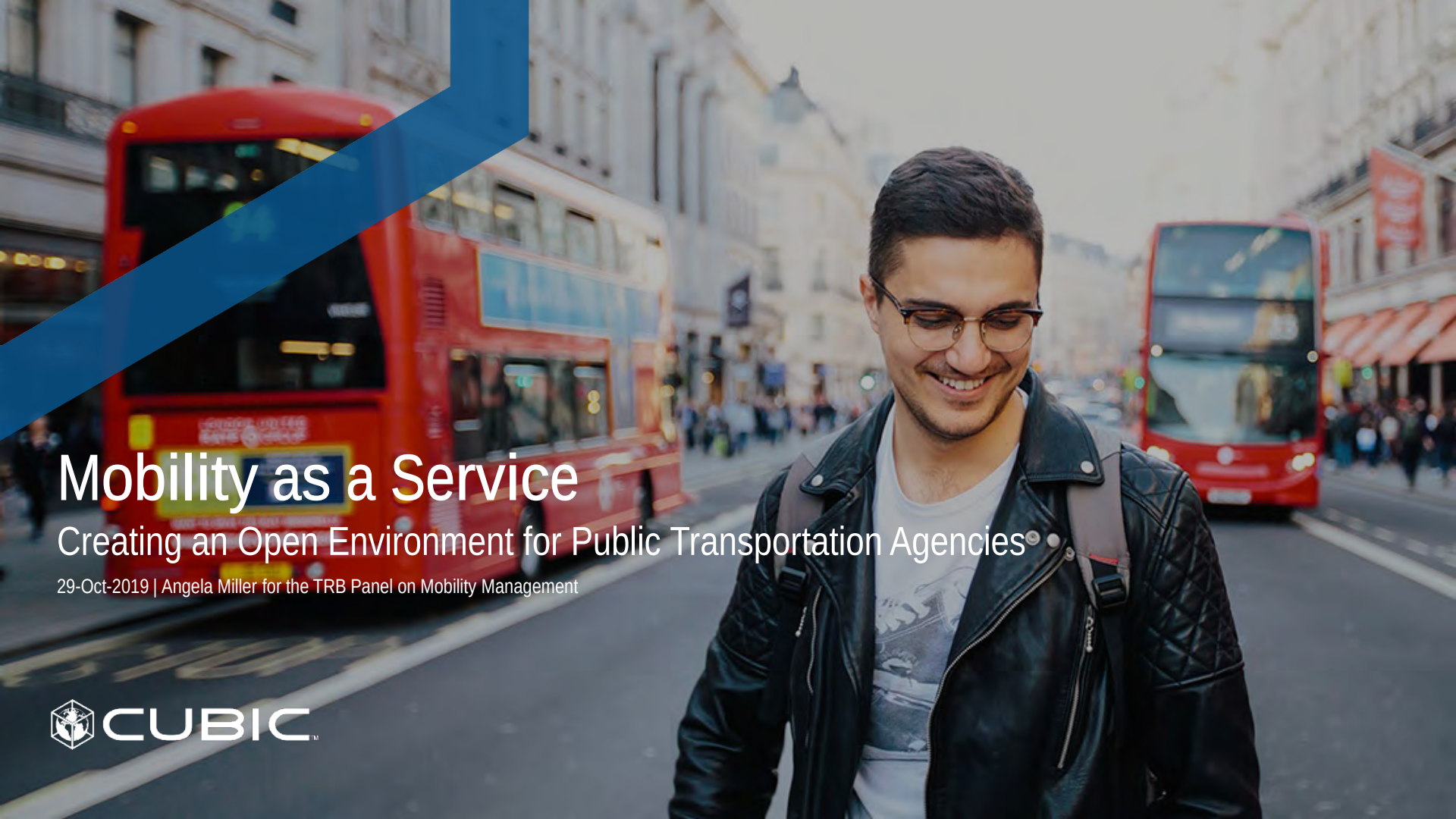


Mobility as a Service

Creating an Open Environment for Public Transportation Agencies

29-Oct-2019 | Angela Miller for the TRB Panel on Mobility Management

CUBIC

EVOLUTION OF PAYMENTS IN LAST 20 YEARS

1999 WMATA SmarTrip®

2002 Chicago ChicagoCard™

2003 London Oyster®
City of Edmonton (NextFare)

2004 BART EZ Rider

2005 Minneapolis Go To Card

2006 MARTA Breeze™
RMV/KVV Mobile Ticketing

2007 PATH SmartLink℠
PATCO FREEDOM® Card

2008 Los AngelesTAP®
Brisbane *go* card
BART NFC Pilot

2009 San Diego Compass Card
Miami EASY® Card
Modena, Italy

2010 MTA CharmCard™
MTC Clipper® Card
Skåne, So. Sweden

2011 So. Florida – EASY® Card
PATCO Open Payment Pilot
Google Wallet Acceptance

2012 Sydney Opal Card

2013 Chicago Ventra Card
NextBus Acquisition
Google Wallet Acceptance

2014 London Future Ticketing Agreement
Chicago Google/iPay Acceptance

2015 Vancouver Compass Card
Ventra App

2016 So. Florida –
EASY® Pay App

2017 New York New Fare Payment System
Boston Fare Collection System and Services

2018 Brisbane Next Generation Ticketing System
LA Metro Mobile
SF Bay Area Next Generation Fare Payment System and Services

CUBIC

PUBLIC TRANSPORTATION INDUSTRY CHALLENGES

Public Transportation agencies face the daunting task of linking to myriad third parties

Agile third parties transform services quickly, often ahead of policy decisions

Negative impacts to quality of public transportation services from third party providers

Customers want to seamlessly travel on a journey rather than worry about multiple providers

Need to create a trusted and transparent service to ensure equity of pricing and planning

CUBIC

MUNICH, GERMANY

Munich use case without MaaS Marketplace

Angela wants to make a trip from her home in Munich to Marienplatz for a little shopping. It is Octoberfest, so everything is crowded and she is not sure the best mode to use.

Angela gets immediately frustrated as she checks no fewer than 3 navigation apps, 3 transit apps, 3 bicycling sharing, 6 scooter, 3 ride hail, 7 taxi, and 3 car share apps

Angela decides to use a bicycle and opens the app to reserve a vehicle. When she arrives the bicycle is broken.

Angela gets immediately frustrated as she checks no fewer than 3 navigation apps, 3 transit apps, 2 bicycling sharing, 6 scooter, 3 ride hail, 7 taxi, and 3 car share apps

Angela decides on a scooter and walks to the scooter location.

Angela is flummoxed as she watches a gentleman try to load her scooter with 4 cases of beer while not reserving the vehicle.

Angela decides to take the bus and uses one app to plan the trip and opens another app to pay for the bus.

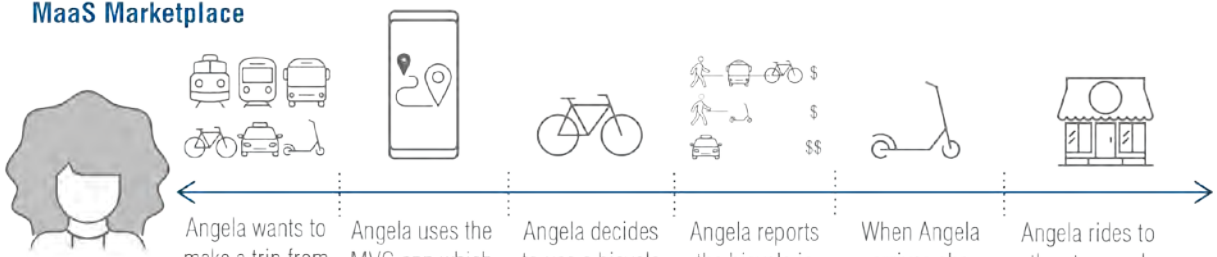
Because Angela slows down while walking distracted as she tries to pay on her app, she sees the bus pass her stop while she is 1/2 block away

Angela goes home.

CUBIC

MUNICH, GERMANY

Munich use case with MaaS Marketplace



Angela wants to make a trip from her home in Munich to Marienplatz for a little shopping. It is Octoberfest, so everything is crowded and she is not sure the best mode to use.

Angela uses the MVG app which she knows has multimodal options for travel.

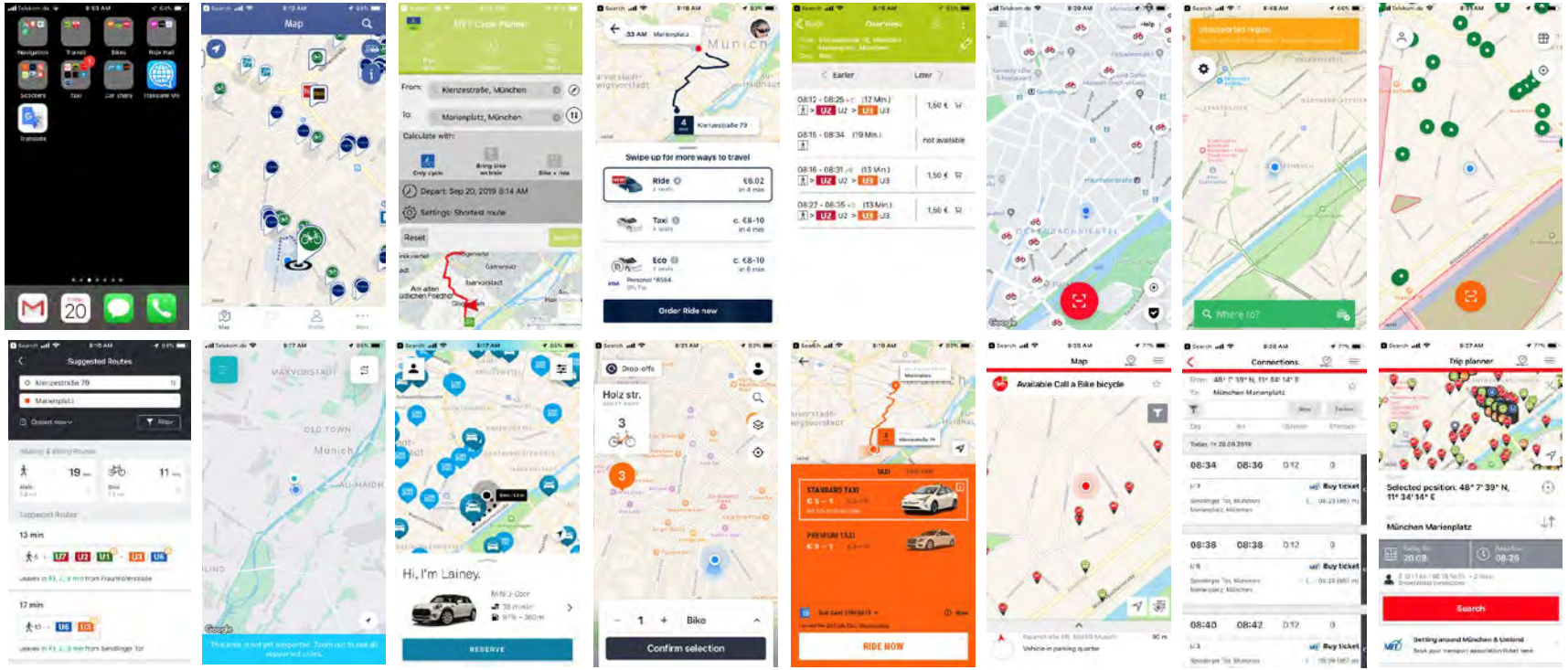
Angela decides to use a bicycle and reserves the vehicle. When she arrives the bicycle is broken.

Angela reports the bicycle is broken. The app suggests alternatives and she chooses to reserve a scooter.

When Angela arrives she waves at a gentleman with 4 cases of beer scratching his head as he was unable to use the scooter to move them.

Angela rides to the store and happily shops among reveling Germans.

CASE STUDY: MUNICH, GERMANY – ANGELA'S PHONE



CASE STUDY: MUNICH, GERMANY

MAAS MATURITY MODEL

4 — **Integration of Societal Goals**
Policies, Incentives, etc…

3 — **Integration of the Service Offer**
Bundling/Subscription, Contracts, etc…

2 — **Integration of Booking and Payment**
Single Trip – Find, Book and Pay

1 — **Integration of Information**
Multimodal Travel Planner, Price Info

0 — **No Integration**
Single, Separate Services

Source: J. Sochor et al: A Topological Approach to Mobility as a Service Research in Transportation Business and Management Volume 27 pp 3-14 https://www.sciencedirect.com/science/article/pii/S2210539518300476

CUBIC

1

How we think of MaaS

ECOSYSTEM THAT SUPPORTS HIGHER MAAS MATURITY GOALS

Open marketplace with ability to self-provision

Access to comprehensive information for analytics, policy, and journey planning.

Payment processing, settlement, and apportionment services for all parties

Information that adequately supports multimodal customer support

Accessible, Equitable, and Transparent services for all

Linked modes of transport that provide an overall integrated and customer-centered journey

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BENEFITS OF TRUE MAAS OPEN COMMUNICATIONS

Decrease cost and time to connect to new providers

Open, secure, and transparent marketplace

Access to entities that could expand service and improve customer satisfaction

Ability to determine and enforce policies for transportation

Ability to serve as mobility manager for city or region

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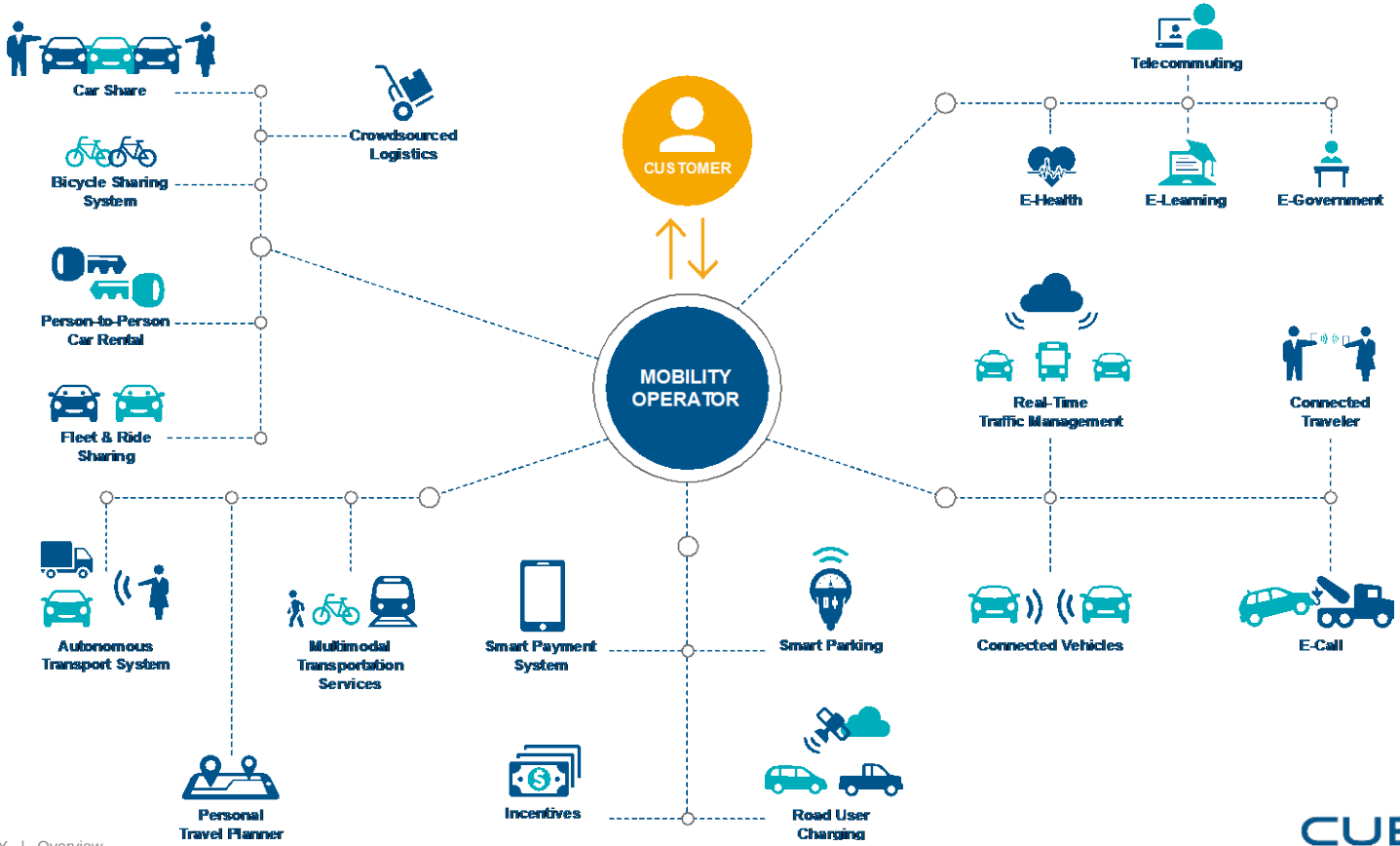
2

Our vision of a marketplace

MAAS MARKETPLACE THAT PROVIDES HOLISTIC, OPTIMAL, AND PEOPLE CENTRED TRAVEL OPTIONS



3

Background Materials

MARKET DYNAMICS

TRENDS

Growing urbanization, rising consumer expectations and changing demographics, together with declining traditional funding streams, are driving innovations and valuations in mobility technology.

GENERAL

- Sustainability
- Rising customer expectations
- Space constraints
- Funding constraints
- Petro/gas tax pressures
- Capitaless business models

TECH

- Human connectivity
- Fuel efficient cars
- Processing power
- Big data + analytics
- Internet of things
- Cloud

DEMOGRAPHIC

- Urbanization
- Population growth
- Aging population
- Millennials
- Congestion at peak

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