WHAT IS A GOOD BIKE NETWORK?

THE ART* OF METRIC DEVELOPMENT

*(definitely not science)

Anna Gartsman
MassDOT Office of Performance Management & Innovation
agartsman@mbta.com
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The Secret of Metric Development

• It’s all about making decisions

• So. Many. Decisions.

• Five entire stages of decision-making
Stages of decision-making

- Vision & Goal: what do we want to see in the world?
- Theory of change: how do we think we’ll get there?
- Measure concept: how can we capture the current state?
- Measurement: can we put a number on it?
- Reporting: how do we want to slice this number in meaningful ways?
Process of decision-making

- Clarity on the high level is important in order to make the right decisions further down
- Frequent check-ins with advisors and communities, because many decisions need to be made at every level
- Evaluate trade-offs
  - Simplicity vs effectiveness
  - Concept integrity vs data availability
  - Timeliness vs accuracy
- Continuously improve measures as more data and understanding becomes available
Stage 1: Vision & Goal

• Vision & Goal: what do we want to see in the world?
  • Biking in Massachusetts will be a safe, comfortable, and convenient option for everyday travel.
Goal decisions: are all trips created equal?

• Vision: Biking in Massachusetts will be a safe, comfortable, and convenient option for everyday travel.

• Who are we talking about?
  • The vision applies to everyone: young, old, rich, poor, urban, rural... people who currently cycle, and people who do not

• What behavior do we want to focus on?
  • “Everyday travel” – Focus on purposeful travel (rather than recreational)
  • Concept of “everyday trips” with a purposeful Origin and Destination (e.g. from Home to the Park)
  • We don’t expect to generate new trips; we want to convert existing trips onto the cycling mode
  • Cycling as an option: We don’t expect 100% conversion, just for more people to have cycling as an option

• When we combine the Who and the What in our vision, we get strong implications that:
  • Although the easiest way to increase cycling trips → get Anna to go from 50% cycling mode share to 90%, this is not our focus
  • A cycling trip from a new rider is more important than extra cycling trips from existing riders

• And so we set a goal that would mean we’re successful in our vision:
  • Increase the percentage of everyday trips (trips under 6 miles) made by biking
Stage 2: Theory of Change

• Vision & Goal: what do we want to see in the world?
  • Biking in Massachusetts will be a safe, comfortable, and convenient option for everyday travel.
  • More everyday trips (trips under 6 miles) are made by biking.

• Theory of change: how do we think we’ll get there?
  • How will trip modes shift to cycling?
  • Who, What, Where?
  • Cycling infrastructure has to be available throughout the state, comfortable enough to attract new riders, and serve destinations where people already go
Theory of Change Decision: What is comfortable?
Stage 3: Measure

• Vision & Goal: what do we want to see in the world?
  • Biking in Massachusetts will be a safe, comfortable, and convenient option for everyday travel.
  • More everyday trips (trips under 6 miles) are made by biking.

• Theory of change: how do we think we’ll get there?
  • High-comfort bike network that is available for existing trips will encourage people to switch the cycling some of the time

• Measure concept: how can we capture the current state?
  • Percentage of trips under 6 miles taken in Massachusetts that could be made using the high-comfort biking network
Measure concept decision: equity measure or equity in all measures?

• One of the elements of our vision & goal was that everyone has cycling as a viable option for some of their trips.

• This stage is where we make a crucial decision – do we include one equity measure, or incorporate equity into every measure?
  • One measure approach makes equity is easy to focus on and understand, but frequently misses nuance.
  • Multiple measures approach makes sure equity is considered in every aspect, but can make it hard to understand and to evaluate the state of the world.

• Equity Check: Can certain populations make a smaller percentage of their trips under 6 miles using the high-comfort biking network than average?
Stage 4: Measurement

- Vision & Goal: what do we want to see in the world?
  - Biking in Massachusetts will be a safe, comfortable, and convenient option for everyday travel.
  - More everyday trips (trips under 6 miles) are made by biking.
- Theory of change: how do we think we’ll get there?
  - High-comfort bike network that is available for existing trips will encourage people to switch the cycling some of the time
- Measure concept: how can we capture the current state?
  - Percentage of trips under 6 miles taken in Massachusetts that could be made using the high-comfort biking network
  - Can certain populations make a smaller percentage of their trips under 6 miles using the high-comfort biking network than average?
- Measurement: can we put a number on it? We need to define:
  - Trips under 6 miles
  - Trips – Origin, Destination, Accessing the high-comfort network
  - High-comfort bike network contiguity
Measurement decision: how connected is connected?

- Percentage of trips under 6 miles taken in Massachusetts that could be made using the high-comfort biking network
- Trips under 6 miles: 6 miles by which path? If there’s a 5-mile path on roads, but using a high-comfort bikeway makes it 6.5 miles, does that count?
- Accessing the high-comfort bike network: how close do the origin and destination points need to be to the network to consider them as “could be made”
- High-comfort bike network contiguity: Can there be breaks (e.g. for intersections that could be walked) or does it need to be completely contiguous?
- .... No answers here, we’re still working on this one. We have some thoughts, but will be reaching out to discuss.
Stage 5: Reporting

- Vision & Goal: what do we want to see in the world?
  - Biking in Massachusetts will be a safe, comfortable, and convenient option for everyday travel.
  - More everyday trips (trips under 6 miles) are made by biking.
- Theory of change: how do we think we’ll get there?
  - High-comfort bike network that is available for existing trips will encourage people to switch the cycling some of the time
- Measure concept: how can we capture the current state?
  - Percentage of trips under 6 miles taken in Massachusetts that could be made using the high-comfort biking network
  - Can certain populations make a smaller percentage of their trips under 6 miles using the high-comfort biking network than average?
- Measurement: can we put a number on it?
  - ...to come!
- Reporting: how do we want to slice this number in meaningful ways?
  - Groups of interest
  - Geography
  - Trip characteristics
Reporting decision: what happens with trips that cross boundaries?

- **Groups of interest**: which populations do we want to make sure are covered? How do we identify their trips?

- **Geography**: do we want to report this measure by county? RPA? Municipality?
  - 6 miles is a long distance; many trips will cross these boundaries - where do these trips get “assigned”?

- **Trip characteristics**: do we want to consider commute trips as different than non-commute trips? How do we identify them?

- .... Shockingly, no answers here yet either
Initiative 6: Continuous Evaluation

- Invest in data collection and evaluation to inform Initiatives 1 through 5 and to measure performance.

- Which has its own measures for tracking progress, emphasizing transparency about data quality:
  - Percentage of measures in the Bike Plan for which high-quality data exists and are used for evaluation
  - Equity Check: Percentage of equity measures in the Bike Plan for which high-quality data exists

- This initiative lists steps to continuously improve the measures in the Bike Plan:
  - Review approach for the measure given available data; revise approach as better data becomes available.
  - Review current state of data available, including appropriateness of data to the measure and quality of data.
  - Determine additional data needs, such as collecting new data if needed and updating old data.
  - Calculate current performance of the measure, including changes over time.
  - Set performance targets and evaluate progress towards them.
And in closing, some OPMI products

- MassDOT Tracker, for high-level transportation metrics: https://massdottracker.com/

- OPMI Data Blog, for deeper dives into data and measurement, and some fun activities: https://www.mbtabackontrack.com/blog/

- OPMI email: opmi@mbta.com