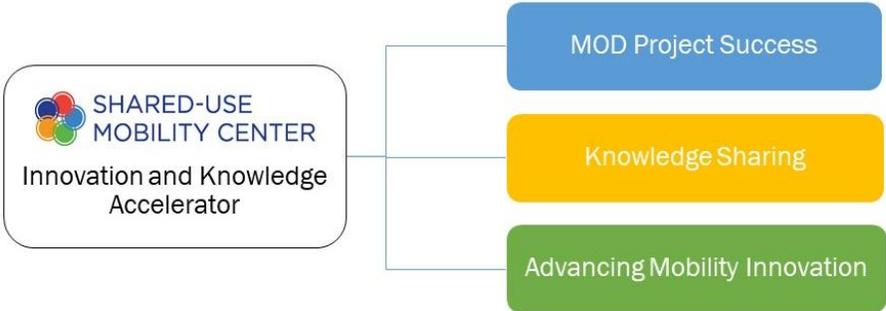


# Innovation and Knowledge Accelerator

Summary of the Shared-Use Mobility Center’s MOD Innovation and Knowledge Accelerator (IKA) project, 2017-2019.

## Executive Summary

In early 2017, the Shared-Use Mobility Center (SUMC), through a cooperative agreement with the Federal Transit Administration, launched the Innovation and Knowledge Accelerator (IKA) to support the Mobility on Demand (MOD) Sandbox program. The IKA was formed to create a community of practice among MOD grantees, help MOD projects achieve successful outcomes, share knowledge from MOD pilot projects, and advance mobility innovation with the broader transit and shared mobility industry. Through creative partnerships and facilitation through the IKA, the agencies expanded the realm of opportunities for transit and ushered in a new era of experimentation, iteration, and improvement that has since been infused into culture of public transportation.



SUMC conducted a diverse array of activities to facilitate peer-to-peer learning, foster dialogue between public and private sectors, educate through research and external subject-matter experts, and share knowledge through publicly available resources. These activities included monthly grantee calls, semi-annual community-of-practice workshops across the country, real-world MOD demonstrations, white papers, and webinars. SUMC also launched the [MOD Learning Center](#), a free online educational resource for practitioners at all levels to learn about and implement shared mobility solutions.

Key outcomes from the IKA project included successes for grantee projects, the transit industry, and the broader mobility innovation landscape:

### MOD Project Success

The IKA project worked with grantees to identify and address emergent challenges in public-private MOD partnerships. The IKA environment allowed for a wide array of issues to be discussed, including those not traditionally discussed in transportation planning. The IKA expanded the comfort zone of transit agencies to tackle thorny issues, including data sharing, liability, payment integration, and more. SUMC quickly identified common bottlenecks in agencies’ partnerships and directly addressed

“I don’t think I would have been as comfortable managing my project if I had not had the support and idea sharing offered through SUMC and the other grantees. We went into these projects not knowing a lot about interfacing with the changing mobility landscape and I feel that we have become subject matter experts at this point! Thank you for guiding us through this process.” –Pierce Transit

them through workshops, expert panels, and publications. For example, SUMC addressed data sharing difficulties through a range of interactive events and creation of educational resources, which helped MOD agencies develop unique data-sharing agreements with their private-sector partners to accommodate the needs of both sides.

### Knowledge Sharing

The IKA created a community of agencies embarking on new ways of thinking about transit, leading to a knowledge exchange about a variety of approaches to improve service, including forming the right contracts with private mobility providers, strategic decisions around open-source vs proprietary technology, the redesign of fixed-route systems, and more.

SUMC created free, publicly available resources for the transit and shared community to help implement innovative mobility solutions. To centralize this information for the public, SUMC created the MOD Learning Center, an online tool designed to educate mobility practitioners of all levels and be the community's repository for shared mobility policies and initiatives.

**“The ability to test one of the pilot projects that we've been discussing was so helpful. It brings an immediate connection and context to our past discussions.” –Valley Metro**

The IKA also led hands-on demonstrations, where project practitioners and peer agencies experienced MOD services first-hand from the perspective of a rider and learned where theory, design, and practice converge.

### Advancing Mobility Innovation

The IKA highlighted challenge areas for FTA to address in future research and future funding solicitations. For example, FTA required a preliminary data management plan from IMI proposals to avoid the data-sharing hurdles experienced in the Sandbox program and identified through the IKA. The IKA also brought to the fore important policy areas that could enable or curtail true multimodal integration—such as open APIs, payment standards, and planning MOD as part of a comprehensive transit network—that are now being debated by Congress in the drafting of the transportation reauthorization legislation.

The IKA represents a key inflection point for the transformation of transportation from disparate and competing modes in which transit comes out the resource loser, to a new model in which local jurisdictions and agencies can serve as mobility managers in a rider-centric mobility ecosystem where transit is the backbone. While much remains to be done, the IKA and FTA's mobility innovation initiatives have cultivated a rejuvenated mindset among transit agencies, allowing them to feel comfortable thinking creatively, being flexible, and finding the right set of mobility solutions for their communities.

**“The Shared-Use Mobility Center has been instrumental in bringing together MOD Sandbox grantees by providing a space between projects for knowledge-sharing, and lessons learned and best practices development among peer practitioners working to implement the never-before-accomplished.” –Sound Transit**

## Activities

SUMC held in-person Community of Practice workshops, wrote white papers, and hosted webinars to help MOD projects achieve successful outcomes, share knowledge from MOD pilot projects, and advance mobility innovation with the broader transit and shared mobility industry

### Workshops

SUMC hosted four semi-annual MOD Community of Practice open workshops with public and private sector stakeholders to promote information exchange and share key lessons learned. Workshop agendas and topics were based on common challenges being faced by grantees, which SUMC learned of through questionnaires and regular conversations. Most workshops also had grantee-only sessions, where MOD agencies could discuss more sensitive project challenges with each other in a more intimate context.

#### Atlanta

The first IKA workshop took place in Atlanta, in conjunction with the APTA Annual Meeting in 2017. The first part of the workshop featured a session organized between SUMC and ITS America highlighting lessons learned from MOD partnerships. Amid many agencies' difficulties in negotiating agreements with their partners, SUMC later moderated a tense but productive conversation around a prominent challenge area—data sharing—where agencies and project partners were able to discuss issues around project planning, auditing, traveler privacy, and more. Breakout sessions focused on additional key topics, including accessibility, structuring contracts, Title VI requirements, and marketing strategies.

---

#### Atlanta Workshop (October 2017)

Attendees: 60

In conjunction with APTA Annual Meeting

#### Key Discussions

Accessibility

Data sharing challenges

Marketing on-demand services

---

#### Chicago

The second IKA workshop was held in March 2018 in conjunction with the SUMC National Shared Mobility Summit in Chicago. Attendees had the opportunity to network with their MOD peers and also

---

#### Chicago Workshop (March 2018)

Attendees: 80+

In conjunction with SUMC National Shared Mobility Summit

#### Key Discussions

Trip discovery in trip-planning apps

Data sharing solutions

Engaging new mobility providers

---

the greater shared mobility community from around the globe. The workshop featured a discussion about the discoverability of on-demand services in trip-planning apps. Speakers noted progress in trip-planning integrations but also policy pathways that can ensure more complete multimodal integrations, including the new Transport Codes in Finland. The workshop also featured a follow-up session on data sharing with an expert panel. This session built on the data session from the first workshop, where data sharing challenges in MOD projects were first discussed in a public setting. The legal and policy framework around privacy and public records were

“I thought the juxtaposition with the SUMC Summit was very informative. The benefit was connecting with the greater audience at the Summit in addition to the MOD partners.”  
–Dallas Area Rapid Transit (DART)

examined in more detail, and a spectrum of data sharing options were explored to meet the needs of projects as well as privacy concerns.

A highlight of the workshop was plenary session at the full Summit that featured the MOD Sandbox projects. The session gave the MOD Sandbox program exposure to several hundred conference attendees and the broader network of public- and private-sector stakeholders in the shared mobility sphere.

Summaries of the workshop sessions can be found [here](#).



### *Pittsburgh*

The October 2018 workshop was held in conjunction with the Rail~Volution conference in Pittsburgh. Over 80 attendees took part, including around 20 MOD Sandbox project participants. Also in attendance were all six MOD On-Ramp agencies, recipients of the Michigan Mobility Challenge grants, several other transit agencies and private mobility providers.

Expert panel discussions revolved around the role of payment integration and components of successful MOD business models. Breakout discussions dove deeper into MOD business models and interactions with network planning, pricing, automation, and Mobility-as-a-Service.

---

## Pittsburgh Workshop (October 2018)

Attendees: 80

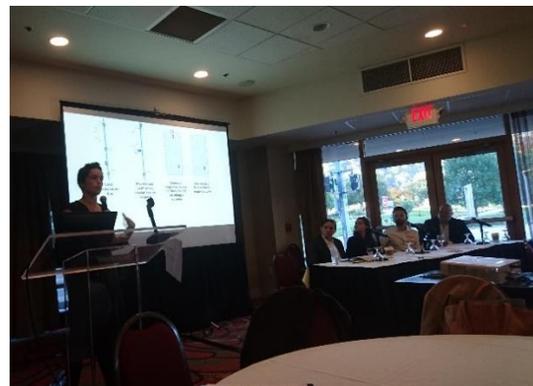
In conjunction with Rail~Volution

### Key Discussions

Payment Integration

MOD Business Models

---





SUMC also organized a sponsored networking reception where MOD projects focused on trip planning tools presented on the progress of the technical and aesthetic aspects of their projects. The reception attracted workshop attendees as well as other attendees of the wider Rail~Volution conference.

Attendees noted that participation in the workshop helped them implement a MOD solution in their community. In addition, attendees toured a low-income neighborhood in Pittsburgh that would soon receive subscription-based mobility services through RubyRide, a ridesourcing provider and MOD Sandbox project partner in Pima County, Arizona.

Summaries of the workshop sessions can be found [here](#).

### *Seattle-Tacoma*

The final IKA workshop was held in May 2019 in the Seattle-Tacoma region, home to two of the MOD Sandbox projects. The 50 attendees, including 20 from MOD Sandbox agencies, engaged in a workshop on insurance in the age of MOD and another on the Mobility Data Specification, a tool several cities are using to share data between mobility providers and local governments.

Several Sandbox projects encountered delays and challenges caused by negotiations over risk sharing between the public and private partners. SUMC curated a [session](#) around important concepts in risk sharing, including indemnity, differences in risk tolerances between transit agencies and new mobility providers, and various approaches that can be taken to share associated costs in mobility partnerships. As coverages are changing over time and advancements in technology such as automation introduce new uncertainty, additional insurance products and policies can help to ensure that the public interest is protected.

SUMC organized and led a field trip involving MOD Sandbox-funded services in the region. This demonstration allowed participants to understand, and contribute to improvements in the user experience, providing insight into signage, the app design, and payment integration. Workshop

---

## Seattle-Tacoma Workshop (May 2019)

Attendees: 50

Independent event with real-world MOD demonstrations

### Key Discussions

Risk sharing and liability

Mobility Data Specification (MDS)

Planning, paying for, and riding MOD

---

attendees broke into small groups and traveled to specific landmarks in the service areas of the King County and Pierce County Sandbox projects using only public transit and MOD services. Travelers experienced trip planning and booking, fare integration, and connections to fixed-route services, just as riders themselves would. All field trips terminated at the Museum of Glass in Tacoma, a beautiful regional destination, for a networking reception.



Attendees highly rated the value of the hands-on activities and consistently reported that they were more prepared to implement a MOD solution after having attending SUMC's workshops.

Overall, survey results indicated that the content, organization, and activities were helpful for agencies to learn about pertinent subject matter, use experiences to inform their own projects, and meet face to face with their public-sector and private-sector peers.

Summaries of the workshop sessions can be found [here](#).

## White Papers

SUMC completed a white paper on data sharing agreements for transit agencies in mobility partnerships. The paper helps transit agencies considering MOD projects to think through what data and information they need to measure the effectiveness of their projects, understand the technical and legal challenges that they may encounter, and identify possible pathways to resolving them. The paper describes relevant experiences and policies inside and outside of the MOD Sandbox and pathways to resolving some of the challenges faced. The paper includes a decision tree, shown below, to help agencies navigate to a data sharing agreement that's right for their project.

---

### Data Sharing White Paper (October, 2019) *Objective-Driven Data Sharing for Transit Agencies in Mobility Partnerships*

Executive Summary, webinar, and complete paper available in the [MOD Learning Center](#).

---

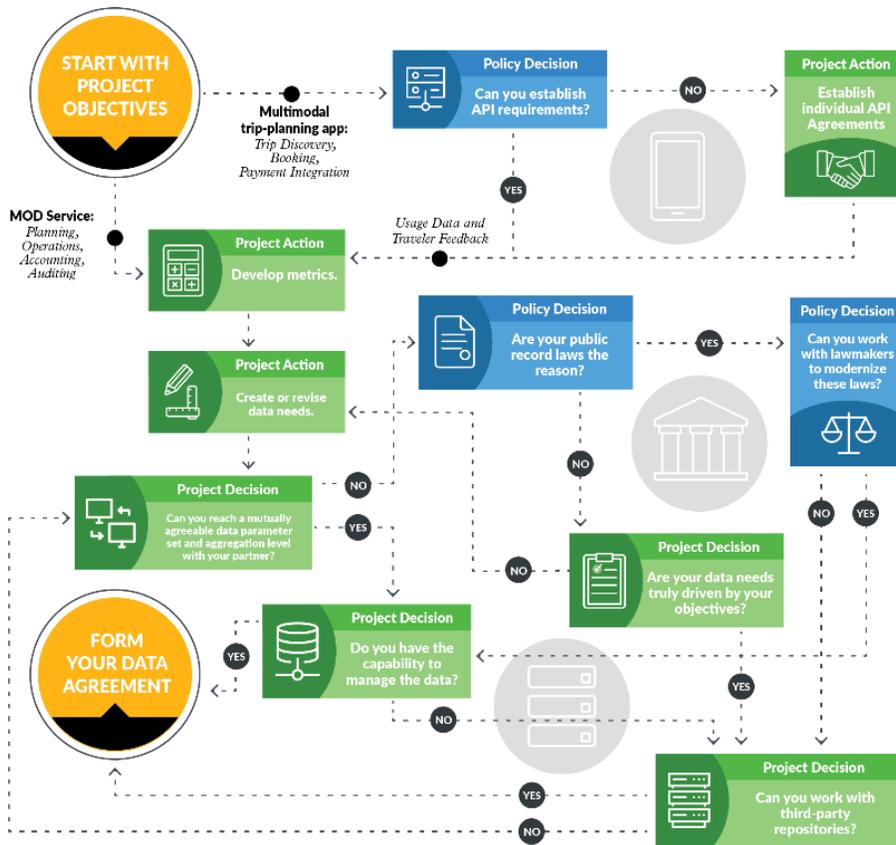


Figure 1: Decision tree developed by SUMC to guide transit agencies toward the right data-sharing arrangements for their mobility partnerships.

The paper was released in early July 2019, and SUMC conducted a webinar to accompany the paper. Both the [paper](#) and [webinar](#) were posted to the Learning Center. The paper and webinar were accessed or viewed by over a thousand people.

SUMC is also nearing completion of a white paper on payment integration. The paper describes motivations behind innovative fare payment integrations being considered or implemented by transit agencies that have been enabled by advancements in fare collection technology. SUMC completed intermediate drafts, and FTA has provided substantive comments to strengthen the paper. A final version will be sent to FTA soon, to be a resource for the industry the Integrated Mobility Innovation program.

## Webinars

SUMC conducted three public webinars to share knowledge around MOD topics to the broader transit and shared mobility community. All topics were indicated as high priority in initial grantee surveys and conversations. SUMC hosted and moderated the following webinars, in which leading practitioners from the public and private sectors shared lessons from within the Sandbox and beyond.

[Shared Mobility for People with Disabilities – Challenges and Opportunities for Paratransit \(September 26, 2017\)](#) – This webinar brought together leading public-sector experts to discuss new approaches transit agencies are exploring to increase flexibility and responsiveness of paratransit

services for users while reducing costs and complying with Americans with Disabilities Act (ADA) requirements.

## 511 Design of Marketing Collateral



Figure 2: BART-Scoop MOD Sandbox material highlighted in the Marketing webinar, December 2017.

[Marketing Successful Mobility on Demand Pilot Projects \(December 13, 2017\)](#) – This webinar highlighted effective approaches public and private transportation providers are using to market and educate the public about new MOD services.

[Objective-Driven Data Sharing for Transit Agencies in Mobility Partnerships \(July 10, 2019\)](#) – This webinar described the motivations, challenges, and recommendations regarding data sharing in mobility partnerships, described in the white paper mentioned above.

Together, they have been viewed over 500 times from Learning Center, in addition to the hundreds who viewed them live, and serve as a model for ongoing MOD webinars, such as the most recent [FTA MOD On-Ramp program “Lessons Learned”](#) webinars, which were viewed live by nearly 400 attendees.

## MOD Learning Center

SUMC was proud to launch the [MOD Learning Center](#)<sup>1</sup> in March 2019 through support from the IKA project. The MOD Learning Center is the leading educational resource for practitioners to learn about and implement shared mobility solutions in their community, and it is free and open to all. The MOD Learning Center was built on the foundation of SUMC's Policy Database and Shared Mobility Toolkit tools, which were developed and launched in 2015 as the central resource for shared mobility policies and projects. The MOD Learning Center continues to add policies and tools, but now includes a structure and content to guide a novice to shared mobility concepts to deeper expertise. The MOD Learning Center consists of these principal components:

- [Learning modules](#): curated summaries of shared mobility topics for practitioners of all experience levels
- [Case studies](#): deep dives into a particular shared mobility project or policy
- [Brief overviews](#): comprehensive catalog of shared mobility projects and policies
- [Metro profiles](#): statistical information about demographics and prevalence of shared mobility services in metro regions across the US.
- A new [Shared Mobility Benefits Calculator](#) that shows how different shared modes and transit can reduce emissions in the selected metropolitan areas.
- Miscellaneous written reports, video recordings and podcasts on relevant topics.

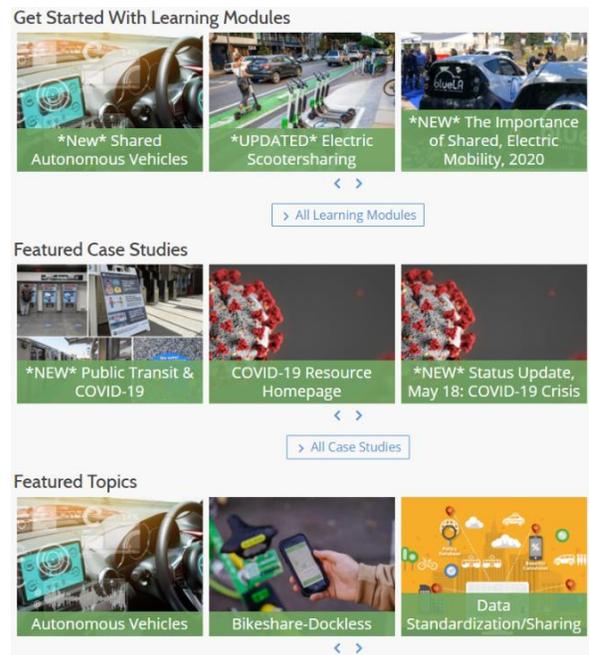


Figure 3: Screenshot of the MOD Learning Center, featuring Learning Modules, Case Studies, Key Topics, and more.

With over 1,000 entries and growing since its launch in March 2019, the MOD Learning Center has had over 80,000 page views, with nearly 30,000 unique visitors. Users include transit agencies, local and regional government, FTA and USDOT offices, academia, and shared mobility operators. Popular references on the MOD Learning Center include: Learning Module on [Microtransit](#), Learning Module on [Rural and Small Town Transportation](#), Case Study on the [Vermont Flexible Trip Planner](#), and a Webinar and White Paper on [Objective-Driven Data Sharing for Transit Agencies in Mobility Partnerships](#). The MOD Learning Center has evolved since its launch to reflect the lessons that SUMC has learned during its participation in, and technical assistance on, an expanding variety of shared mobility pilot projects and program. The learning modules and case studies also address emerging subjects beyond the initial modal framework of the initial release, and include metrics where relevant. In recent months, the MOD Learning Center has served as a resource for how shared mobility and transit have been affected by COVID-19 and can be part of the pandemic recovery. SUMC has also leveraged the MOD Learning Center to develop content through partnerships with other organizations. This content includes learning modules and a forthcoming micromobility atlas. All of this information is accessed through enhanced search functions that allow users to filter by topic, resource type, and transportation mode. Search results can also be mapped.

<sup>1</sup> MOD Learning Center address: <https://learn.sharedusemobilitycenter.org/>.

## IKA Beyond the Sandbox

To further support FTA's mobility innovation activities and expand its reach to more nascent ideas, SUMC ran the MOD On-Ramp program to help six transit agencies develop mobility innovation ideas into implementable plans. Throughout the On-Ramp and IKA programs, SUMC convened agencies from both cohorts to foster collaboration on similar challenges. The On-Ramp workshop in Dallas in November 2019 featured a hands-on demonstration of DART MOD Sandbox project. Attendees used DART's account-based payment system, trip planning app, and on-demand service to navigate around the region, experience the interaction of multiple mobility innovation initiatives, and provide insight both for DART and their own projects.

In addition to activities directly supporting the grantees and the MOD community, SUMC leveraged the experience and learnings from the IKA to share knowledge to outside audiences. SUMC worked with the Twin Cities Shared Mobility Collaborative (SMC), an interagency effort in the Minneapolis-St Paul area to implement their shared mobility action plan, to help plan a data sharing workshop based on lessons learned from MOD projects. At the workshop, SUMC presented observations from the MOD Sandbox and spoke about the recently released white paper on data agreements. The Collaborative has since taken actions to recommend amendments to state law to protect sensitive information from disclosure from public records requests.

Given the success and reach of SUMC's MOD activities, SUMC was invited to and spoke at several conferences about progress and challenges around MOD. SUMC provided a "boot camp" training for local transportation regulators at the International Association of Transportation Regulators (IATR) [annual conference](#) in September 2018 regarding data sharing between public and private sectors. SUMC also moderated an expert conversation on multimodal integration and mobility-as-a-service and their implications for local transportation regulators. At the following year's conference, SUMC led a discussion on data sharing and data privacy and that would inform model regulations for automated vehicle transportation services in the ensuing year.

At the 2019 Secure Technology Alliance (STA) Payments Summit, SUMC led a discussion about progress in MOD with experts in the trip planning and payment domains which highlighted how payment integration continues to be an important missing link in MOD and seamless travel.

SUMC attended multiple Transportation Research Board (TRB) annual meetings to participate in MOD workshops and TRB committee meetings. Representatives from SUMC participated in industry conferences, including MaaS Market to help identify experts for future grantee assistance in emerging areas.

Finally, SUMC has drawn on its relevant work with the Federal Highway Administration (FHWA) on MOD, including its Global Benchmarking Program Report, [Shared Use Mobility: European Experience and Lessons Learned](#). A report on MOD business models that both draws on some of the projects and charts a way forward is moving through the publication process.

## Learning and Looking Forward

SUMC went into the partnership with FTA expecting to provide research and resources on the nuts and bolts of MOD planning, technology, and implementation. While these are critical components of all pilot projects, an important lesson learned from the IKA experience was that many of the challenges encountered were more cultural and not technical in nature, dealing often with the tricky

alignment of public sector and private sector goals. Consider the challenges encountered in data sharing, risk sharing, and other contractual issues that affected the smooth execution of nearly all the projects. Drawing on our own research as well as knowledge from outside industries, SUMC and FTA addressed these issues head on to create a multidisciplinary awareness that can arm future projects with the knowledge they need to make their projects a success.

The Sandbox projects were at the frontier of mobility innovation, and the IKA program helped connect them with the rest of the world. The IKA has enabled the replication of projects around the country. There remain questions to answer as we continue to uncover and more broadly implement mobility solutions that can help achieve Complete Trips for All. In this regard, the IKA has positioned SUMC in a unique position: Not only is SUMC equipped to assist implementations similar to the Sandbox-era projects through the wealth of knowledge the IKA has generated, it also can assist agencies implementing truly novel solutions at the frontier of mobility technology and innovation by providing a community of practice that inspires agencies to try, fail, communicate, and ultimately succeed. Indeed, SUMC is continuing to support FTA along these lines through providing technical assistance for the Integrated Mobility Innovation (IMI) program.

**“Always good knowing I can reach out to [SUMC] for information, thanks for all your help! I always like the monthly calls and getting to hear how other MOD programs are doing (and feeling relieved that other agencies have the same struggles and were also delayed in getting started). The MOD grantee meetings are great for more in depth conversations.”**  
 – Pinellas Suncoast Transit Authority

Furthermore, the IKA has brought public and private sectors together to foster the right conversations about how partnerships, technology, and policy play appropriate roles in advancing the social goals of good government through harnessing innovation. The IKA helped spawn “systems thinking” around mobility innovation among transit agencies, not merely as a knee-jerk reaction to falling ridership or a political whim, but as a thoughtful and supplemental enhancement to tried-and-true services so agencies can deliver the most public benefit for all.

As we look to the future, we see that continued technical assistance will be critical in helping new cohorts of innovative transit agencies learn from past successes, experience current implementations, and discuss their own innovative endeavors in a supportive environment. The



Figure 4: Snapshot of transit-led public-private partnerships, numbering well over 100.

number of public-private partnership-based pilot projects spearheaded by transit agencies over the past few years have grown into the hundreds and into smaller and more rural areas. This affirms the need for coordinated education and knowledge sharing so that agencies can apply lessons learned from others’ experiences and streamline their project toward success.

Post-event surveys highlighted the popularity of SUMC’s in-person

workshops and hands-on demonstrations. These were critical opportunities for multi-faceted learning: learning from peers, learning from subject matter experts, and learning from doing. For transit agencies, this helped amplify personal connections to others doing similar work and also to first-hand experiences that can enhance their own pilot projects. This is especially critical for smaller agencies, who may not otherwise have exposure to innovative mobility initiatives close to home or the financial resources to travel.

But in the COVID-19 era, when physical interactions and travel need to be limited, online tools and communities are more critical than ever. SUMC, through the IKA and its other activities, conducted several web-based events that were well received and well attended, including quickly pivoting its massive in-person Summit into an online conference in a matter of weeks just as the pandemic was accelerating. The virtual summit attracted many who couldn't attend the original summit. We cannot easily predict the future of the wider mobility ecosystem after the current stages of COVID-19, but transit agencies and private operators were already facing significant challenges to their funding, operations, and business models. Many have responded with innovative projects, and SUMC is working on both documenting these programs and adapting its technical assistance to maximize benefit for agencies and operators. SUMC stands ready to support our transit agency partners in mobility innovation initiatives by being equipped to deploy the right tools at the right time to help agencies maximize their knowledge and positive mobility outcomes in their communities.