

2020

Leonard Transportation Center



Inland Empire Regional Mobility Dialogue Series

Results and Summary

Dec 15, 2020

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Transportation Entrepreneurs : Looking Towards the Future



Introduction

Installment six of the Leonard Transportation Center 2020 Regional Mobility Dialogue Series, “Transportation Entrepreneurs – Looking Towards the Future,” highlighted the importance of entrepreneurs in the fast-paced transportation industry. The industry has been rapidly evolving and creating new spaces for businesses and entrepreneurs to creatively fill gaps in workforces and adapt to new needs in the sector as things change. What does entrepreneurship look like for the transportation sector and how will it change the landscape moving forward? For this Dialogue, our experts discussed their place as entrepreneurs in the transportation industry and their ideas for the future.

Experts in this Dialogue included:

- Dr. Mike Stull, Professor of Entrepreneurship, Director of the School of Entrepreneurship, and Director of the Inland Empire Center for Entrepreneurship (IECE) in the Jack H. Brown College of Business and Public Administration at California State University, San Bernardino (CSUSB).
- Daniel Brown, Manager of the LN Academy, the training and qualifications department of Lucas-Nülle GmbH from Cologne, Germany.
- Phil Silver, Amazon Web Services’ (AWS) state and local government transportation vertical, including activities with airports, seaports, transit agencies, tolling authorities, traffic departments, parking, DOTs, MPOs, and COGs.
- Zachary Browne, founder of Token Transit, the mobile app for riders to purchase transit fares.

The Dialogue commenced with an introduction from Greg Hulsizer, Vice President of HNTB Corporation, a platinum sponsor of the Dialogue Series. Mr. Hulsizer reflected on the past three years of LTC Dialogues and their importance in, “advancing transportation thought leadership in the Inland Empire.”

Dr. Lawrence Rose, Dean of the Jack H. Brown College of Business and Public Administration at California State University San Bernardino, continued introductions by thanking the sponsors and the expert speakers for their support. Dean Rose went on to address the importance of this discussion, “discussing entrepreneurship and how it will change the landscape” and emphasized that, “we all do need to have the creativity and the people that have design thinking in the forefront of their way to behave,” in order to be successful.

Dr. Mike Stull

Dr. Stull began by sharing a definition of entrepreneurship, borrowed from Howard Stevenson at Harvard, stating, “we view entrepreneurship as the pursuit of opportunity without regard to resources control.” He points out that this definition does not include the topic of starting a business specifically because, “entrepreneurship can take place in any context.” The idea of entrepreneurship is rooted in “driving progress forward and innovation so we view it as both a mindset and a set of competencies that can be really be developed and deployed in just about any setting.”



Dr. Stull went on to explain his professional roles and projects, highlighting work he has done in capturing and consolidating data from Riverside and San Bernardino Counties about entrepreneurial establishments region, their size, demographics, and the work they do. 97 percent of companies in the Inland Empire are small to mid-sized with less than 100 employees. While there is no specific field or trend that

dominates the region, Dr. Stull does identify a growing interest in startup businesses by individuals attending workshops and inquiring about the process as well as new college students enrolling in college courses at CSUSB School of Entrepreneurship. Ultimately, he states, “what we’re seeing in this process is that we do have a pretty large and diverse region with increasing resources coming into the entrepreneurial ecosystem.” Dr. Stull identifies resources and capital as a significant issue with increased interest in entrepreneurship in the Inland Empire and states that he is working with an organization in Los Angeles to begin an investment fund for small businesses that want to get their start in the region.

Dr. Stull then pivoted to talking about features of the School of Entrepreneurship, a first of its kind in California and one of very few in the world, which teaches competencies and instills and mindset that students can be agents of change in their communities. 48 percent of graduates of the school have gone on to start their own business within five years and many of the remaining have entered entrepreneurship roles in their fields by “being change agents and driving processes in existing organizations.” Dr. Stull discussed some of the program opportunities, including collaborating across other disciplines and graduate programs, and that their goal is to “turn out students that are going to go out and have an impact on the community.” The school is expanding efforts to reach high school students and undergraduates early in the programs to create pathways to entrepreneurship early and support students seeking to enter the field.



Phil Silver

Mr. Silver introduced himself and explained his role with Amazon Web Services (AWS) and working towards the goals to “support the agencies tasked with moving people or things safely efficiently economically and equitably working with customers and partners who recognize the power of cloud computing is key to their future” through “our engagements with departments of

transportation traffic authorities, tollways, airports, seaports, municipal and regional planning organizations, and public transit agencies.”



Mr. Silver emphasized the importance of cloud computing for entrepreneurs and that AWS supports an array of businesses in “every imaginable use case.” He explained that AWS is “usually customer focused”, while other organizations are competitor focused. At AWS, “ninety percent of what we build is driven by what customers tell us matters and the other ten percent are things we hear from customers where they

may not articulate exactly what they want but we try to read the lines and invent on their behalf,” He also shared that many larger cloud companies are focused more on acquiring innovation than creating it. Another benefit of working with AWS is that they are “unusually long-term oriented” and that their goal is “trying to build relationships and a business that lasts longer than all of us in this room and you do that by doing right by customers over a long period of time, it's part of the example that we set for many of the companies who were born in the cloud.” He defined cloud computing as “the on-demand delivery of IT resources via the internet with pay-as-you-go pricing instead of buying owning and maintaining your own data center and servers a big investment organizations can acquire technology such as compute power storage databases and other services on an as-needed basis,” which allows companies to “innovate faster” because “they can focus their highly valuable IT resources on developing applications that differentiate their business and transform customer experiences instead of the undifferentiated heavy lifting of managing infrastructures and data centers.” Mr. Silver shared the experiences of some AWS clients who have innovated new ways to address today’s transportation problems and “are demonstrating the value of migrating traditional and on-premises computing platforms into an entirely new generation of built for the cloud solutions growing in popularity because they answer key challenges faced by public agencies and authorities in these times. With the AWS cloud, they are able to modernize, increase resiliency, and reduce cost with an eye on what's important today and what is needed to sustain and serve their customers over the long haul – 10, 20, or more years in the future.” They are able to do this by not spending their capital on IT infrastructure, only paying for the cloud services they need, and having the flexibility to scale up as necessary. They can focus their efforts on innovation and long-term

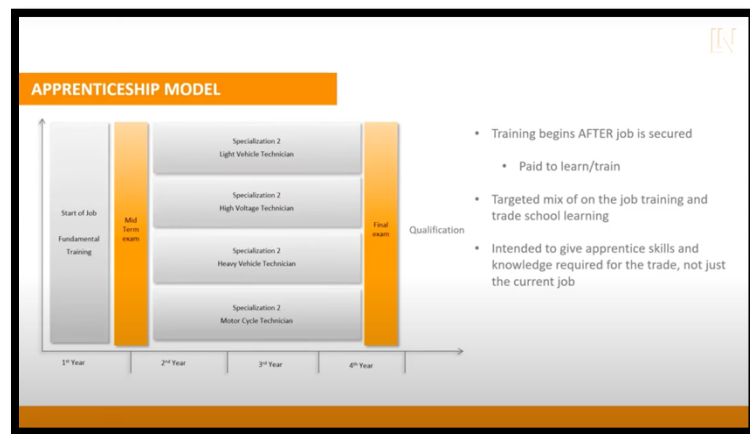


planning rather than IT infrastructure, the freedom from which has driven small business growth and innovation potential.

Daniel Brown

Mr. Brown, with Germany-based company Lucas-Nülle, who are focused on automotive, and other fields, “developing all sorts of equipment trying to deliver technologically advanced subjects just trying to make it a little bit easier for teachers, trainers, and students to understand what some of the systems are that they're working with.” For background, Mr. Brown explained that in Germany, and some other countries, “over 300 trades fall under the apprenticeship model where you actually start your job first and then you begin the training and the effect of that is you are actually paid to learn and paid to train as well so you start on the job.” In this process, apprentices work in their specialties for 3-4 years, acquire on the job experience, take exams throughout the duration to test learning, and continue advancement before taking a culminating exam to acquire qualification to continue working outside the apprenticeship.

Mr. Brown identified some of the main challenges faced in the automotive industry today is autonomous driving on the horizon with the development of advanced driver assistance systems (ADAS), the processing power needed to operate these kinds of vehicles, and the need for students to learn more for certification in less time. He explained the training process and demonstrated how students may go about learning parts of vehicles, understanding automotive systems and eventually moving on to diagnostics through listening, reading and doing in order to build on their experience and skills.

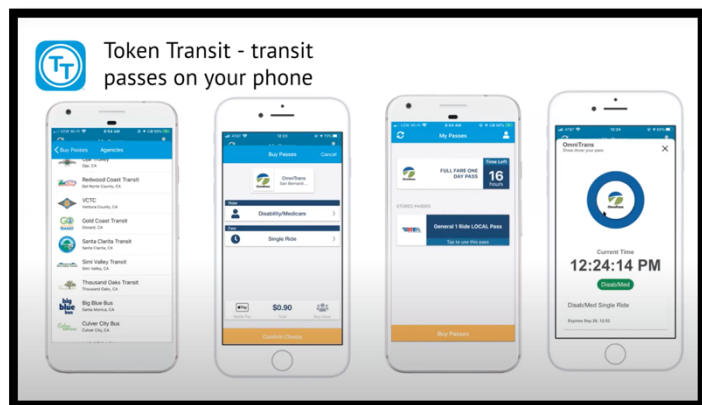


Mr. Brown clarified the complexities of vehicle automation and how much information a vehicle must be able to process to have awareness of what is going on around it. This requires sensors to be integrated into the vehicles, which is not new technology, but does require advance experience and understanding of the vehicle to work. Students are able to learn complex systems like this by breaking them down into individual components. Mr. Brown stated that electric vehicles present some of the biggest challenges for technicians because of safety issues related to the necessary high voltage to make them functional. Adapting to electric vehicle technology require integrating new protective equipment and techniques to manage the hardware of these vehicles. Students need to be exposed to this technology and safety around it early, because they are here to stay. Mr. Brown culminated his talk by stating that his company gives people the “chance to start fresh with some of what we call a digital natives so people that are not so much set in their waves ways this is going to be kind of first-hand knowledge for them to understand these complex systems. I think that's definitely a good thing and obviously we want those people to be confident in their abilities, and what they're learning that they understand what they're

doing so developing them so that they go on to create new businesses and you know maybe hopefully they come on to become the experts the go-to experts for these specialized fields.”

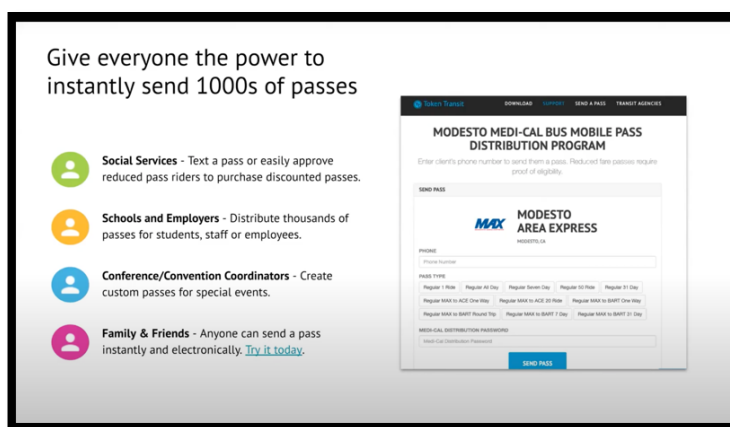
Zachary Browne

Mr. Browne offered an overview of his company, Transit Token, who aims to “make transit better through payments” and to streamline processes, such as paying fares, acquiring passes, and



looking up bus times and maps in a local app, speed up boarding times, and make public transit a faster experience. He described his thought process as an entrepreneur in founding this business and trying to make transit easier, including spending a lot of time interacting with the transit system to understand what would be important in making boarding easier and faster. He was able to identify many areas of improvement to the transit process

firsthand and worked to address them with his business. Token Transit was developed to allow people to buy bus passes on their smartphones through a variety of agencies. They also discovered through personal experience that people do not want to download multiple apps for one task, so they worked on a feature that allows people to use their system to download passes through other apps as well. They also developed a way for bus passes to be texted to people, which allows workplaces, social services agencies, schools or family members to send bus passes to others. They created ways to track the number of single ride purchases on the app and convert your account to a monthly pass when you have spent the equivalent amount of money that would have cost. This is preventing people from paying much more over time on single rides if they cannot afford a monthly pass up front. A study done in Florida revealed that Token Transit has saved riders both time and money. Mr. Browne said he found valuable information on the importance of studying the effects of one’s product; additionally, he sought to make continuous improvements as an entrepreneur.



Mr. Browne concluded with sharing four recommendations for entrepreneurs. One is to start by making phone calls, rather than emails or researching online, to companies and leaders in the field you are looking at to learn, gather information, and determine what needs may be underserved. Second, was identified as “finding partners who believe in your vision...that allowed us to get a strong footing and to build our product from there.” Third, “just launch a

product and iterate and build off of it.” He elaborated that it is not important to focus solely on putting out a perfect product right away when there will always be room to improve and grow as you learn more. Striving for perfection can keep a lot of people from making any moves and they end up “never get off the ground.” Lastly, he said he could not stress the importance of using your own product

enough. He explained that, as an entrepreneur, you learn so much by using your own product and working to make it functional for people who can benefit from it. Essentially, he advised to be your own customer and work to make the user experience better from *that* perspective by being in touch with issues and understanding the practical problems.

What we've learned as entrepreneurs

- **Pick up the phone** - We called 200+ transit agencies and spent months talking to them about what problems they faced with fare collection.
- **Find partners who believe in your vision** - We started working with small transit agencies who were excited about Token Transit.
- **Launch and iterate** - Don't concern yourself with building the perfect product right away. Get it out to users asap and improve on it from there.
- **Use the products you work on** - We are public transit riders and none of us have ever owned cars. Payments are a problem we face every day and using public transit is essential for Token Transit

Question and Answer

Dr. Collins asked, “how do we integrate how do we provide these services how do we make sure that there's the funding and there's the infrastructure and thinking about that mindset?”

Daniel Brown answered and explained that, in Germany, the apprenticeship approach and programs have changed the mindset of the community on the responsibility of training. In the US, young people are expected to pay for their own training in a field where they do not even know if they will secure a job or if that is a job they will want when their training is over. With the apprentice system, people can experience their job from the beginning and decide what is or is not for them. In the apprentice approach, businesses assume financial responsibility for educating students, but they get some return on that investment because they are working employees who generate some income, which is a different approach than having students be educated with funding that was out of their own pocket or from the government.

Phil Silver added that young people with new perspectives are really the driving force of innovation and entrepreneurship. He highlighted the kinds of things cloud technology can offer to them when they are working with a good idea and starting their businesses.

Zachary Browne added perspective by sharing his personal difficulties navigating the issues of funding and adjusting to the expectations and technical needs of a new business. He reiterated the importance of starting small with partners they could trust and acknowledging that they were not experts in transit, so they relied heavily on parents to help them navigate the process in the beginning.

The next questions were directed at Zachary Brown and asked, “When you were with Google and then you went over and started your own company at what point did you leave Google, or did you start up while you were working at Google how did that work in terms of that transition?”

Mr. Browne answered that he had saved up enough money to leave Google while Transit Token was still in early planning and idea stages and viewed it like a graduate school endeavor. He said he had enough money to get by for a certain amount of time and planned to reevaluate things if he needed to. Another co-founder worked a steady job in the beginning with flexible hours so he would work in the mornings and then come to Transit Token in the afternoons. He said which approach works best would depend on “your risk tolerance, on your savings and on your ability to take the leap of faith” He recommended that anyone pursuing their own business develop a plan they are comfortable with depending on their circumstances.

Greg Hulsizer asked, “I’d like to hear from each of our speakers if you think for a minute in terms of that concept what if pigs really could fly in your area what is it that you’re working on or thinking about that could be the next major breakthrough that people are just saying that’ll never happen that you’re committed to pursuing?”

Daniel Brown shared that the emergence of electric vehicles, like Tesla, was something no one thought was possible in the past but today, it is a reality and this is driving sustainability. Zachary Browne said that he would like to see more accessibility of multi modal transit through the development of apps that can provide point A to point B instructions on how to get places in any city, that utilize multiple modes of transportation and can minimize the need for personal vehicles in any city. He said his business is building the payment infrastructure, support, and app integration necessary for that venture, but it will still be a way off.

Dr. Stull added that the CSUSB School of Entrepreneurship was considered something that could not be done or didn’t want it to be done, which he believed pointed to the bigger issue that “this conversation about entrepreneurship has to be happening at all levels it has to be a part of our normal conversation not a peripheral conversation it has to be central to everything we’re doing because innovation and entrepreneurship is a 21st-century job skill it’s going to drive our economy.” The School of Entrepreneurship will work towards that goal.

Danny Chung asked, regarding autonomous vehicles, “how do you see the level five autonomy – when we would achieve it?”

Daniel Brown defined level five as “where you build a vehicle that basically doesn’t have a steering wheel” and does not require a safety driver. He said this would likely take at least 5 years and a major challenge to implementing them is that people are still going to be driving on the roads with AVs for 20 or more years, so figuring out how to integrate level five AVs with real drivers on the same roads will be interesting.

Moving the Dialogue Forward: Ideas from the Participants

After the presentations, the Dialogue attendees discussed the ideas presented and worked together as a large group to discuss solutions to move it forward. The top three ideas from the participants have been categorized and summarized below.

Need for training, education and support. Several participants discussed the importance of approaching training, funding and support for entrepreneurs in transit.

- Importance of innovating more efficient training options, such as the apprenticeship approach used in Germany,
- Training automotive workers on emerging technology early,
- Changing the mindset of how we as a society view workers in the transit industry and start to see them more as future entrepreneurs rather than just blue-collar workers.

Integration of transit system. Participants identified the need for public transit systems to be more accessible through integration.

- Leveraging existing or building new infrastructure to support growth and future goals,
- Work towards making public transit options more accessible and understandable with technology,
- Forward thinking to begin working towards innovative goals now, even if technology is not at the point of making them a reality yet.

Supporting Customers and Entrepreneurs. The groups also discussed the importance of setting new entrepreneurs up for success through support.

- Setting up better funding streams for new businesses,
- Providing better customer-oriented service by service providers to help customers work towards their goals,
- Encouraging entrepreneurs to locate and work closely with partners who support their goals and can help them along the way.

About The Regional Mobility Dialogue Series

The Leonard Transportation Center (LTC) at California State University San Bernardino (CSUSB), presented a bi-monthly dialogue series on topics relevant to the future of transportation in the Inland Empire. The series, which was open to the public, was sponsored by HNTB Corporation and was held every other month starting in February 2018.

Dialogue topics ranged from understanding the current mobility dilemma and its causes to potential solutions like congestion pricing, transit; emerging technologies such as autonomous and connected vehicles and new ways of funding transportation infrastructure. Attendees had the opportunity to hear from transportation experts and engage in vigorous discussion about the transportation challenges facing the Inland Empire.

About Leonard Transportation Center

The Leonard Transportation Center (LTC) at California State University, San Bernardino opened in 2006 with a focus on regional transportation needs. The vision of Bill and Barbara Leonard was to create a center that focuses on the unique transportation opportunities and challenges the Inland Empire faces. Today, the LTC is working to expand its research and student engagement programs. Focal points include transportation management and governance issues, development of new technologies, and transnational studies. Their vision is to work collaboratively to seek solutions to assist residents, businesses, government and nonprofit agencies, and international partners to work together on improving sustainability and quality of life in the Inland Empire. For more information, visit www.csusb.edu/LTC

About HNTB

HNTB Corporation is an employee-owned infrastructure solutions firm serving public and private owners and contractors. HNTB's work in California dates back to its founding in 1914. Today, HNTB continues to grow in size and service offerings to clients in California from seven office locations, currently employing more than 350 full-time professionals. With more than a century of service, HNTB understands the life cycle of infrastructure and addresses clients' most complex technical, financial and operational challenges. Professionals nationwide deliver a full range of infrastructure-related services, including award-winning planning, design, program management and construction management. For more information, visit www.hntb.com

About San Bernardino International Airport

Conveniently located in the heart of the Inland Empire, close to major freeways and just 60 miles from Los Angeles, San Bernardino (SBD) International Airport is strategically positioned to meet growing aviation activity, including cargo, business aviation, general aviation, and commercial airlines by providing competitive rates for aviation companies and local businesses looking to stretch their wings and expand their horizons. With extensive stretches of pristine runway and acres of prime land available for aviation development, SBD International Airport is ready to help our community and region reach new destinations. For more information, visit www.sbdairport.com

About San Bernardino Valley College

San Bernardino Valley College will become the college of choice for students in the Inland Empire and will be regarded as the alma mater of successful, lifelong learners. We will build our reputation on the quality of our programs and services and on the safety, comfort, and beauty of our campus. We will hold both our students and ourselves to high standards of achievement and will expect all members of the college community to function as informed, responsible, and active members of society. For more information, visit www.valleycollege.edu