



Infrastructure Vision 2050 Challenge Finalists



MICHEAL AHIMBISIBWE
**DIRECT DRIVE: INTELLIGIBLE ROAD
INFRASTRUCTURE**
KAMPALA, UGANDA

Micheal Ahimbisibwe has always sought to shape the future of sustainable road transport.

Driven by his frustration for traffic in his hometown of Kampala, Uganda, Micheal, an engineer, began developing the Direct Drive System in 2004 as a solution to improve transportation systems around the world.



The Direct Drive System, which involves technology that is patent-pending in the U.S., combines several mature technologies into one, intelligible infrastructure system and helps create a cost-effective network for supporting autonomous vehicle technology, making it more affordable to implement.

Micheal was born in Mbarara, a district in western Uganda. He received a bachelor's degree in automotive and power engineering at Kyambogo University in Kampala and later founded Bravespec Systems Ltd., an energy research and development company focused on solving mankind's greatest technical challenges in energy and transport. As Founder and Director of Research, Micheal leads several initiatives to develop and improve energy-efficient solid-liquid separation technologies, grid power distribution reliability and municipal waste recovery.

In 2014, Micheal joined Innocentive Solvers, a problem-solvers group that includes some of the most creative and ambitious individuals from around the world. Micheal is already listed among the "Top Solvers" of Innocentive and is a recipient of many awards for solving important challenges arising from various private and governmental organizations, including NASA and the U.S. EPA.

BAIYU CHEN & ANTHONY BARRS
HYPERLANE: GLOBAL SUPPLY CHAIN'S FINAL MILE
BERKELEY, CA

Anthony Barrs and Baiyu Chen are graduate students at the University of California, Berkeley, where they met and became close friends through a school-sponsored running club. Soon they discovered a mutual interest in transportation and infrastructure.



Anthony and Baiyu were dually inspired by the speed and efficiency of Japan's bullet trains and set out to create a similar transportation system for the United States that adapts highways to fit 10 times more cars for 1 percent of the cost of roadway expansion. This system of Hyperlanes leverage technology that



allows autonomous vehicles to move at high speeds and its dynamic pricing structure ensures that demand is distributed and puts the choice to use, or not to use, the network in the hands of the consumer.

Anthony is an MBA candidate in the Haas School of Business at the University of California, Berkeley. His area of focus is design thinking – a process that helps reframe business challenges through the perspective of users. Prior returning to school, Anthony worked in innovation, corporate strategy and management consulting.

Baiyu is earning a master's degree in machine learning and artificial intelligence in the College of Engineering at the University of California, Berkeley. After receiving his first master's degree in transportation systems, he chose to shift his focus to machine learning and artificial intelligence, hoping to use the power of modern technology to help build a better infrastructure system.

KEVIN LU
ADAPTIVE PAVEMENT SYSTEM
PHILADELPHIA, PA

Kevin Lu is the founder and president of Pyro-E, a San José-based company focused on custom designs, builds and solid-state energy technologies.



Motivated by a passion for energy technology and infrastructure, Kevin developed an advanced transportation system with Adaptive Pavement Technology that will provide faster commutes, greater safety and lower costs of retrofitting existing infrastructure to take advantage of transportation technologies already in use today and those on the horizon.

A mechanical engineer by training, Kevin found passion during his early career in the energy sciences. His innovative pursuits helped to contribute scientific knowledge to the prestigious Nature magazine. Advancing out of the lab, his abstract breakthroughs transformed into practical solutions in self-powered sensors, renewable energy and two-phase thermal management technologies. In particular, he designed the world's largest closed-loop thermoelectric system for avionics cooling.

In 2012, Kevin co-founded Pyro-E to further inspire ideas through a confluence of biology and functional materials. At Pyro-E, he oversees company development and manages key relationships with investors, channel partners and potential customers. Kevin holds academic degrees from Rutgers, University of Pennsylvania, and University of California at Los Angeles.



JEREMY MARTINEZ
**MONORAIL 2050: NOVEL TRANSIT ORIENTED
DEVELOPMENT**
LOS ANGELES, CA



While sitting in traffic for hours in the Los Angeles area, Jeremy Martinez began to wonder if he could design a system that reinvents transportation for future urban residents.

What resulted was Monorail 2050, a system of monorail trains that will reinvent how mass transit and urban development projects are conceptualized with a focus on what the future urban resident is going to want and need.

Jeremy is an addiction psychiatrist and the CEO of the Matrix Institute on Addictions. His career has included both administrative and clinical work in the field of mental health and addictive disorders. He also founded Balboa Health, which produces ALCOVITE®, a vitamin supplement designed to address the vitamin deficiencies that occur from regular alcohol use.

In his free time, Jeremy enjoys problem-solving and consulting with colleagues from a variety of business backgrounds.

Jeremy is a graduate of Harvard University and completed his medical studies at the University of California, San Diego School of Medicine. He received specialty training in psychiatry and addiction at the University of California at Los Angeles School of Medicine, where he now serves on the volunteer clinical faculty.

PETER MULLER
SmART DRIVERLESS VEHICLE SYSTEM
DENVER, CO

Peter Muller, a native South African, has a vision for the future of urban transit: an elevated platform that allows small driverless vehicles to travel safely and efficiently.

Peter's Small Automated Roadway Transportation (SmART) system provides a guideway capacity equivalent to seven freeway lanes, is extremely safe, economical to build, operate, and maintain – and could be built in today's city now.



Peter is a registered professional engineer and President of Denver-based PRT Consulting, a company specializing in planning, engineering and procurement services related to automated transit networks (ATN).

He also serves as President of the Advanced Transit Association and is a former Chairman of the Airport Consultants Council, where he led an initiative to reinvent airports.



Peter holds a Master of Science in civil & environmental engineering from the University of Colorado and a Bachelor of Science in civil engineering from the University of Cape Town.



Infrastructure Vision 2050 Challenge Emcee and Judges



VIVEK WADHWA

HOST

Vivek Wadhwa is a Distinguished Fellow at Carnegie Mellon University's College of Engineering and a Director of Research at Duke University's Pratt School of Engineering. He is a globally syndicated columnist for The Washington Post and author of *The Immigrant Exodus: Why America Is Losing the Global Race to Capture Entrepreneurial Talent*, which was named by The Economist as a Book of the Year of 2012, and of *Innovating Women: The Changing Face of Technology*, which documents the struggles and triumphs of women. Vivek has held appointments at Stanford Law School, Harvard Law School, and Emory University and is a faculty member at Singularity University.

Vivek is based in Silicon Valley and researches exponentially advancing technologies that are soon going to change our world. These advances—in fields such as robotics, artificial intelligence, computing, synthetic biology, 3D printing, medicine, and nanomaterials—are making it possible for small teams to do what was once possible only for governments and large corporations to do: solve the grand challenges in education, water, food, shelter, health, and security. They will also disrupt industries and create many new policy, law, and ethics issues.



ADIE TOMER

JUDGE

Adie Tomer is a Fellow at the Brookings Institution's Metropolitan Policy Program, where he directs the Infrastructure portfolio. His work focuses on metropolitan transportation, broadband, and the intersections between infrastructure and technological development. Adie is a noted expert on driving trends, transit accessibility, metropolitan aviation patterns, and regional goods trade and industrial composition. His work has received coverage and citations in academic journal articles and international print publications, including The Economist, Wall Street Journal, and New York Times. He holds a Master's in Public Policy from American University and a B.A. from the University of Florida.

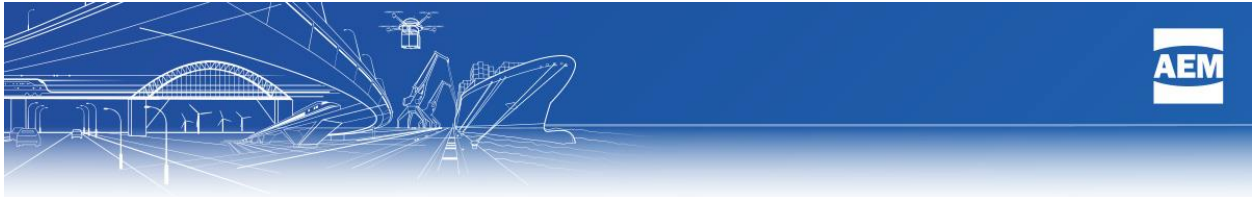


ELLE SHELLEY

JUDGE

Elle Shelley is the Chief Marketing Officer for Local Motors and EVP of Launch Forth, Local Motors' crowd-powered SaaS platform used by some of the world's most renowned brands, including GE and Airbus.

In her role as CMO, she is responsible for the commercialization of the company's vehicle portfolio. Since joining the company in 2013, she has personally managed two major vehicle launches: the Strati, the world's first 3D-printed car and Olli, a self-driving



shuttle powered by IBM Watson and repositioned Local Motors as a technology company while helping build company value through a major brand refresh. She leads brand and the product management practice at Local Motors and is responsible for developing new businesses, markets and service models. As the EVP of Launch Forth, Elle leads the vision and strategy for the newly launched service and software division and is responsible for client success.

A classically trained marketer, Elle spent the early parts of her career managing integrated advertising initiatives, successfully marrying digital and social media, PR and traditional advertising. She then went on to found her own marketing agency in 2012 to focus on app development, websites, brand campaigns, and social initiatives for start-ups, which merged with Local Motors in late 2013.

Well known for her signature enthusiasm and creativity, Elle spends her days, nights and weekends dreaming up marketing strategies that drive growth and accelerate co-creation. A graduate of ASU's W.P. Carey School of Business, Elle is an iron pumping, EV-driving, yoga loving, classically trained violinist that is also fluent in Spanish. She is a firm believer in high heels, the power of open innovation and the magic of a cup of coffee.



DAN STURGES

JUDGE

Dan is an Adjunct Professor of Transportation Design at the College for Creative Studies in Detroit, Michigan.

A seminal car designer focused on improving cities with new mobility, Dan is an expert on right-sizing transportation and micro-mobility vehicles. His Neighborhood Electric Vehicle (NEV), owned by Polaris Industries and branded the Global Electric Motorcar (GEM), has become a new vehicle category and the most popular low-speed electric vehicle in the world.

Dan is a holistic mobility designer connected within many domains for creating meaningful urban mobility solutions. He works closely with automotive and public transit vehicle manufacturers, technology companies, UI/UX designers, new autonomous vehicle start-ups, advanced transit manufacturers, among other transportation, engineering and technology companies.

Dan also works as an educator, journalist, speaker, and conference developer promoting smart & sensible mobility solutions. In the past, he has served as an employee or a consultant for General Motors, Ford, Daimler and Nissan and has been profiled in Wired Magazine, Wall Street Journal, MIT Technology Review and Automobile Magazine.



INGRID REISMAN

JUDGE

Ingrid Reisman is the Senior Vice President & Chief Marketing Officer for the Las Vegas Monorail Company where she is responsible for advertising, marketing, public relations, sales and government affairs activities, as well as strategic planning and corporate development. She has been with the company since 2006.

Before joining the Las Vegas Monorail, she served as the marketing, public information and Transportation Demand Management (TDM) manager for the Regional Transportation Commission of Southern Nevada (RTC), where she was responsible for the strategic planning of all communications efforts, media relations, advertising and public relations, as well as all Transportation Demand Management planning and implementation activities for the agency. Prior to that time, she spent several years working as a consultant for the public relations/public affairs firm Katz & Associates. In this position, she won, created and managed several key accounts and numerous award-winning campaigns, including air quality, pedestrian safety and other transportation-related programs. She began her career in advertising, as both an account executive and media buyer.

Ingrid has been recognized for her work with numerous awards for advertising, public relations and community relations projects and campaigns including local Addy Awards from the American Advertising Federation of Las Vegas, Bronze Quills from the International Association of Business Communicators, Pinnacle awards from the Public Relations Society of America and Electronic Media Awards (EMA). One EMA was in recognition as agency account executive of the year for the region. Ingrid received an Emmy Award in the Pacific Southwest Region for a public service announcement about ridesharing while at the RTC, as well as Emmy recognition for the “On The Move” television show which Ingrid hosted for several years during her time at the RTC.

Ingrid has served on several community boards in various capacities. Current and past affiliations include Grant a Gift Autism Foundation, Solomon Schechter Day School, Las Vegas Music Festival and UNLV Women’s Sports Foundation. Ingrid was also a co-founder of the Las Vegas chapter of the International Association of Public Participation (IAP2). She is a native of Reno, Nevada and has lived in Las Vegas for nearly 20 years. She graduated from the University of Nevada, Reno with a bachelor’s degree in journalism and minor in business administration. Ingrid is the proud mother of two extraordinary children.



KEITH HENNESSEY

JUDGE

Keith Hennessey is a Principal Vice President and the Head of Bechtel’s Public-Private Partnership business. Previously, Keith was the Manager of Strategy and Business Development for Bechtel Infrastructure, Bechtel’s



global EPC business in the power, transportation, communication and civil markets. He also served as the Executive Assistant to Bechtel's CEO. Keith joined Bechtel in 2012 as the Chief Financial Officer of Bechtel Power Corporation responsible for financial management, controls, management information reporting and strategy. Keith has over twenty years of experience in the investment banking industry.

Previously, Keith worked for Morgan Stanley and Bank of America in a variety of roles including: Global Chief Operating Officer and Head of the US industrial Group at Morgan Stanley and Head of Bank of America's Diversified Industrial Group. Keith is a frequent speaker at public infrastructure related events and is a member of the Advisory Board of the Cornell University Program in Infrastructure Policy. Keith graduated from Georgetown University magna cum laude and received an MBA from Harvard Business School.

Keith is based in Reston, VA and lives in Washington, D.C. with his wife, Jackie, and three sons.



Frequently Asked Questions



WHAT IS THE ASSOCIATION OF EQUIPMENT MANUFACTURERS (AEM)?

AEM is a North American-based international trade group providing innovative business development resources to advance the off-road equipment manufacturing industry in the global marketplace. AEM is headquartered in Milwaukee, Wisconsin, with offices in the world capitals of Washington, D.C.; Ottawa, Canada; and Beijing, China.

WHO ARE AEM'S MEMBERS?

AEM's membership is made up of more than 950 companies and represents 200+ product lines. Its members include representatives from agriculture, construction, forestry, mining and utility companies worldwide. Many of AEM's member companies manufacture products that have built, are building, and will build U.S. infrastructure.

WHAT IS INFRASTRUCTURE VISION 2050?

AEM is investing in future generations by crafting a sustainable long-term vision for America's infrastructure. AEM's Infrastructure Vision 2050 unites stakeholders to improve and modernize today's infrastructure while building a better tomorrow. The objectives of the program are:

- Solve infrastructure challenges collaboratively to improve the quality of life for generations to come;
- Ensure our infrastructure is equipped for the challenges and opportunities of tomorrow by planning and innovating today; and,
- Pave the way for future technology by revitalizing America's deteriorating infrastructure.

AEM's Infrastructure Vision 2050 is about more than just detailing the challenges faced by America's infrastructure. It's about identifying the great opportunity its future holds.

WHY THE YEAR 2050?

A report issued by the United Nations projects the world population will reach 9.6 billion by the year 2050. The agriculture community frequently uses this benchmark when discussing the production and transportation capabilities needed in the future to feed this population. This benchmark also projects just how "long term" plans should be for the future of U.S. infrastructure and what's at stake without improvement.

HOW IS INFRASTRUCTURE VISION 2050 DIFFERENT FROM AEM'S ADVOCACY WORK UNDER "I MAKE AMERICA"?

"I Make America" is AEM's national advocacy campaign committed to advancing policies that will support manufacturing jobs and help America's equipment manufacturers compete globally.

AEM's Infrastructure Vision 2050 is a thought-leadership initiative that focuses on uniting stakeholders to improve and modernize today's infrastructure by crafting a sustainable, long-term vision.



WHY IS AEM FOCUSED ON THE FUTURE OF INFRASTRUCTURE?

The future of United States infrastructure depends on successful collaboration, innovation, and planning for technological advancements. The Association recognized it was time to steer the conversation in a path towards a long-term solution, instead of a constant pattern of patchwork fixes and deferred maintenance.

WHAT IS THE INFRASTRUCTURE VISION 2050 CHALLENGE?

AEM's Infrastructure Vision 2050 Challenge, designed in partnership with HeroX, is an incentivized competition soliciting forward-thinking solutions that address some of the biggest challenges facing United States infrastructure.

HOW DOES THE CHALLENGE WORK?

The Challenge was divided into three phases: Complain, Dream and Build. Launched last January, the Complain Phase asked Americans to identify the biggest infrastructure challenges facing their communities. For the Dream Phase, the Challenge solicited new thinking and solutions to these issues, especially from non-experts. Finally, the Build Phase asked participants to design plans to implement those solutions on a larger scale.

The winners of the Complain and Dream Phases and finalists of the Build Phase were determined by a panel of five expert judges, including thought leaders, influencers, and people with unique insight into transportation infrastructure and systems.

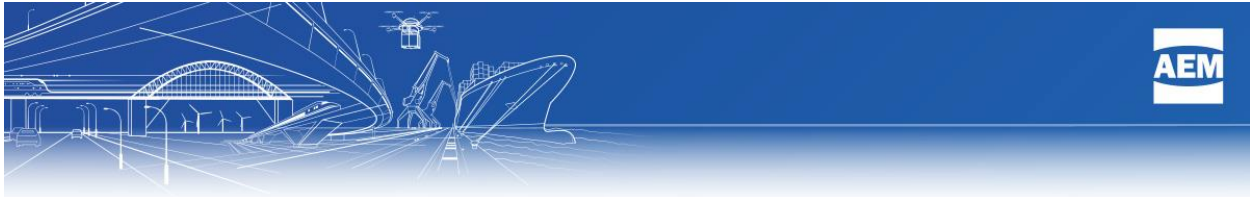
The finalists of the Build Phase are competing live for the grand prize at CONEXPO-CON/AGG on March 8, where they will present their submission to a panel of judges, including Adie Tomer, fellow at the Brookings Institution's Metropolitan Policy Program, Elle Shelly, Chief Marketing Officer at Local Motors, Dan Sturges, Adjunct Professor of Transportation Design at the College for Creative Studies, Ingrid Reisman, Senior Vice President & Chief Marketing Officer for the Las Vegas Monorail Company and Keith Hennessey, Principal Vice President and the Head of Bechtel's Public-Private Partnership business.

If applicable, ideas and solutions generated by the Challenge will contribute towards a comprehensive infrastructure platform for the new incoming Administration and Congress to consider in 2017.

WHAT IS HEROX AND WHAT IS THEIR ROLE IN THE CHALLENGE?

HeroX is a for-profit platform that allows anyone to launch a crowdsourcing project in an area of their choice. AEM is partnering with HeroX to sponsor the Challenge as a crowd-sourced, incentivized competition.

WHAT ARE CRITERIA FOR PARTICIPATING?



AEM believes in harnessing collaboration between traditional and nontraditional innovators. As a result, the Challenge was open anyone from any background. Hundreds of people from four continents with drastically different backgrounds and experiences submitted for the challenge in one or more of three phases.

WHO CHOOSES THE WINNERS OF THE BUILD PHASE?

The winner the final (Build) phase will be selected at CONEXPO-CON/AGG on March 8 by a live panel of judges, including Elle Shelley, Chief Marketing Officer for Local Motors and EVP of Launch Forth, Adie Tomer, a Fellow at the Brookings Institution's Metropolitan Policy Program, Dan Sturges, Adjunct Professor of Transportation Design at the College for Creative Studies, Ingrid Reisman, Senior Vice President & Chief Marketing Officer for the Las Vegas Monorail Company and Keith Hennessey, Principal Vice President and the Head of Bechtel's Public-Private Partnership business.

Vivek Wadhwa, a Distinguished Fellow at Carnegie Mellon University's College of Engineering and a Director of Research at Duke University's Pratt School of Engineering, will host the competition.

WHO IS FUNDING THE PRIZE MONEY?

AEM is contributing the prize money, totaling \$100,000, as a representative of the equipment manufacturing industry and its more than 950 members who make the equipment that has helped build the existing network of U.S. infrastructure, and will build, its next generation.

WHAT OTHER RECENT INFRASTRUCTURE ADVOCACY EFFORTS IS AEM SUPPORTING?

AEM is committed to advancing the discussion around infrastructure and innovation through various advocacy efforts, including:

- A [call for working papers](#) showcasing infrastructure challenges and infrastructure benefits tied to the agriculture industry,
- Panel discussions in [Ames, Iowa](#) and [Louisville, Kentucky](#) to discuss challenges and opportunities for U.S. infrastructure as it relates to the future of the agriculture economy
- [High-level roundtable discussions](#) with elected officials on Capitol Hill; and,
- An [in-depth study](#) and [symposium](#) on modern mobility featuring remarks from national and state transportation thought-leaders and policymakers.
- Two national [opinion polls](#) gauging voter perceptions and attitudes about the current and future state of U.S. infrastructure and perceptions of and attitudes about U.S. water infrastructure and the Water Resources Development Act (WRDA) of 2016.

WHERE CAN I LEARN MORE ABOUT AEM AND INFRASTRUCTURE VISION 2050?

To learn more the overall Infrastructure Vision 2050 initiative and the Challenge, visit the Infrastructure zone within the new Tech Experience, a 75,000 square foot exhibition space



at CONEXPO-CON/AGG. Challenge finalist presentations will also take place in the Tech Experience on March 8 at 9:30 am. Information is also available by visiting the AEM Booth in the Grand Lobby located between North and Central Hall.

In addition, details about the Infrastructure Vision 2050 initiative and the Challenge can be found by visiting www.aem.org, www.aem.org/advocacy/infrastructure-vision-2050/ and <https://herox.com/Infrastructure2050>, respectively.

For more information, please contact Kate Fox Wood at kfoxwood@aem.org or (202) 230-7337.