

Designing worthwhile innovations for diffusion: Or bridging the research-practice chasm

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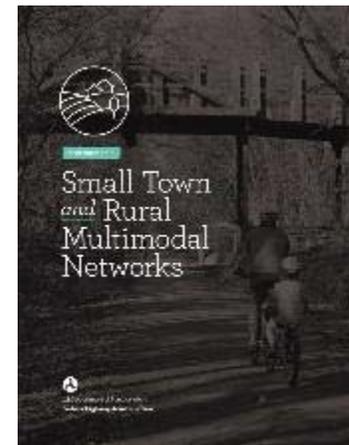
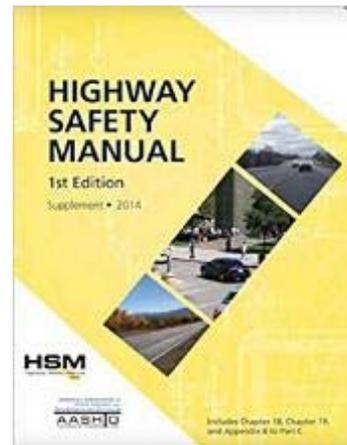
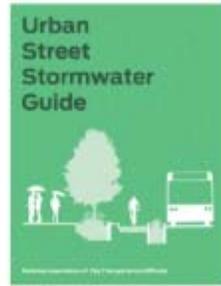
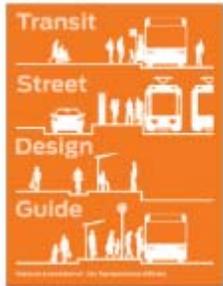
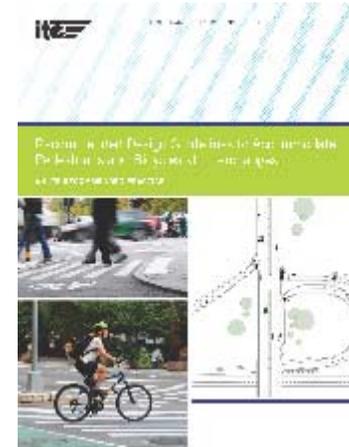
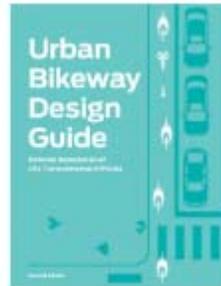
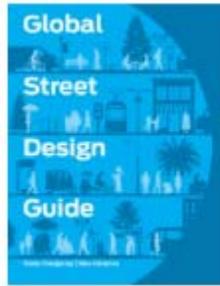
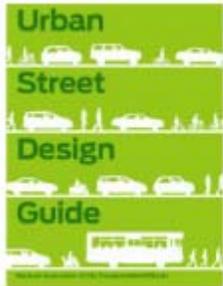


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Outline

- Rebalancing dissemination with diffusion
- What diffusion is and isn't
- The promise of diffusion
- A proposed 'designing for diffusion' framework

Our field is replete with guidance



Which we 'push' out into the world

In the form of:

- Webinars
- Websites
- Publications
- Presentations
- Newsletters
- Social media campaigns
- Listservs

The image shows two digital assets. The top one is the 'pedbikeinfo' website, which has a green header with a logo of a person walking and a bicycle. Below the header are navigation tabs for 'FACTS & FIGURES', 'TOPICS', 'RESOURCES', and 'WEBINARS'. The main content area features 'Recent Webinars' with titles like 'Creating Active Routes to Everyday Destinations' and 'Creating Age-Friendly Streets - Part 2'. To the right, there's a section for 'WEBSITES HSRC MAINTAINS' listing 'Accessible Pedestrian Signals: A Guide to Best Practices' and the 'Collaborative Sciences Center for Road Safety'.

The bottom image is the 'CSCRS Crossroads' newsletter. It features a large photograph of a busy highway with many cars. The title 'CSCRS Crossroads' is prominently displayed in blue. Below the title, it says 'The quarterly newsletter of the Collaborative Sciences Center for Road Safety'. The newsletter content includes 'Volume 2, Issue 3' and 'In This Issue' with several bullet points: 'Register today for the Safe Systems Summit, Apr. 23-24, in Durham, NC', 'Deadline to submit an abstract for Summit poster showcase is Feb. 15', 'Second annual Safety Sunday @ TRB draws diverse crowd', and 'CSCRS Student of the Year, Ali Boggs, UTK, honored at annual CUTC banquet'. On the right side, there are several links for 'Collaborator profile', 'Systems spotlight', 'CSCRS highlights', and 'Join CSCRS on social media'.

“Best intentions, hand-offs, publications and publicity and the distribution of brochures and the debut of websites and our many public presentations are centralized attempts to transmit information from source to receiver. We push information, hoping against the evidence of these paradigms that someone, somewhere, will find the fruits of our well-intended hard work ripe for consumption.”

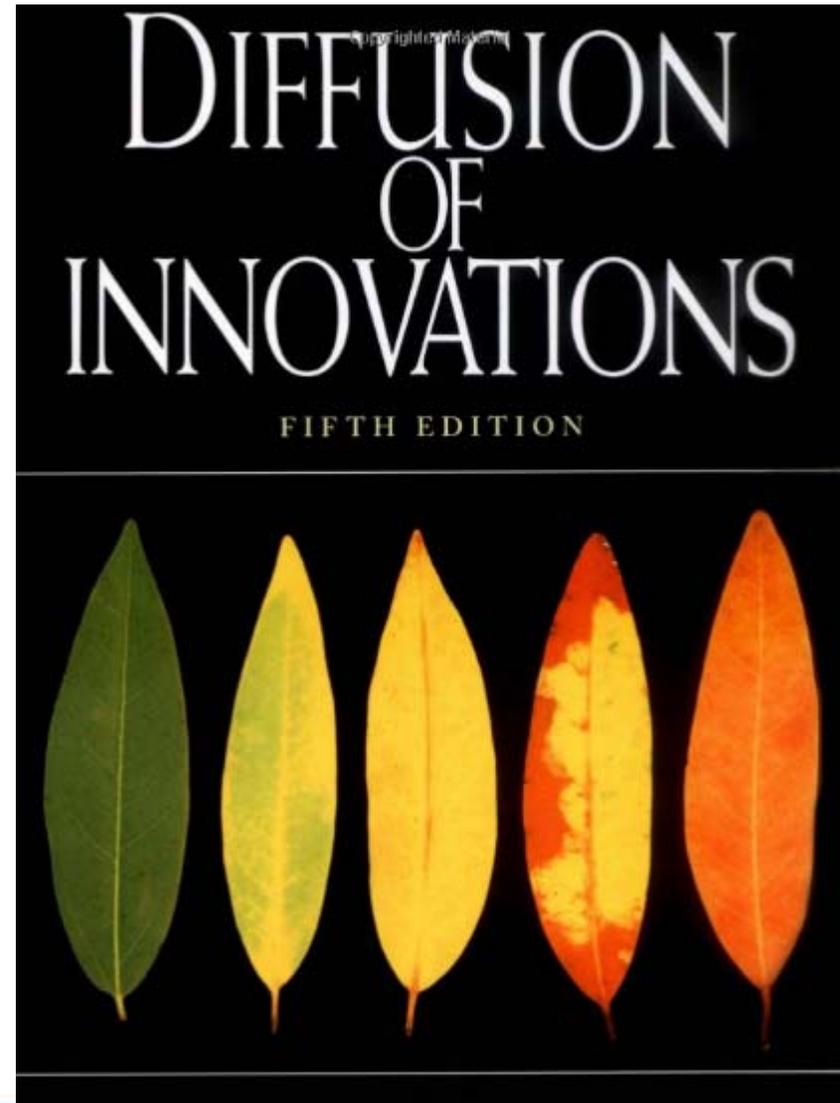
– (Dearing & Kreuter, 2010, p. 102)

To get worthwhile innovations into practice, we need to rebalance 'push' with 'pull' strategies

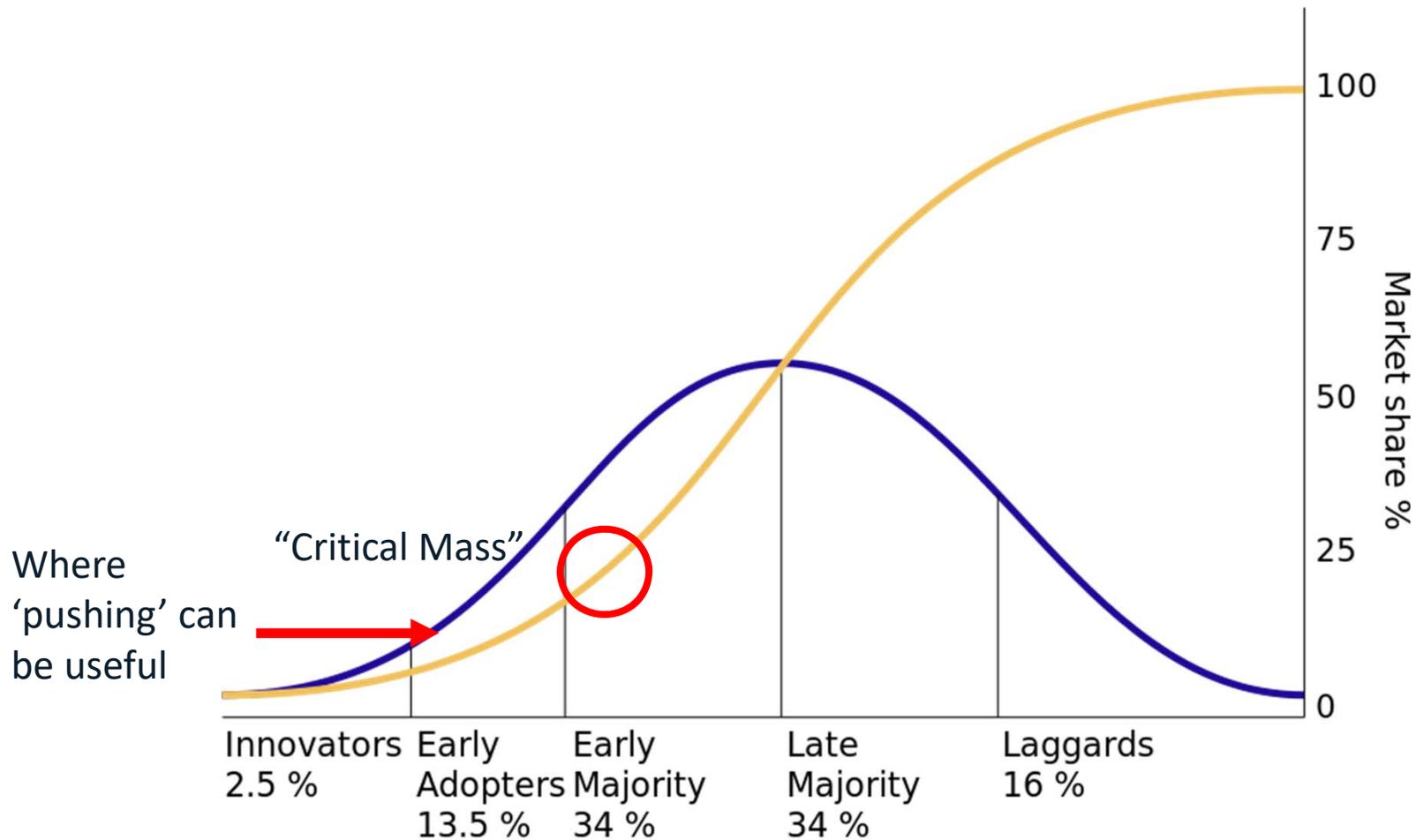
How do we do that?

Draw upon the power of diffusion

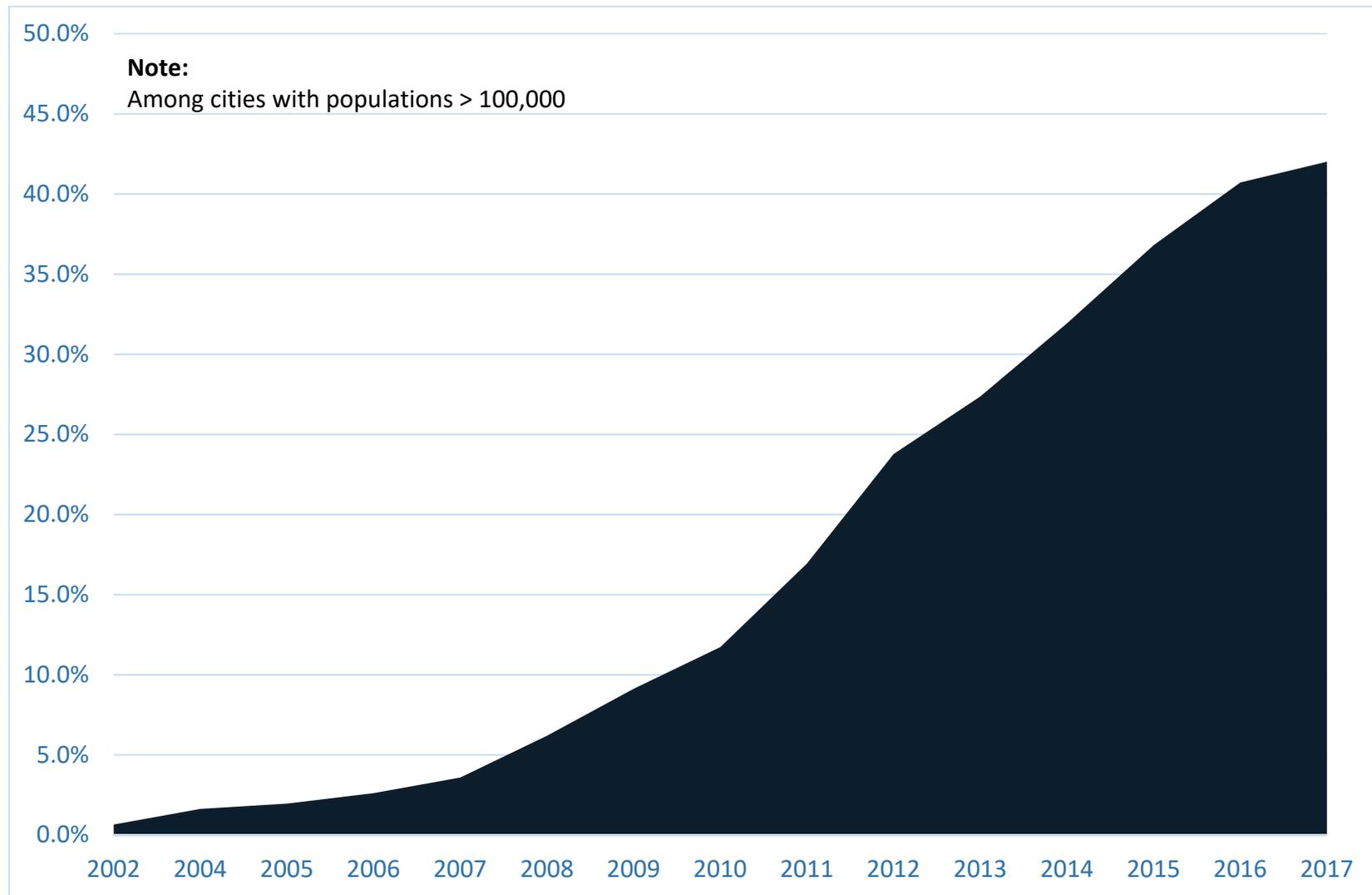
Diffusion of Innovations explains how over time an innovation gains momentum and diffuses—or spreads—through a social system (*Rogers, 2003*)



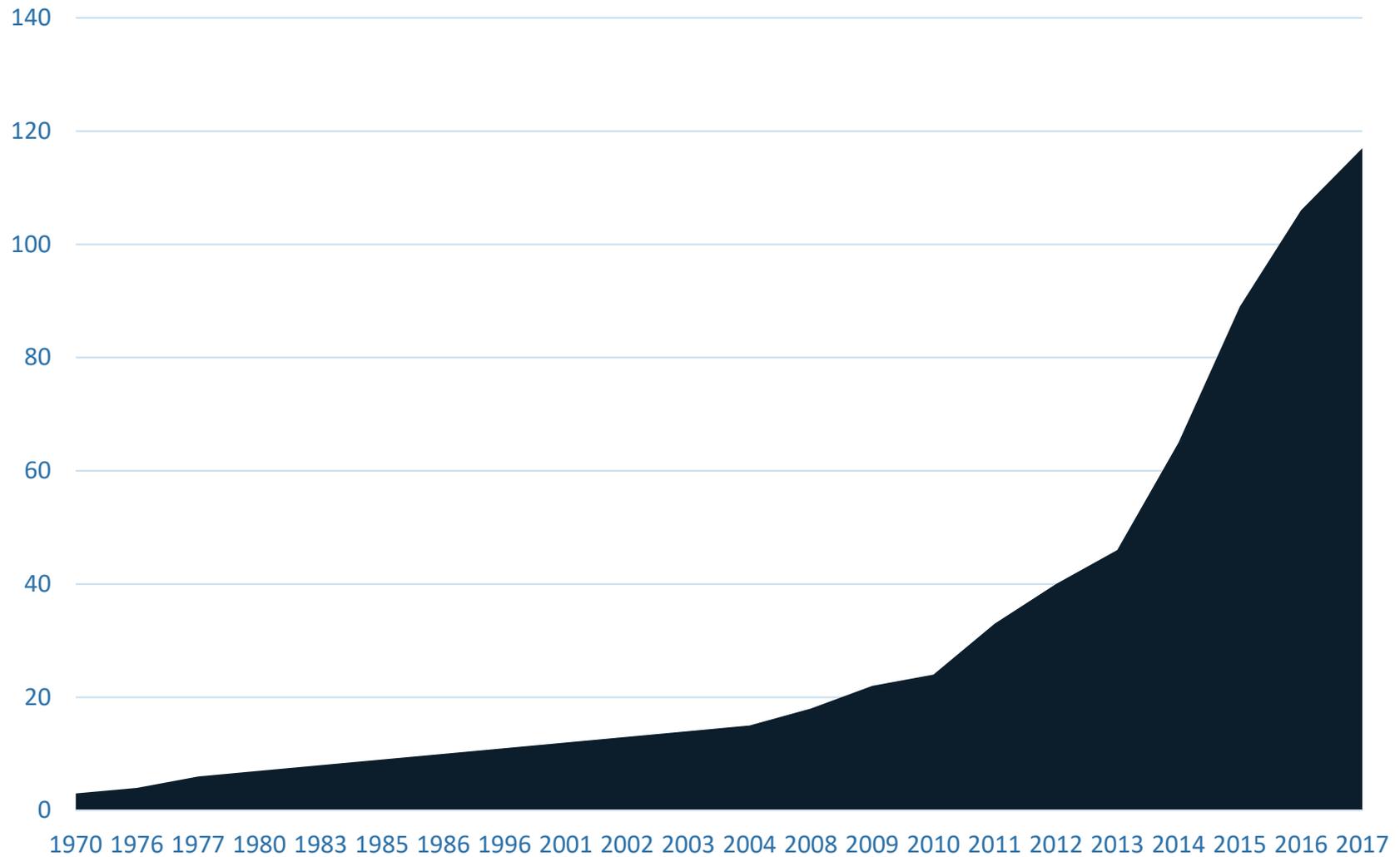
What diffusion looks like



Diffusion of Complete Streets policies



Diffusion of separated bike lanes



Source: peopleforbikes.org

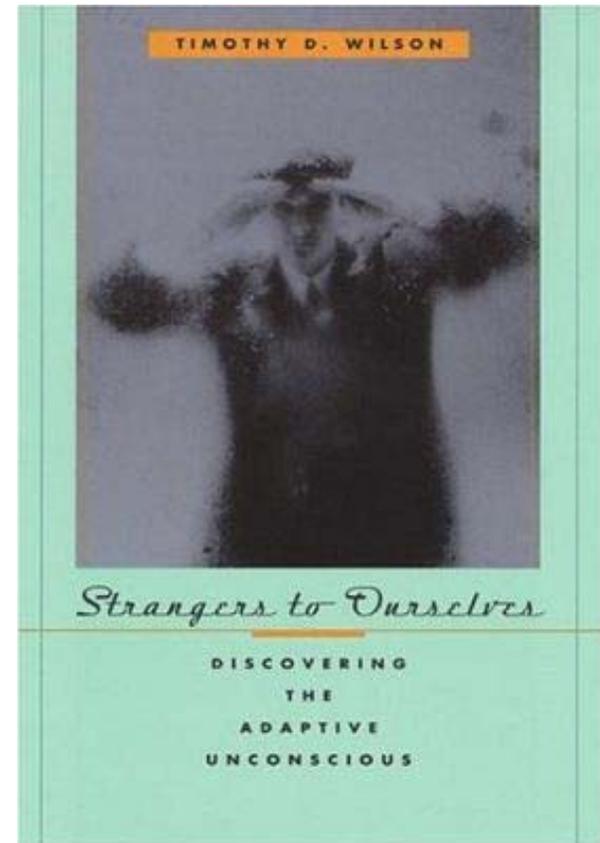
More about diffusion

- Diffusion is never random or instantaneous
- Instead, it unfolds in a **predictable pattern of social influence**

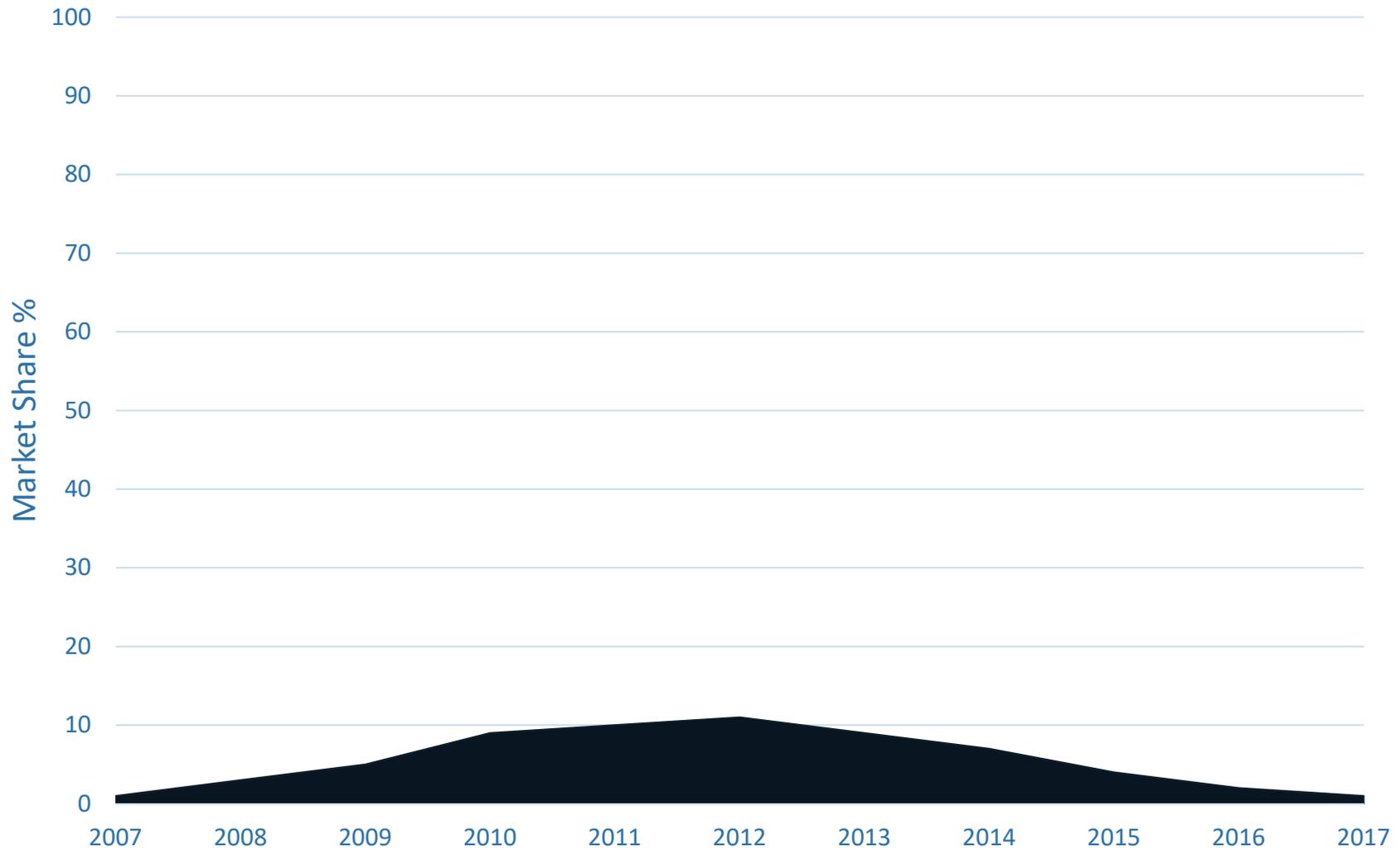


Even more about diffusion

- Diffusion is a social process
- A few of the ways our social interactions spread innovation:
 - **Proximity** (e.g., Silicon Valley, RTP, Austin, Pittsburgh)
 - **Collaboration** (e.g., Vision Zero, Road to Zero)
 - **Talking and listening** (e.g., conferences, other in-person meetings)
 - **Trying and modeling behaviors we see** (e.g., Vision Zero, NACTO)



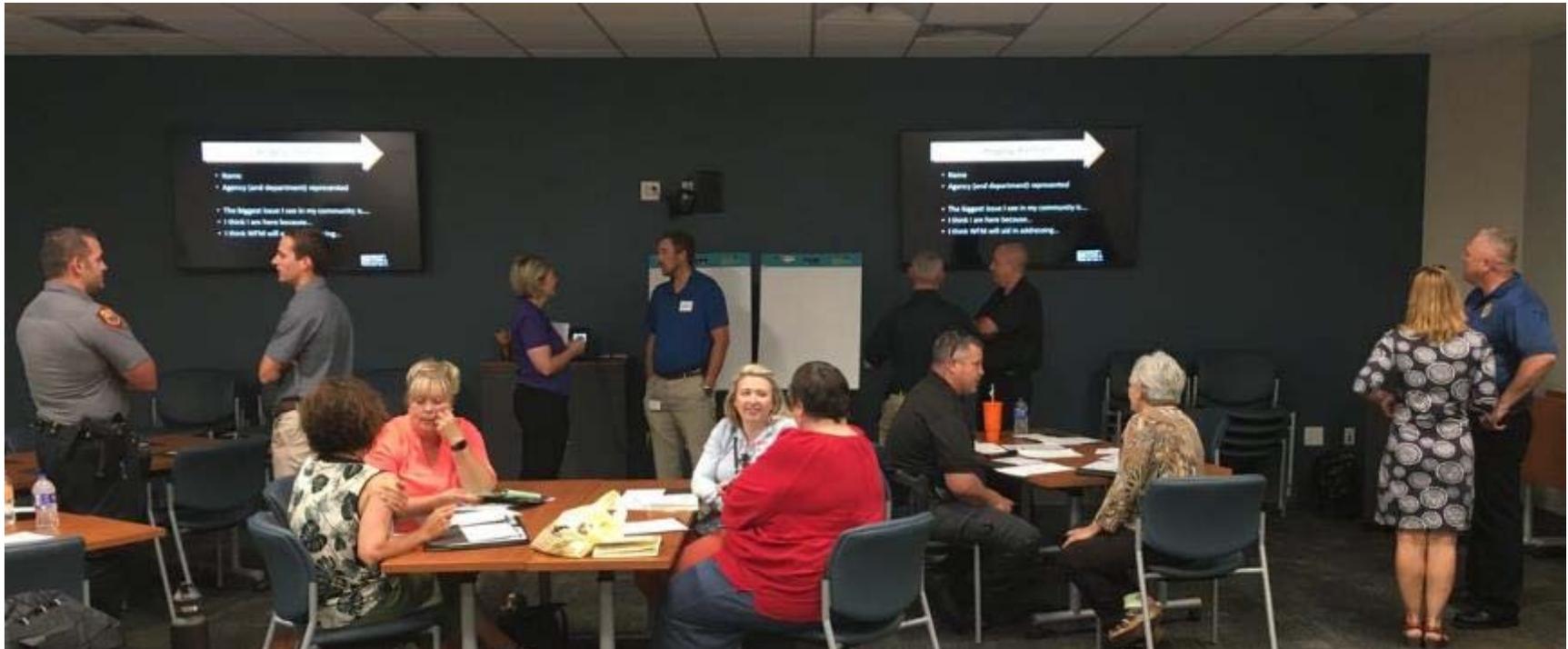
Most innovations (>90%) fail to diffuse



This is because...

Potential adopters desire reassurance that adopting a new innovation won't cost them

Known as 'social proof'



Many non-evidence-based approaches diffuse,
eclipsing more effective practices

NCHRP

REPORT 622

NATIONAL
COOPERATIVE
HIGHWAY
RESEARCH
PROGRAM

Effectiveness of Behavioral Highway Safety Countermeasures

“Many voluntary action programs have long been known to be ineffective, but their popularity remains. Exhorting people to take some preferred health action for their own benefit is easy to do and gives the appearance of doing something important for society; sometimes these efforts are referred to as feel-good programs” (p. 25)

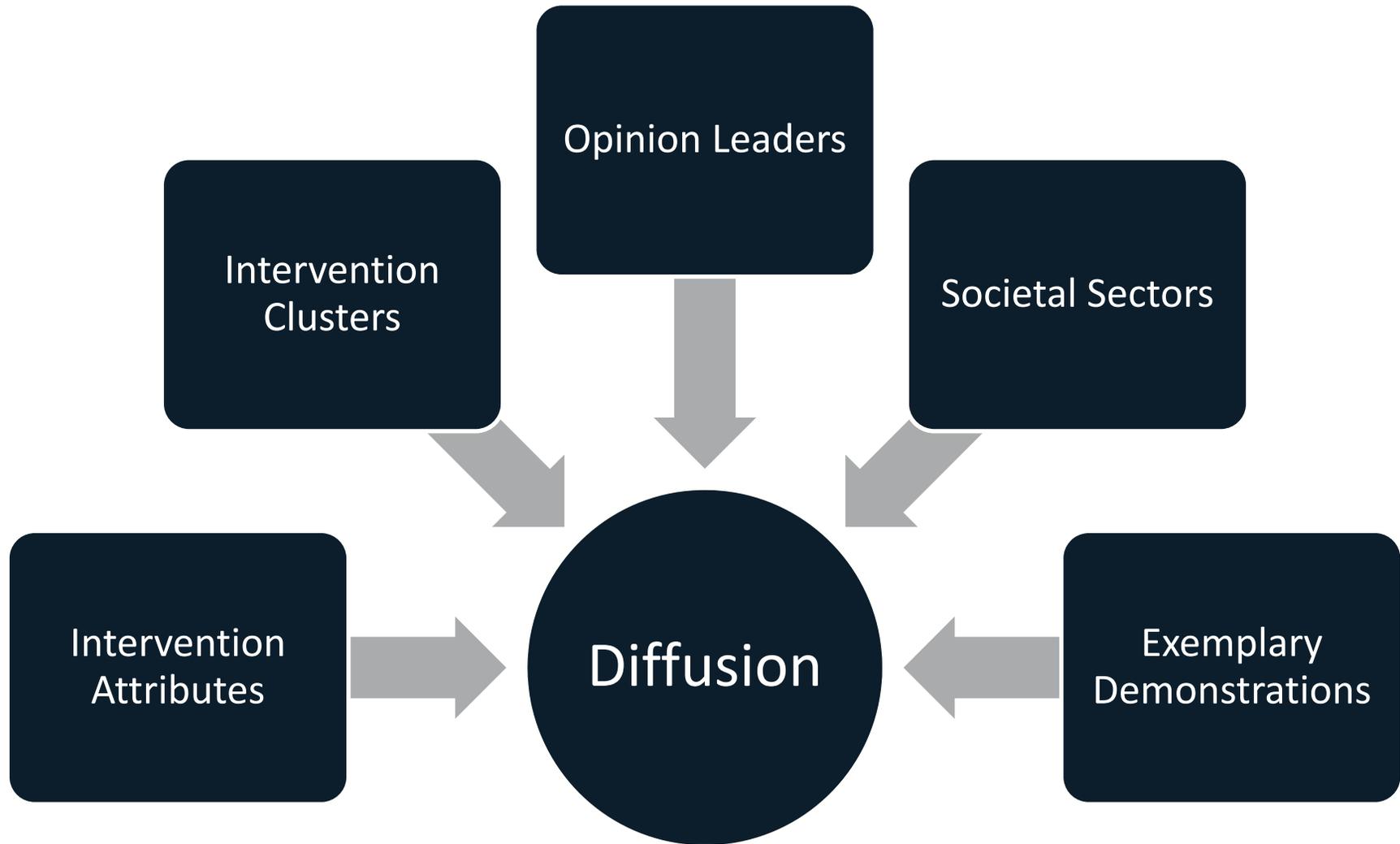
Innovations often take too long to impact the majority of the population



It took 35 years to get to 90% driver seatbelt use (NY's 1984 seat belt law was the first in the US)

Yet there's hope! We can “**design for diffusion**”

Designing for diffusion



Designing for diffusion

- **Intervention attributes** - Relative advantage; Compatibility; Simplicity; Trialability; Observability
- **Intervention clusters** - a logically-related set of interventions whose grouping increases adoption
- **Opinion leaders** - trusted sources of advice (*most often not authority figures*)
- **Societal sectors** - a collection of organizations operating in the same domain without respect to proximity
- **Exemplary demonstration projects** (*not an experiment of a promising innovation*)

Illustration: Systemic safety analysis (SSA)

NATIONAL COOPERATIVE HIGHWAY RESEARCH PROGRAM

NCHRP RESEARCH REPORT 893

Systemic Pedestrian Safety Analysis

**Libby Thomas
Laura Sandt
Charles Zegeer
Wesley Kumfer
Katy Lang
Bo Lan**

**HIGHWAY SAFETY RESEARCH CENTER
UNIVERSITY OF NORTH CAROLINA—CHAPEL HILL
Chapel Hill, NC**

AND

**Zachary Horowitz
Andrew Butsick
Joseph Toole**
KITTELSON & ASSOCIATES, INC.
Portland, OR

AND

Robert J. Schneider
UNIVERSITY OF WISCONSIN—MILWAUKEE, CONSULTANT
Milwaukee, WI

Intervention attributes

Innovations that diffuse possess 5 attributes

1. Relative Advantage
2. Compatibility
3. Simplicity
4. Trialability
5. Observability



Relative advantage

How improved an innovation is relative to the status quo

Example: addressing risk before it manifests into safety problems

Result: greater safety and more trust in the security of the system



Figure 2. A systemic approach addresses sites with similar risk factors, regardless of crash history. The approach falls along a spectrum of other approaches to safety that are more or less proactive in treating sites based on risk or prior crash history.

Compatibility

How consistent an innovation is with adopters' established ways of accomplishing the same goals



Figure 3. Steps in a systemic pedestrian safety analysis process.

Simplicity

How easy or difficult it is to adopt an innovation

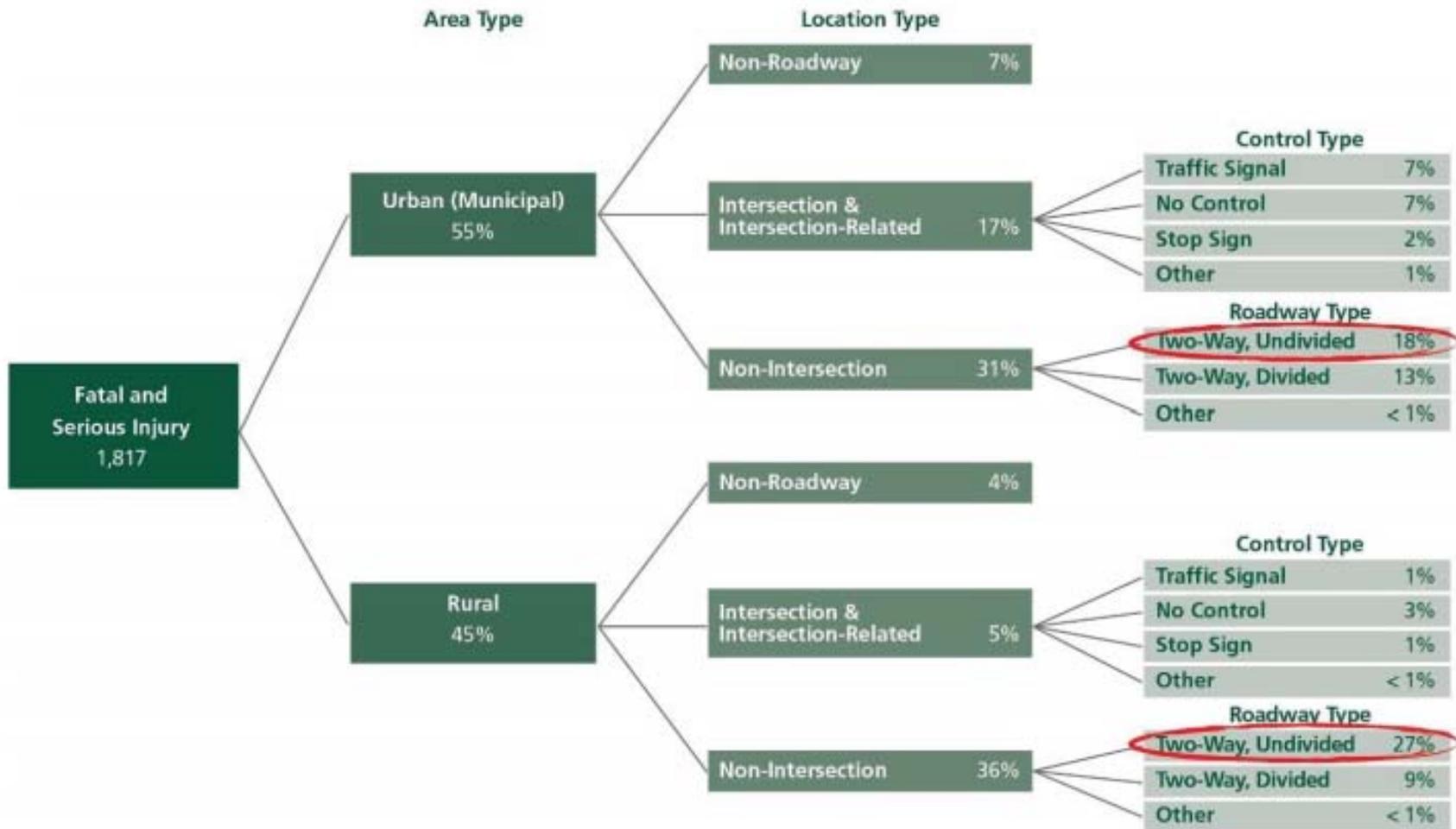


Figure 4. Example tree diagram of pedestrian crash location types using North Carolina crash data.

Trialability

How much the innovation allows adopters to experiment with it or undo it if needed



Source: centerforactivedesign.org/tacticalurbanism; Akron, OH

Observability

How visible the results of adopting the innovation are to others; visibility creates a “buzz” about the innovation

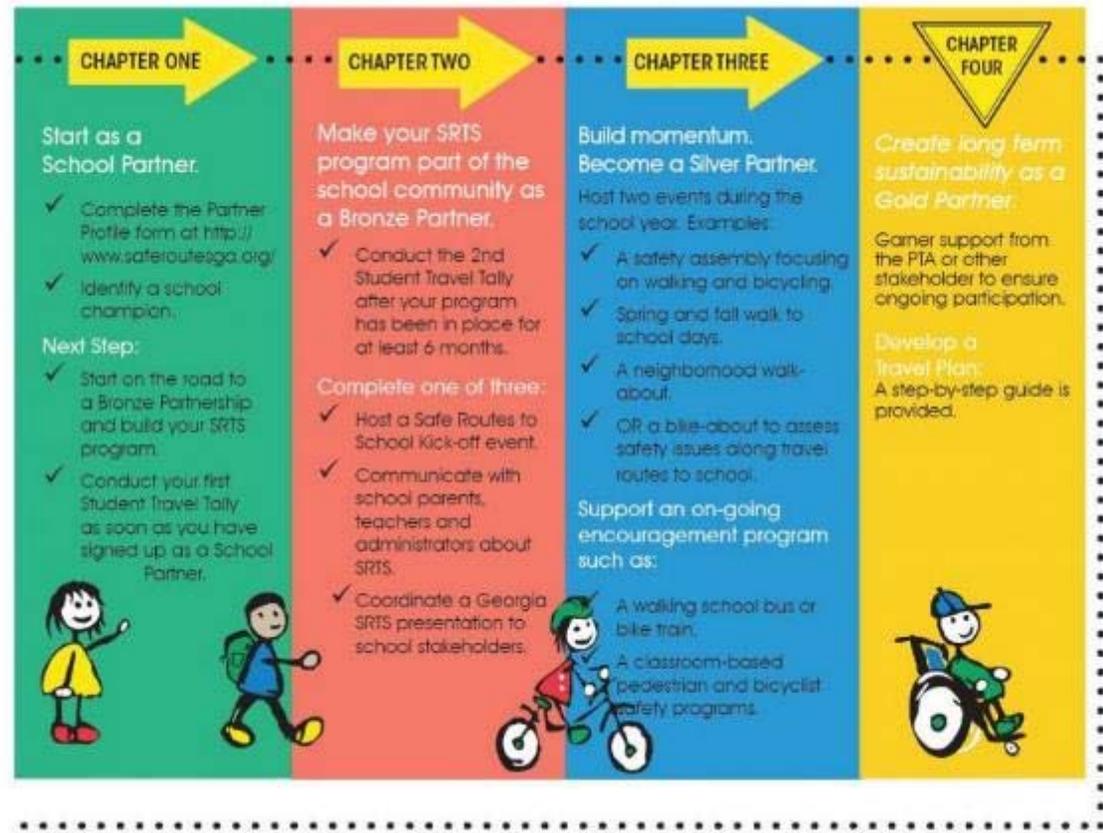


Figure A7. In-roadway pedestrian signs and centerline bollard installed at a midblock crosswalk in the gateway configuration (Ron Van Houten).

Intervention clusters

Package complementary countermeasures

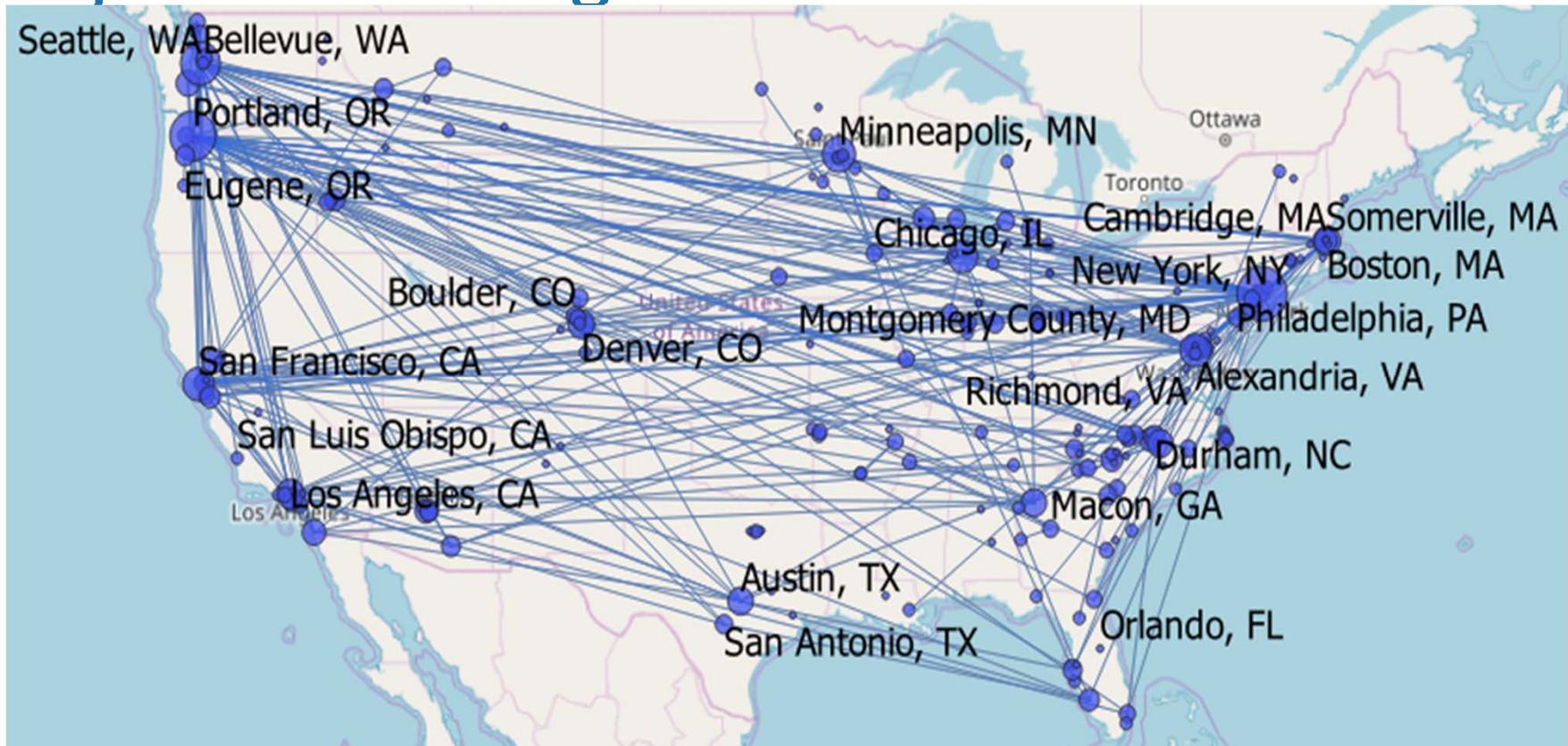
Reactance Theory helps to explain why clustering innovations makes sense. Individuals consider it a right to choose. When deprived of choice, they react negatively



Opinion leaders

“When opinion leaders do not adopt an innovation, systems do not change” (*Dearing and Cox, 2018, p. 184*)

Opinion leading Vision Zero cities



Opinion-leading cities: New York, Portland, Seattle, San Francisco, Minneapolis, Washington, DC, and Boston

LaJeunesse, S., Heiny, S., Evenson, K. R., Fiedler, L. M., & Cooper, J. F. (2019). Diffusing innovative road safety practice: A social network approach to identifying opinion leading U.S. cities. *Traffic Injury Prevention, 19*(8), 832-837. doi:10.1080/15389588.2018.1527031.

Societal sectors

- Transportation Engineers
- Transportation Planners
- Chiefs of Police
- EMS and Rescue
- Metropolitan Planning Organizations + Regional Council of Governments
- Local Health Directors
- School Administrators
- Zoning Officials
- Public Transit Agencies



Exemplary demonstration projects

“experimental demonstration project”



BIG JUMP PROJECT

peopleforbikes

Building on the momentum of our completed [Green Lane Project](#), the Big Jump Project is helping 10 cities radically reimagine their bicycling infrastructure, while at the same time helping to propel communities nationwide into a better future for biking. Over the course of the next three years, the combination of quickly connected biking networks and the use of smart outreach encouraging people to ride more, will illustrate the ways in which U.S. cities and towns can tap into bicycles to improve the health and vitality of their communities.

- Others are more likely to adopt a complex or politically tenuous practice when they can **clearly see how it is implemented and observe its positive outcomes** (*Huguenin & Jeannerat, 2017*)

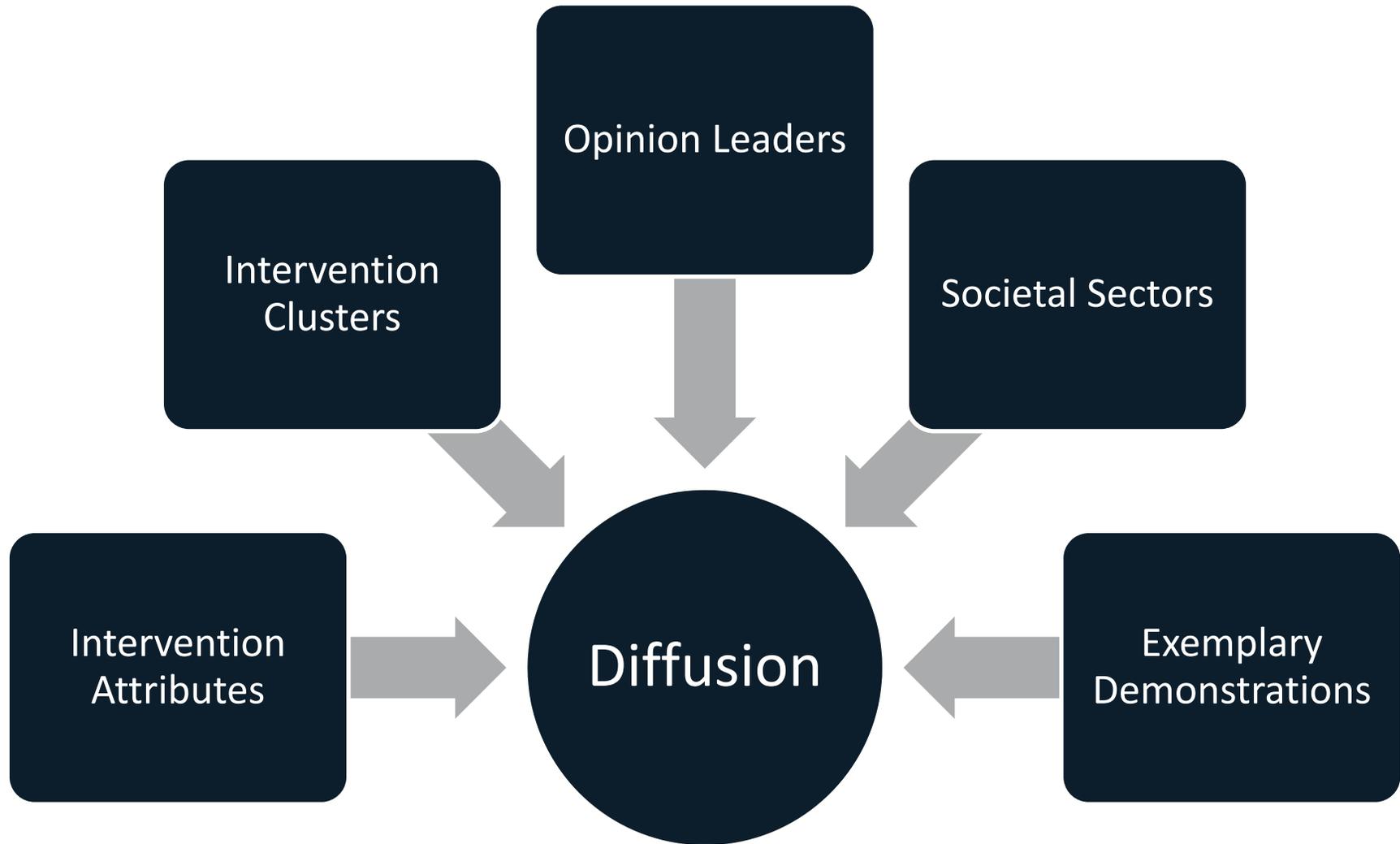
Exemplary demonstration projects

These projects give other agencies **compelling, concrete ideas on how** they can improve traffic safety



Source: <https://usa.streetsblog.org/2018/10/18/want-drivers-to-yield-to-pedestrians-you-gotta-play-mind-games/>

Let's design our innovations for diffusion!



Thank You

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