and their...

Transit Space as an amenity

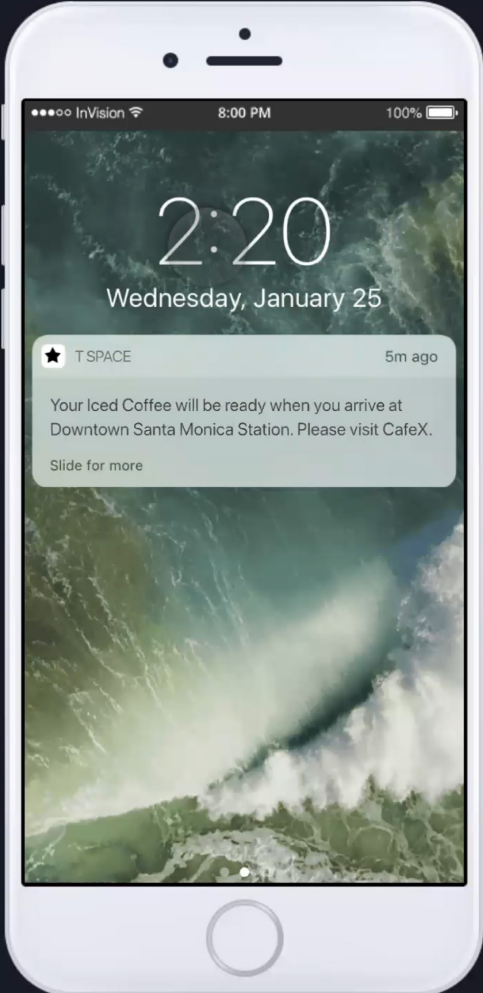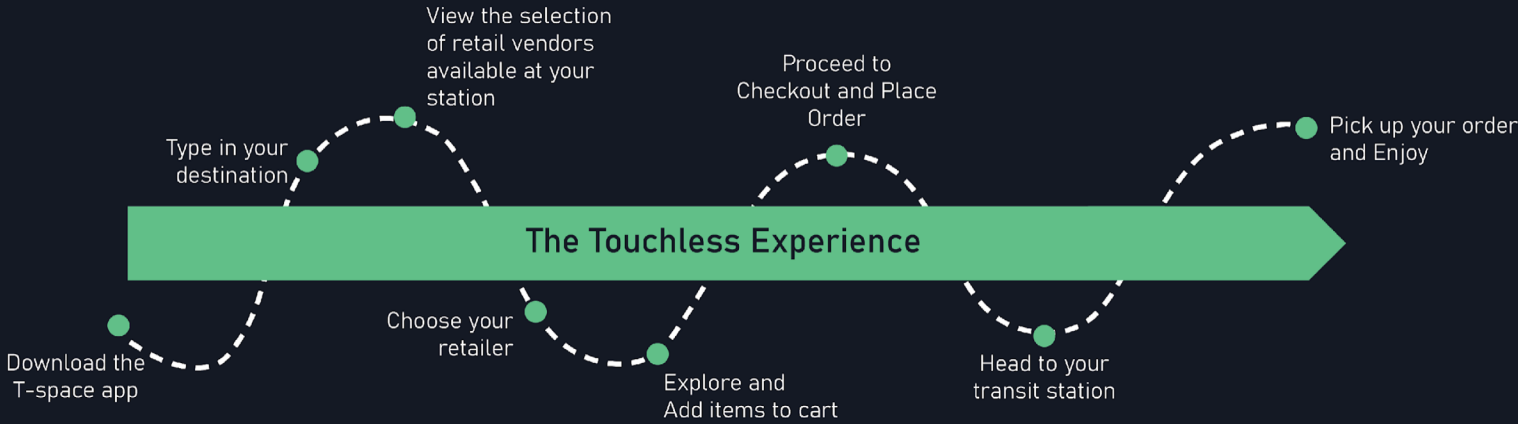Renovate T-station and create space and seating

User Experience

The User Journey is learning and understanding how users experience the space and services. It helps identify deeper issues and new opportunities for innovation based on customer behavior. It was during this module that our team discovered that the transit experience doesn't have to start when arriving to catch the train. We began to think of when you would think about catching the train first. In the morning, before work seemed logical, and returning from work. Then, possibly when meeting with people, say friends or colleagues, for a night out, or even special community events. In every situation, convenience was a factor. We learned that people track their train or bus using various apps such as Google or local applications, like Transit. Before work, people typically buy coffee and breakfast. After work, people buy last minute grocery items. We also learned that weather can be unpredictable, so oftentimes commuters buy weather-appropriate gear. So, what if there was a way to incorporate all of the convenience and information in one application?

What if in the morning, with user permission, T-Space could notify when the next train arrives and ask if they'd like to have a coffee ready when they arrive at their home or final destination station? All it would take is opening the app, ordering, and picking up. It would eliminate the extra step of leaving the station, standing in line at a local coffee shop, and waiting for the coffee to be made. Below is a prototype user journey highlighting various points in their commute.

User Experience

View the selection of retail vendors available at your station

Proceed to Checkout and Place Order

Pick up your order and Enjoy

Type in your destination

The Touchless Experience

Choose your retailer

Download the T-space app

Explore and Add items to cart

Head to your transit station

●●●○○ InVision 🛜   8:00 PM   100% 🔋

2:20

Wednesday, January 25

★ T SPACE   5m ago

Your Iced Coffee will be ready when you arrive at Downtown Santa Monica Station. Please visit CafeX.

Slide for more

Technology is changing the way we spend our time and buy our goods and services. Convenience is a major factor in this change, allowing people to do more on their mobile device. We are also becoming more contactless. In recent years, digital wallets and tap-to-pay debit or credit cards have become more and more popular. Today, the top three digital wallets are PayPal, Apple Pay, and Google Pay. When thinking about the transformation of transit stations, it's important for us to provide the most convenient services possible. We understand not everyone will download the T-Space app, but may still be interested in purchasing goods and services once they arrive at the station. For this reason, we're looking forward to providing alternative ways of purchasing power, not just mobile ordering. Tap-to-pay is also much faster than inserting a chip or paying by cash. In transit stations, we have a small window between trains and it is necessary for us to make efficiency and convenience our top priority. Below are concepts T-Space looks forward to incorporating in future transit stations.

Source: Chase Financial Services
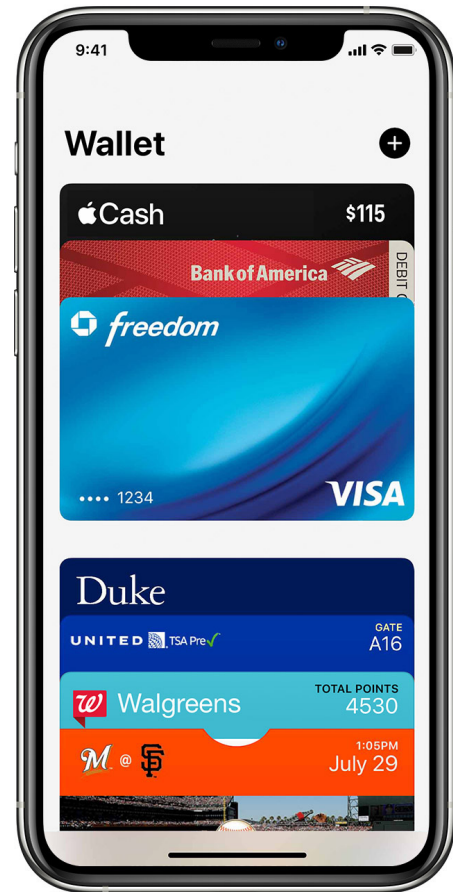
NIKE Vending

Robotic Cafe , Source: CafeX

Source: DSK/DA architects

Uniqlo, Source: Uniqlo

Source: Muji To Go

Source: Amazon

As a general rule for us, all stations are to be curated to embrace the neighborhood's identity. We will get creative, to the best of our ability, to improve the sense of arrival and let it be visually known you have arrived at a certain neighborhood's station. With the exception of iconic transit stations, transit agencies generally just use colors as an identification and wayfinding strategy, i.e. "red" line uses red, "blue" line uses blue. From our perspective, if you're arriving at Kendall/MIT Station for example, which is located in Kendall Square--known as the most innovative square mile in the world, the transit station should reflect innovative technology. If, for example, we redesigned Universal City/Studio City Station on Metro's Red Line in Los Angeles, we would reflect LA's iconic film and cinematic arts presences, along with souvenirs for tourists, and products that local employees or residents enjoy frequently. Both coincidentally are located on a "Red" Line and would give us the opportunity to incorporate red design elements, such as seating, flooring, or lighting to the modernization of the station.

Kendall/MIT Station, Source: MBTA

Tickets / Boletos De Pasaje

Tickets / Boletos De Pasaje

ENVISIONING & SCALING

03

Founders Value

Founders Value is an outline of T-Space's collective core values and leadership principles. It's an agreement on how we will do business and negotiate. At T-Space, our success is grounded on one thing: giving people a convenient transit experience at every transit stop. We do this by living and breathing our core values which is:

- Designing with the Community in mind
- Valuing local talent and businesses
- Staying committed to the communities we serve

We are driven by passion. With sound business conduct and ethics, our culture is putting people first (transit riders, operators, and employees), providing a healthy space for people to work efficiently and creatively, and community-centric. T-Space will be at communities and transit stations gathering information, learning from the source, and staying engaged. We look forward to participating in community events, speaking with local businesses and artists, and finding ways to integrate the stations with their respective community.

Passion
Is Our Culture.

We're passionate about what we do and who we do it for. We're interested in learning from the people who use the stations to design it better for them.
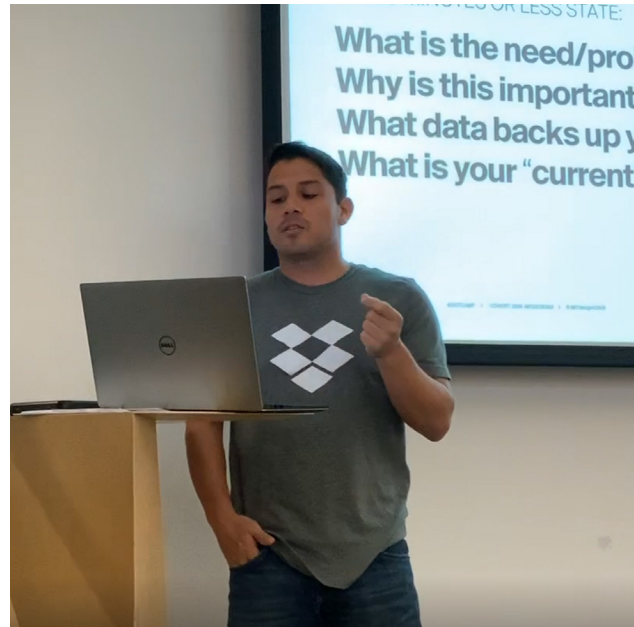
We Stand For
Integrity.

We work with communities in good faith and for their benefit. We hope to conduct business with honesty and transparency.

We're All About
Community.

Communities tell us what they want, and how they want it. We're here to listen and be another source of information for transit agencies to improve the commuter experience.

Business Model

Developing a business model is a framework focused on our competitive advantage to operate and generate revenue. It generally includes a description of who our key business plan, revenue streams, cost structure, and partners are. Using data that we've collected and mentioned in this document earlier, we began to analyze it as a starting point for our business plan. We'll define our target market and summarize how we plan to make profit. Our Key Partners are transit agencies, municipal governments, retailers, community members, local non-profits, consultants, local employers and businesses, neighborhood groups, and distributors or manufacturers. Without these partners, T-Space wouldn't be successful.

Once we identify and communicate with our key partners, we explain our key activities. Our key activities include renovating stations, acting as lessor and lessee, finding the appropriate retailers and developing our mobile application. T-Space will act as a lessee of transit agencies and manage the space for retailers. As such, our key resources are the physical stations, and a digital platform for mobile and WiFi-enabled services. The Value Proposition for doing business with us is modernization of transit stations, improved wayfinding, increased ridership, enhanced neighborhood identity, convenience for transit agencies, retailers, and commuters alike, an alternative platform for retail space, and curated selection of merchandise depending on neighborhood.

Our customers will have self and automated service for convenience and ease. We plan to spread the word through various channels, such as having our own website, through social media platforms, and a unified mobile application. T-Space will target commuters and community members. We will make every effort to extend our goods and services before the turnstiles so that people who are not transit users can benefit as well. Other customer segments include retailers and transit agencies.

Our biggest cost is the actual renovation itself. Many transit stations are old and do not have floor plans or site plans, and cost may incur exponentially if we do not get update plans. In general, T-Space will try to use existing space as the base for our project initiation, but there will be other cases where the opportunity to demolish and expand arises, in which T-Space will take advantage of that opportunity. Additionally, technology and salaries will

contribute to costs. Our revenue stream comes from leasing the modernized space and commission on all sales, whether on the mobile application or self-service. Below is visualization of our model business canvas.

T-SPACE BUSINESS MODEL CANVAS

KEY PARTNERS:

• Transit Agencies

• Municipal Governments

• Retailers

• Community Members

• Local Non-Profits

• Design/Engineering

  Consultants

• Local Employers/Bus.

• Neighborhood Groups

• Distributors/Manufact.

KEY ACTIVITIES:

• Renovate Stations

• Leasing/Brokerage

• Merchandising

• Production/Design

KEY RESOURCES:

• Physical Stations

• Digital Platform

VALUE PROPOSITION:

• Modernized Stations

• Improved Wayfinding

• Increased Ridership

• Enhanced

  Neighborhood Identity

• Convenience

• Alternative Platform for

  Retailers

• Niche Selection

CUSTOMER RELATIONSHIP:

• Self-Service

• Automated Service

CHANNELS:

• Website

• Social Media

• Mobile App - iOS/

Android

CUSTOMER SEGMENTS:

• Commuters/Community Members

• Businesses/Retailers

• Transit Agencies

COST STRUCTURE:

• Renovation - Design/Construction

• Tech Costs

• Salaries

REVENUE STREAMS:

• Leasing

• Commission from sales

• Advertising Space

People and Talent

We understand people are the driving force of any successful venture. In order to be successful and have the vision realized, T-Space will have in-house Transportation Engineers, Architects, Urban Planners, Brokers, GIS/ Market Analysts, Marketing Analysts, Communication Specialists, Financial Analysts, Web/App Developers and Business Operations Specialists. The Transportation Engineer will work hand-in-hand with the Architect to fully

renovate the station. The urban planning team will work closely with the communities, as well as the GIS/Marketing team. The brokerage team will work closely with the retailers and communication specialists. As a strategy, T-Space will grow slow and steady--ensuring that each transit station is given the appropriate skill to successfully renovate the station.

Action Plan

The Action Plan is setting key priorities and developing a strategy to achieve them. Our first priority is selecting the ideal station to renovate. According to a Wall Street Journal report, the current average cost to upgrade each station ballooned from $28 million per station to $43 million from unforeseen issues like rotting infrastructure. In order to avoid such high costs at the pilot station, T-Space is looking to partner with transit agencies that have aggressive plans to expand as an initial strategy. Los Angeles Metro, for example, is looking to expand their transit lines for the 2028 Olympics and would be an ideal partnership to incorporate T-Space in their new stations to eliminate cost of renovation. Instead, T-Space would be heavily involved in the design, retail, and operations.

Once we identify a transit agency as a partner, we'll prioritize transit stations based on our selection criteria mentioned in Section 2 of this document. We'll do a deep dive on market analysis and be in communications with neighborhoods. In many cases, there will be pushback from the community, and we'd like to be in areas where our concept is more widely accepted. We'll also be in close communication with local businesses and employers.

Next, we'll begin our mobile application and website development to start our presence. Concurrently, we'll be focused on the design element of the station chosen. As conceptual designs and renderings development, we'll take out to retails to gauge interests. We will develop a leasing plan and review with the transit agency. As we agree on a leasing plan, we will refine our conservative financial plan to ensure T-Space will meet its' threshold.

Finally, construction begins. T-Space will be fully involved in the construction phase to learn and develop best practices. T-Space will have the application ready for mobile orders, and retailers will also test their product in a new marketplace.

LA Metro Rail: Existing Lines
Source: LA Metro

LA Metro Rail: Lines Under Construction
*Source: LA Metro*

LA Metro Rail: Future Lines
Source: LA Metro

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Financial Plan

The Financial Plan module draws on the Business Model and Action Plan from the previous subsections. As part of the curriculum, T-Space developed a generic 24-month financial plan that includes costs and revenue, cashflow, and funding need projections. Using Kendall/MIT Station as an example station for renovation, we realized our summarized financial plan looked like the figure below, which can also be applied to other older stations.

Figure 3.1: Generalized Cash Flow Projections
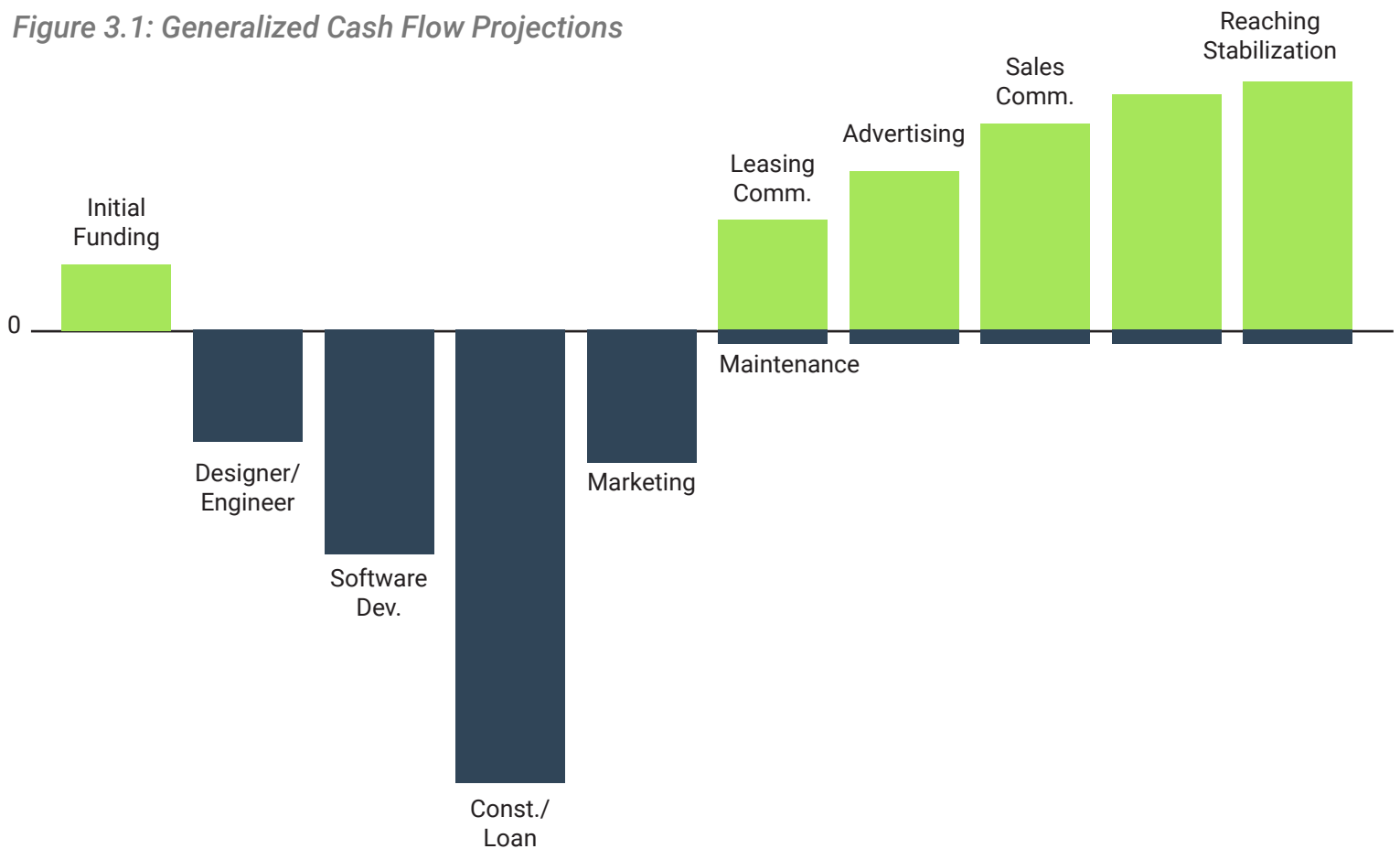
Indeed, our financial plan shows T-Space will be in the negative for the initial stage of our development project and won't be balanced nor profitable until installations and operation begins. This is common with many development projects. However, because our business is a first-of-its-kind model and is yet to be executed, understanding a successful financial plan has been challenging to determine. Our team has researched various models, including concession programs and the effects of residual and compensatory arrangement on airlines and airports, which is the closest

financial structure to T-Space. Based on the research, we are leaning towards a hybrid model similar to Westfield and Marketplace Development, which designs and manages retail concessions at some of the U.S. largest airports. These "master concessionaires" in turn for leasing large terminals, re-lease or subcontract to smaller operators. For reference, T-Space will only be partnering with transit agencies who provide the space free of charge initially.

Once an agreement is signed with the transit agency, T-Space looks to negotiate a waterfall model, where we seek an investor and determine a fair return and split to cover the upfront cost of design, engineering, construction, salaries, and other costs. Upon our request for investment, T-Space will provide a full market analysis to justify the projected success. We anticipate, based on our market segmentation studies, to be located in areas where investors and retailers feel confident in the consumer profiles.

Based on our initial markets determined in previous sections, we're projecting re-lease rates to be in the range of $50 to $70 a square foot per year, with special programming for Disadvantaged/Woman-owned Business Enterprises. T-Space also looks forward to partnering with businesses for advertisement and "station domination." Station domination is an opportunity for any approved business to fully advertise throughout the space. Figure 3.2 shares a copy of the revenue statement developed during MITDesignX course.

Example of Station Domination in Seattle,WA
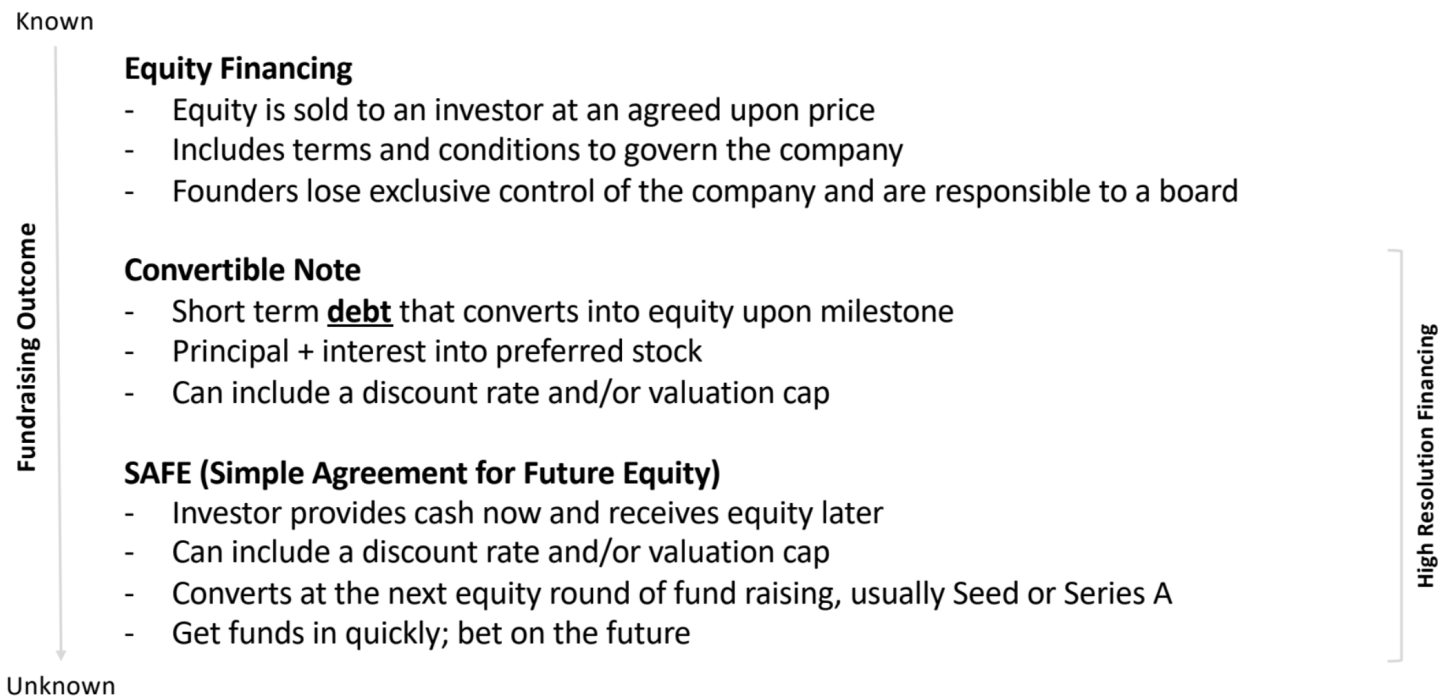*Source: Intersection*

Figure 3.2: Revenue, MITDesignX Template

Revenue source	Unit price (Month)	Contract Volume	M1	M2	M3	M4	M5	M6	M7	M8	M9	M10	M11	M12	M13	M14	M15	M16	M17	M18	M19	M20	M21	M22	M23	M24
Advertisement (2sheet)	$1,000.00	20					$20,000.00	$20,000.00	$20,000.00	$20,000.00	$20,000.00	$20,000.00	$40,000.00	$40,000.00	$40,000.00	$40,000.00	$40,000.00	$40,000.00	$60,000.00	$60,000.00	$60,000.00	$60,000.00	$60,000.00	$60,000.00	$80,000.00	$80,000.00
Advertisement (Backlit)	$1,500.00	10					$15,000.00	$15,000.00	$15,000.00	$15,000.00	$15,000.00	$15,000.00	$30,000.00	$30,000.00	$30,000.00	$30,000.00	$30,000.00	$30,000.00	$45,000.00	$45,000.00	$45,000.00	$45,000.00	$45,000.00	$45,000.00	$60,000.00	$60,000.00
Advertisement (Urban panel)	$1,500.00	4					$6,000.00	$6,000.00	$6,000.00	$6,000.00	$6,000.00	$6,000.00	$12,000.00	$12,000.00	$12,000.00	$12,000.00	$12,000.00	$12,000.00	$18,000.00	$18,000.00	$18,000.00	$18,000.00	$18,000.00	$18,000.00	$24,000.00	$24,000.00
Advertisement (Station Domination)	$0.00	0																								
Advertisement			$0.00	$0.00	$0.00	$0.00	$41,000.00	$41,000.00	$41,000.00	$41,000.00	$41,000.00	$41,000.00	$82,000.00	$82,000.00	$82,000.00	$82,000.00	$82,000.00	$82,000.00	$123,000.00	$123,000.00	$123,000.00	$123,000.00	$123,000.00	$123,000.00	$164,000.00	$164,000.00
Rent ($60/SF/Yr) Station A	$5.00	2,000					$10,000.00	$10,000.00	$10,000.00	$10,000.00	$10,000.00	$10,000.00	$10,000.00	$10,000.00	$10,000.00	$10,000.00	$10,000.00	$10,000.00	$10,000.00	$10,000.00	$10,000.00	$10,000.00	$10,000.00	$10,000.00	$10,000.00	$10,000.00
Rent ($60/SF/Yr) Station B	$5.00	2,000											$10,000.00	$10,000.00	$10,000.00	$10,000.00	$10,000.00	$10,000.00	$10,000.00	$10,000.00	$10,000.00	$10,000.00	$10,000.00	$10,000.00	$10,000.00	$10,000.00
Rent ($60/SF/Yr) Station C	$5.00	2,000																	$10,000.00	$10,000.00	$10,000.00	$10,000.00	$10,000.00	$10,000.00	$10,000.00	$10,000.00
Rent ($60/SF/Yr) Station D	$5.00	2,000																							$10,000.00	$10,000.00
Rent			$0.00	$0.00	$0.00	$0.00	$10,000.00	$10,000.00	$10,000.00	$10,000.00	$10,000.00	$10,000.00	$20,000.00	$20,000.00	$20,000.00	$20,000.00	$20,000.00	$20,000.00	$30,000.00	$30,000.00	$30,000.00	$30,000.00	$30,000.00	$30,000.00	$40,000.00	$40,000.00
Sales forecast of All Retailers							$1,000,000.00	$1,000,000.00	$1,000,000.00	$1,000,000.00	$1,000,000.00	$1,000,000.00	$2,000,000.00	$2,000,000.00	$2,000,000.00	$2,000,000.00	$2,000,000.00	$2,000,000.00	$3,000,000.00	$3,000,000.00	$3,000,000.00	$3,000,000.00	$3,000,000.00	$3,000,000.00	$4,000,000.00	$4,000,000.00
Commission (5%)			$0.00	$0.00	$0.00	$0.00	$30,000.00	$30,000.00	$30,000.00	$30,000.00	$30,000.00	$30,000.00	$60,000.00	$60,000.00	$60,000.00	$60,000.00	$60,000.00	$60,000.00	$90,000.00	$90,000.00	$90,000.00	$90,000.00	$90,000.00	$90,000.00	$120,000.00	$120,000.00
Sales Comission			$0.00	$0.00	$0.00	$0.00	$30,000.00	$30,000.00	$30,000.00	$30,000.00	$30,000.00	$30,000.00	$60,000.00	$60,000.00	$60,000.00	$60,000.00	$60,000.00	$60,000.00	$90,000.00	$90,000.00	$90,000.00	$90,000.00	$90,000.00	$90,000.00	$120,000.00	$120,000.00
Total Revenue			$0.00	$0.00	$0.00	$0.00	$81,000.00	$81,000.00	$81,000.00	$81,000.00	$81,000.00	$81,000.00	$162,000.00	$162,000.00	$162,000.00	$162,000.00	$162,000.00	$162,000.00	$243,000.00	$243,000.00	$243,000.00	$243,000.00	$243,000.00	$243,000.00	$324,000.00	$324,000.00

Funding Strategies & Final Pitch

T-Space developed this concept for the improvement of quality of life for commuters and residents alike. We intend to apply to many grants and private/public initiatives as possible. Because our work is more than just transit station renovations, it's community-based, we'll partner with many community groups to get the funding needed to make commuting easier and convenient. Additionally, T-Space will ask investors for their support. T-Space is currently in the process of determining best options for funding strategies. Below are examples from DesignX, led by Norbert Chang.

Types of Early Stage Fundraising Instruments

Known

Fundraising Outcome

Equity Financing
- Equity is sold to an investor at an agreed upon price
- Includes terms and conditions to govern the company
- Founders lose exclusive control of the company and are responsible to a board

Convertible Note
- Short term **debt** that converts into equity upon milestone
- Principal + interest into preferred stock
- Can include a discount rate and/or valuation cap

SAFE (Simple Agreement for Future Equity)
- Investor provides cash now and receives equity later
- Can include a discount rate and/or valuation cap
- Converts at the next equity round of fund raising, usually Seed or Series A
- Get funds in quickly; bet on the future

High Resolution Financing

Unknown

As the semester is coming to an end, T-Space, along with the other venture start-ups in the cohort, is tasked to do a final presentation, which is the beginning of our funding strategy. The pitch is intended to be no more than 5 minutes and clearly delivers what we do, how we do it, and next steps. In essence, the final presentation is a summarization of this document. Below are the final presentation slides.

T SPACE

Pitch Deck 2020

MIT DESIGN X

The Beauty of Transit Stations

brought to you by

T SPACE
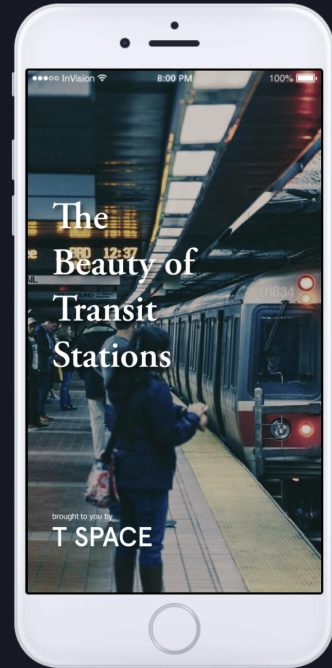
Pictured: Kendall / MIT Station

What We Do

Partner with transit agencies , retrofit their stations, and improve the experience for commuters

Provide a digital platform

Create a convenient, win-win-win business model for Transit Agencies, Retailers and Commuters

Our Solution is Physical

With current events, we're pivoting our strategy to be more mindful of society's needs.

- Modernizing & maximizing space through design strategies

- Clearer Signage & Wayfinding

- Automated Retail / Robotic Customer Service

- Grab & Go's
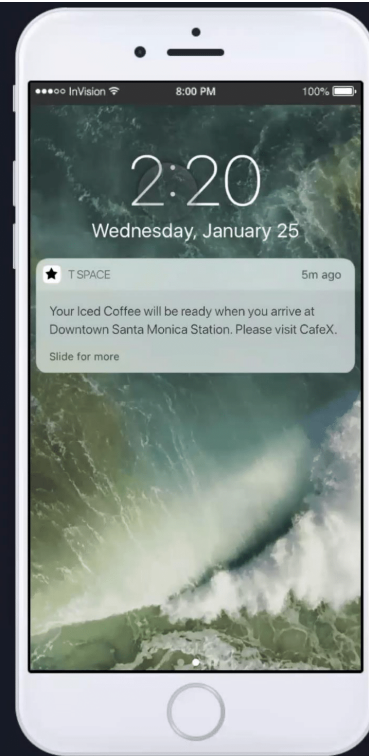
- Touchless-capable Deliveries
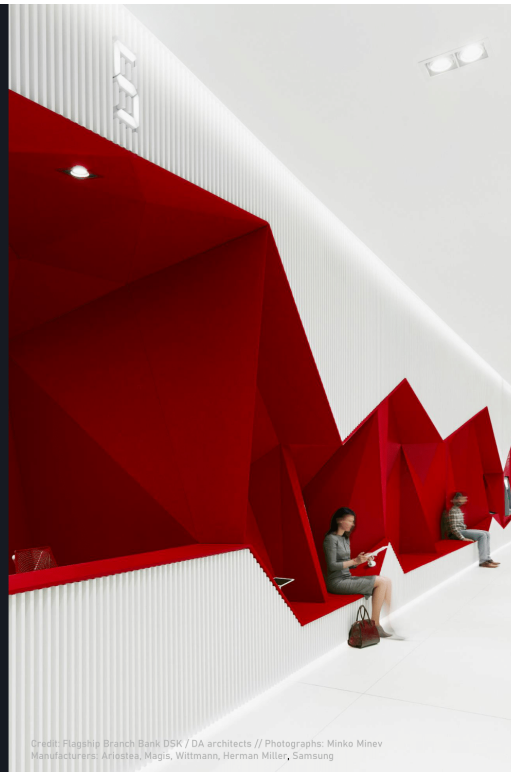
Credit: Flagship Branch Bank DSK / DA architects // Photographs: Minko Minev
Manufacturers: Ariostea, Magis, Wittmann, Herman Miller, Samsung

Our Solution is
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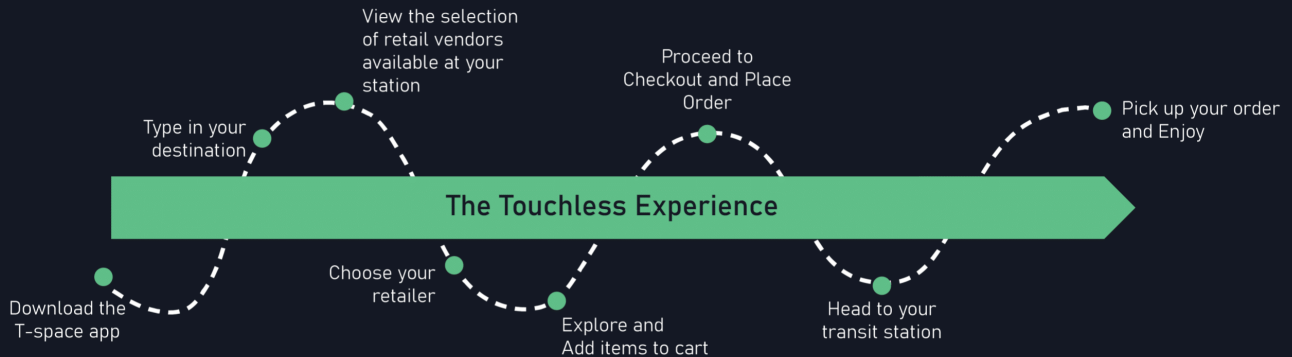
Example Retail Experience

Our Solution is
also Digital

The physical changes of transit stations give us an opportunity to add a digital platform tap these assets a revitalized marketplace.

- Mobile App

- Convenient Notifications and Services

- Online Ordering and Pick-up

- Touchless Delivery

- WiFi

User Experience

View the selection
of retail vendors
available at your
station

Proceed to
Checkout and Place
Order

Type in your
destination

Pick up your order
and Enjoy

The Touchless Experience

Choose your
retailer

Download the
T-space app

Explore and
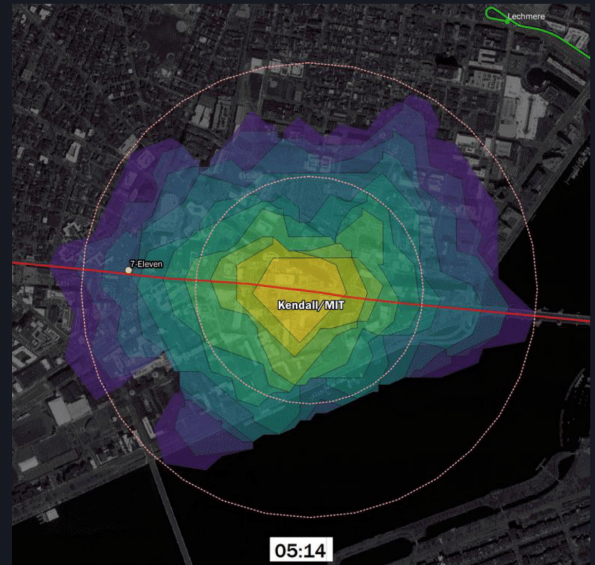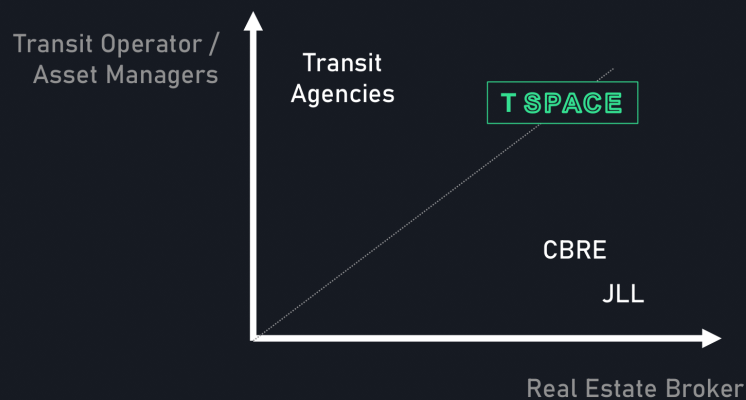Add items to cart

Head to your
transit station

How We Add Value

We specialize in managing transit space,

finding retail partners to deliver specific

products and services that are quick and

efficient for transit stations, and improve

the commuter customer experience.
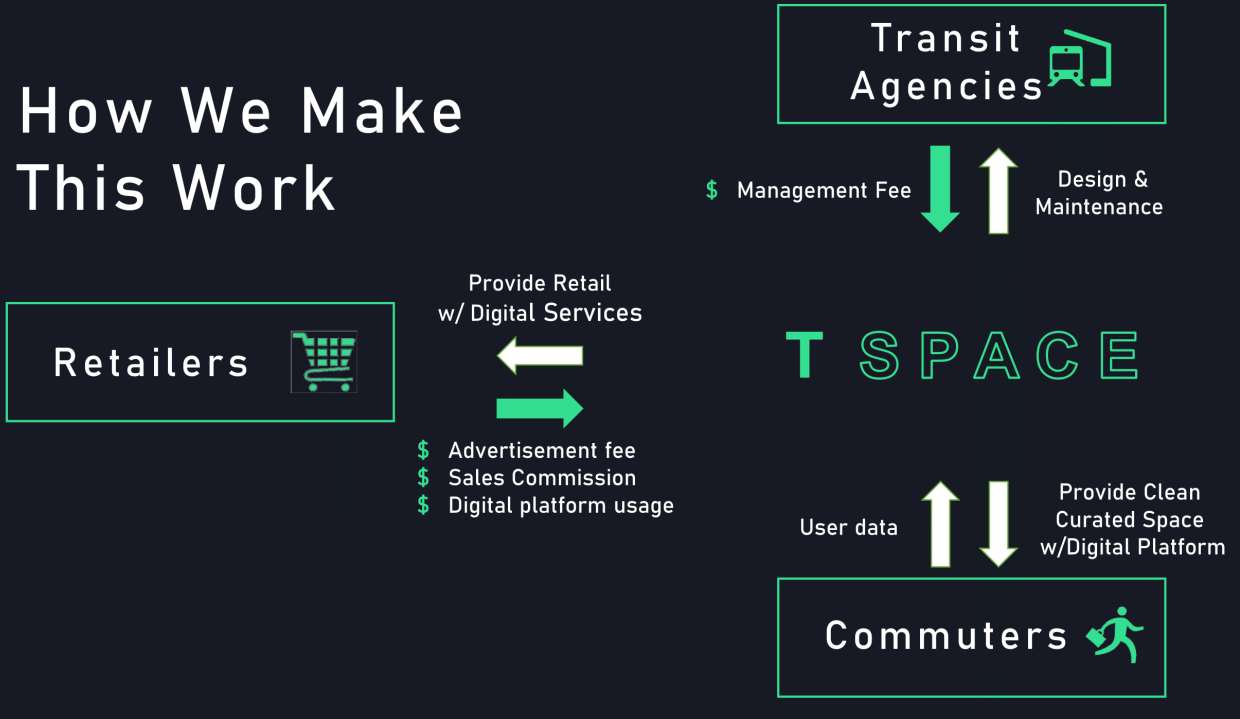
Finding Our Markets with Data

- Growing Cities with High Development Potential

- Cities with high annual ridership
    - Number of Annual Riders: 20m to 2b

- Younger Demographic
    - Average Age: 29 years old

- High Disposable Income
    - Median Disposable Income/HH: $81,644

- 3 Shops & 3 Restaurants/Cafes
    - Most open around 10:30AM

- 9 minute Average Peak Hour Wait

- Peak Hours
    - 8:30AM and 5:15PM

Example Market Analysis

Collaboration & Partnerships

Transit Operator / Asset Managers

Transit Agencies

T SPACE

CBRE

JLL

Real Estate Broker

How We Make This Work

Transit Agencies

$ Management Fee

Design & Maintenance

T SPACE

Provide Retail w/ Digital Services

Retailers

$ Advertisement fee
$ Sales Commission
$ Digital platform usage

User data

Provide Clean Curated Space w/Digital Platform

Commuters

Let us introduce ourselves.

We are T Space.

Our mission is to transform transit stations and incorporate innovative retail space for a better commuter experience.

DAISHA MARTIN

MANNY VELAZCO

TAKANORI KAKISHITA

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