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TOYOTA mobility FOUNDATION

SUSTAINABLE CITIES CHALLENGE

Semi-finalist Announcement

Varanasi

UNDER EMBARGO UNTIL 00:01 IST 27th January 2025

VARANASI SELECTS 10 SEMI-FINALISTS FOR GLOBAL $3 MILLION MOBILITY CHALLENGE TO REIMAGINE CROWD MANAGEMENT

- **Ten semi-finalists chosen to participate in $3-million Sustainable Cities Challenge in Varanasi**
- **Over 80 high-quality entries submitted from across the globe**
- **Semi-finalists to be awarded $50k implementation grants to develop innovations in Varanasi**

VARANASI, India: The Toyota Mobility Foundation has announced its ten semi-finalists for its Sustainable Cities Challenge in Varanasi's old city, Kashi.

Developed in partnership with the Municipal Corporation of Varanasi, Challenge Works, and World Resources Institute, the Challenge sought global innovators to create scalable, data-driven solutions to reimagine crowd management in the city. Varanasi, one of India's most iconic heritage and spiritual cities, draws a substantial number of tourists. This influx also presented an opportunity to develop innovative, data-driven solutions aimed at improving the city's safety and accessibility, benefiting religious tourists, residents, and vulnerable communities alike.

As part of the two-stage, three-year, global $9 million Sustainable Cities Challenge, the city of Varanasi launched in June 2024 and secured over 80 innovator entries worldwide. Detroit, Michigan, and Venice, Italy, round out the list of three selected cities, each awarding $3 million in grants.

The semi-finalists are:

- **CITYDATA, Inc.:** CITYDATA.ai is a Silicon Valley-based big data and AI company that creates mobility digital twins for cities and districts worldwide. Its solution involves implementing its data platform CITYFLOW, which predicts and mitigates overcrowding scenarios.

- **FRACTAL ANALYTICS LIMITED:** Fractal is a global provider of artificial intelligence and advanced analytics solutions to Fortune® 500 companies. The team's solution involves the integration of behavioral science, data-science, and human-centered design to tackle overcrowding in Varanasi.

- **Graymatics Inc.:** Graymatics Inc. is an emerging global leader in Vision AI and Video Analytics. Its solution involves using a multimedia processing platform, which leverages deep AI to pioneer real-time crowd and safety insights to democratize public infrastructure, mobility, and connectivity for citizens and tourists.

- **ARCADIS:** Arcadis is the world's leading company delivering intelligence-driven sustainable design, engineering, and consultancy solutions for natural and built assets. The team will use SANKALP, an integrated solution for crowd management, combining spatial analytics, real time monitoring and actionable intelligence.

- **INTPIXEL LABS PRIVATE LIMITED:** VOGIC AI is dedicated to transforming physical spaces into safer, smarter, and more efficient environments by harnessing the power of visual data. The team's solution will use video analytics, vision language GenAI models, dynamic signage, public announcements, and multilingual WhatsApp communication to better manage crowds in Kashi.

- **Prameya Consulting Private Limited:** Prameya Consulting Pvt. Ltd. is an urban planning and strategy firm that drives urban transformation through collaborative problem-solving and strategic planning. The team will use NayiChaal, a data-driven ecosystem, to facilitate information exchange between various stakeholders in Varanasi and empower them to make informed decisions by having access to real-time actionable data.

- **SmartViz Ltd:** SmartViz is a pioneering technology firm reshaping the landscape of data-driven and human-centric environments in buildings and cities. The team's solution leverages 3D lidar sensors and machine learning for real-time pedestrian monitoring which presents the data with predictive modelling and scenario planning to help city authorities make proactive decisions around effective crowd management.

- **Steer Davies & Gleave Limited:** Steer is an employee-owned consultancy, working worldwide in planning and design for transportation and movement. The team's solution includes developing a crowd dynamics model for Varanasi for better insights

into crowd movements, helping city officials and partner agencies plan for upcoming events.

- **The Urbanizer:** The Urbanizer is a pioneering urban design, landscape design, and architecture firm based in India. The team's solution uses JanJaatra, a color-coding system paired with real-time digital navigation, to revolutionize crowd management in Varanasi.

- **Tiami Networks Inc:** Tiami Networks is a B2B and B2G deep-tech startup that develops innovative solutions that address complex challenges in dynamic environments. The team's solution uses PolyEdge™, which leverages signals of opportunity (SoOp), such as 5G and Wi-Fi, to provide real-time detection, tracking, and analytics to monitor and manage large-scale pedestrian and vehicular movements in real time.

The Challenge evaluated these entries for their scalable, data-driven solutions designed to better manage overcrowding, enhance citizen decision-making, and provide vital services for vulnerable groups in Varanasi.

“We’re thrilled to welcome the ten semi-finalists to reimagine crowd management for Toyota Mobility Foundation’s Sustainable Cities Challenge in Varanasi,” said Akshat Verma, IAS, Municipal Commissioner/Chief Executive Officer, Varanasi Municipal Corporation/Varanasi Smart City. “Being the spiritual heart of India, Varanasi draws countless visitors each year, to experience its rich traditions, sacred rituals, and vibrant culture. We understand that this Challenge offers us an opportunity to manage the crowds in ways that preserve the city’s unique spirit for generations to come, while strengthening the city’s tapestry of faith and culture.

Semi-finalists will each receive a $50,000 implementation grant to help teams refine and localize their solutions to reimagine a safer and more accessible Varanasi. They will also participate in the Challenge’s Innovator Academy, providing them with resources and guidance for their solutions. “As Toyota Mobility Foundation, we look forward to collaborating with the semi-finalists to explore innovative data driven solutions that leverage technology and human centric design to enhance safety and accessibility in the historic city of Kashi. The hope for this Challenge is to develop scalable solutions that can serve as a blueprint for other global cities to reimagine their crowd flow and management,” said Pras Ganesh, Executive Program Director, Toyota Mobility Foundation Asia.

Director of Cities and Societies at Challenge Works, Kathy Nothstine, said, “The ten semi-finalists for the Varanasi Challenge offer a significant step forward. As cities become more interconnected and welcoming to global visitors, it’s our responsibility to protect the well-being of local communities and residents. Striking the right balance between safety and accessibility is key. This global Challenge invites innovators to test their ideas in real-world contexts, seeking effective solutions for better crowd management, reducing congestion, and improving the experience for both residents and visitors.”

Ben Welle, Director of Integrated Transport and Innovation at WRI Ross Center for Sustainable Cities said, "The innovations developed through this challenge will have a direct impact on the people of Varanasi, and we hope these solutions can be adapted to other cities around the globe, enhancing urban mobility on a global scale."

The Sustainable Cities Challenge is funded by the Toyota Mobility Foundation and has been designed in partnership with Challenge Works and the World Resources Institute. Toyota Mobility Foundation is an independent foundation that works with like-minded partners to deliver innovative solutions to mobility related problems, aiming to leave a sustainable legacy that can enable mobility for all. Challenge Works is a global leader in the design and delivery of open innovation challenges that mobilize innovative thinkers to solve pressing problems and unlock change. World Resources Institute is a global research organization which works with partners to develop practical solutions that improve people’s lives and ensure that nature can thrive.

To find out more, visit the Sustainable Cities Challenge website.

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About the Sustainable Cities Challenge

The Sustainable City Challenge is a two-stage, three-year $9 million global opportunity for cities and innovators. The Sustainable Cities Challenge will be delivered over two stages:

- **Stage 1: Call to cities**
  The Challenge sought cities who wish to host City Challenges in 2024 – 2025. In November 2023, ten shortlisted cities received a range of capacity building support to

help them understand the issue they want to solve and attract innovators to provide solutions. By May 2024, three cities were selected to host City Challenges to find solutions for local mobility challenges.

- **Stage 2: Call to Innovators via 3 City Challenges**
  Working with the host cities, the Sustainable Cities Challenge team supported by designing local City Challenges, which launched between May and June 2024. Each City Challenge offers up to $3million in funding to innovators.
  Host Cities held open calls for entries from innovators via their City Challenge with the support of the Sustainable Cities Challenge team. Together, they selected innovators to develop and test their solutions in 2024 – 2025. In 2026, final awards will be given to winners in each host city to continue to implement and grow their solutions.

About Toyota Mobility Foundation

The Toyota Mobility Foundation (Chair Akio Toyoda, hereafter referred to as "TMF") was established in August 2014 by the Toyota Motor Corporation (Toyota) to support the development of a more mobile society in which everyone can move freely. The Foundation underscores Toyota's ongoing commitment to continuous improvement and respect for people. It utilizes Toyota's expertise and technologies to support strong mobility systems while eliminating disparities in mobility. TMF works in partnership with universities, governments, non-profits, research institutions and other organizations, creating programs that are aligned with the UN Sustainable Development Goals (SDGs) to address mobility issues around the world.

"TMF aims to create a truly mobile society that will help people live better lives no matter where they are," said Chair Akio Toyoda.

In the past, TMF has led a range of Challenges, including the global **Mobility Unlimited Challenge, CATCH** in Malaysia, **InoveMob Challenge** in Brazil and STAMP Challenge in India. You can find out more about TMF and how it is governed at toyotamobilityfoundation.org.

About Challenge Works

For a decade, Challenge Works has established itself as a global leader in designing and delivering high-impact challenges to incentivize cutting-edge innovation for social good.

Challenge Works is a social enterprise founded by the UK's innovation agency Nesta. In the last 10 years, they have run more than 90 prizes, distributed over £200 million in funding, and engaged with more than 16,000 innovators. Challenge Works believes no challenge is unsolvable, partnering with non-profits, governments, and other organizations around the globe to unearth entrepreneurs and their innovations that can solve the greatest challenges of our time. Visit them at https://challengeworks.org/

About World Resources Institute

World Resources Institute (WRI) is a global research organization with offices in Brazil, China, Colombia, India, Indonesia, Mexico and the United States, and regional offices for Africa and Europe. WRI's 1,700 staff work with partners to develop practical solutions that improve people's lives and ensure nature can thrive. Learn more: WRI.org and on Twitter @WorldResources.