



The Institution of
Engineering and Technology

Urban mobility in Bengaluru

The next decade

A position statement by
IET Future of Mobility and Transport
Panel

Urban Mobility – The Next Decade

On October 16, 2019, 12 global experts representing various areas of global mobility ecosystem met in Bengaluru, India to discuss “Urban mobility- the next decade: Test case – Bengaluru”. The round table was organised under the aegis of the Institution of Engineering and Technology’s Future of Mobility and Transport Panel – a neutral think tank, whose mission includes bringing the entire mobility ecosystem together, understanding disruptive business models and developing roadmaps as well as leveraging mobility to boost economic activity. The discussion was led by Shashi Verma, Director of Strategy and Chief Technology Officer, Transport for London. The objective of the session was to use diverse expertise in the room to assess challenges that are preventing Bengaluru from reaching its fullest urban potential.

Key takeaways from this discussion were:

Articulating and building aspiration of our cities

Problems in urban cities are mostly characterised by a lack of strategy that focuses on ‘what it aspires to be’. Some of India’s urban mobility and congestion problems have derived from the fragmented institutional frameworks, lack of clearly articulated strategy for the cities, a mismatch between what the entrepreneurial system wants to support and what the institutional framework has to offer and a general disregard for shared spaces.

Efficient cities have a city core focused on economic productivity

One of the most - for London, for example does not solely exist to move people. It does, to enable using transport for growth through bringing better understanding of cities and the economic interactions it should enable. Hence, ensuring affordable and more accessible public transport that can support the city’s economic growth lies at the core of it. Bengaluru needs to take stock of number of jobs per square kilometre in its economic core and deploy mobility solutions that will help that target.

Infrastructure that supports city aspirations

Bengaluru has a particular challenge with infrastructure – lack of investment in on over ground facilities for pedestrians. The rise of 2 wheelers correlated directly to this. To mitigate the rising traffic, what the city administrators did was build flyovers, which, in-effect only shift the traffic jam to the next junction.

Integrated till the last mile

Although it seems like the most obvious solution, Bengaluru as a city is still a long way off from Integrated Last Mile transportation. While the proposed BMMA could bring over 10 different transport related organisations under one umbrella, the success of the entity will depend on how fast it gets created, the leadership it is able to demonstrate and the vision it sets for itself to chase.

Possible solutions and priorities for Indian transport system

Bengaluru is in a unique position with respect to technology availability, however, it needs to be leveraged in a planned manner and institutionalised rather than arbitrary. Mobility and urban planning are fundamentally the same problem that requires a common solution. Moving beyond band aid solutions towards an integrated approach in planning and management of transport, is the need of the hour.

Lessons from Transport for London

- 18 different organisations were brought together to form TFL just 30 years ago. Bengaluru can still do it and see benefits kick in sooner.
- London's structure of having a town planning authority under the mayor helps ease the impact that elections and other political factors may have on town planning as a function
- It is often said that solutions that work in Europe or UK are not ideal for India given the scale is much higher. Number of people transported by London Underground per minute is comparable to that of Bengaluru. However, the reach and last mile is far better.
- UK has not laid a single road in the last two decades. It is a mark of productivity – maintenance of roads and connecting them to other modes of transportation.

INFRASTRUCTURE THAT SUPPORTS

Building lasting infrastructure that supports the city's aspiration than just band-aid solutions

INTEGRATED, CONNECTED, LAST MILE

Bringing the myriad bodies under a single umbrella body with a clear task of making the city more efficient



ASPIRATION OF CITIES

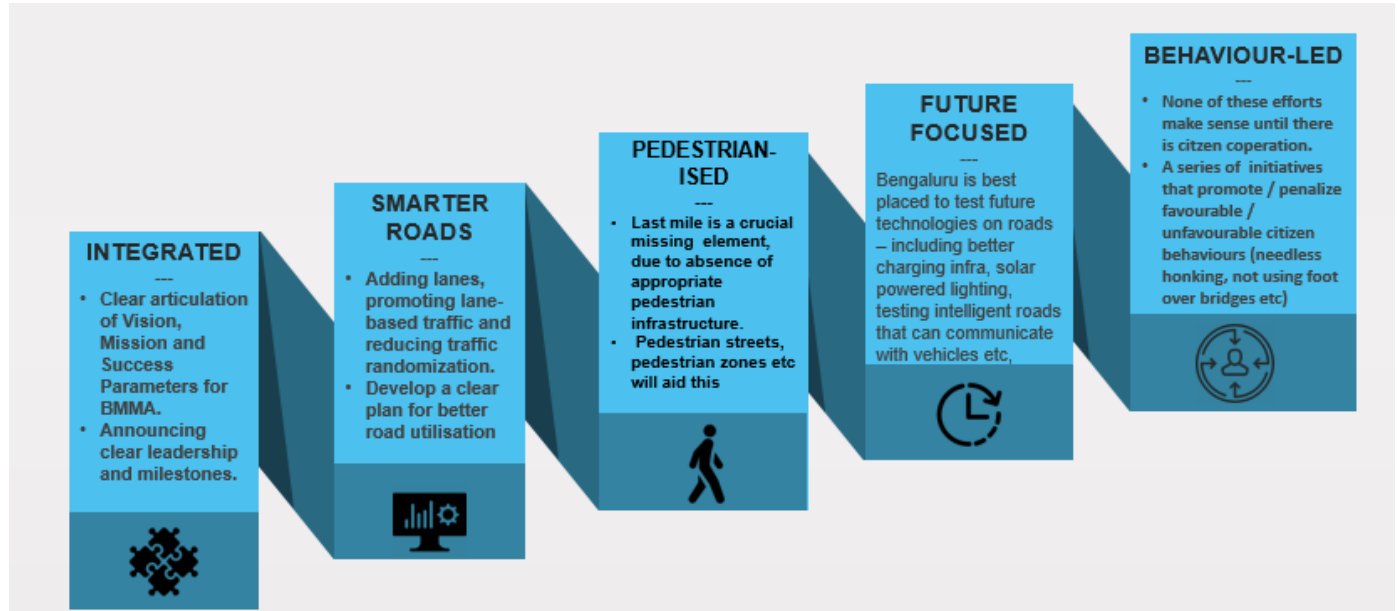
Articulating the city's aspiration in clear terms and using tangible measures for success

BUILDING A CITY CORE

Focused on economic activity, efficiency and progress than just moving people.



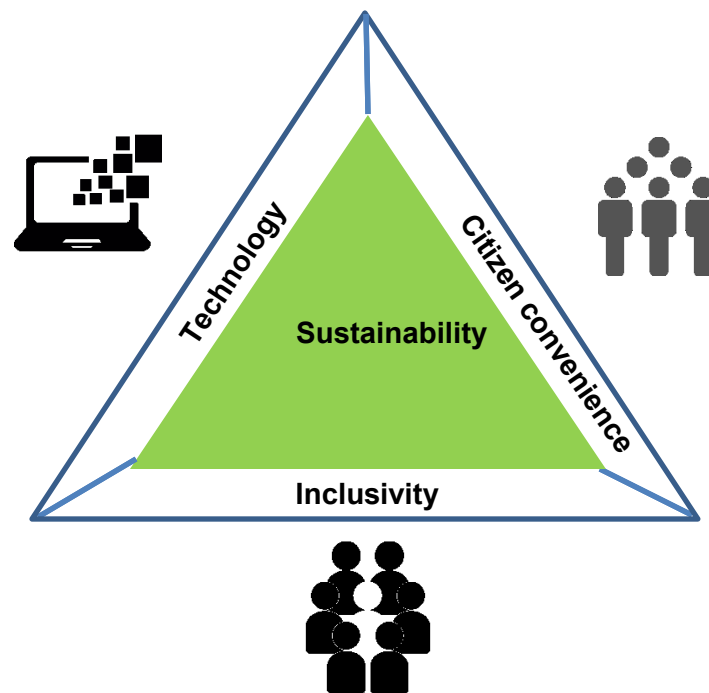
Proposed Agenda for Action for Bengaluru



1. While setting up of Bengaluru Metropolitan Management Authority was a much needed first step, its success depends critically on bringing the various stakeholders together and gaining consensus as well as clearly articulating its vision and outcomes.
2. Laying new roads cannot be a long-term indicator for economic progress, smarter road utilisation is. We will need to focus on 'lane-engineering' in a bid to reduce traffic randomisation.
3. Last mile in developed nations relies heavily on pedestrianism and Bengaluru needs to develop special focus in this area. Pedestrianism is a culture that is fast getting replaced by our rides dropping us at the door-step of our destinations. The city will need to build pedestrian infrastructure supported by pedestrian streets and zones.
4. Being the emerging tech-capital of India, Bengaluru is uniquely positioned to test out future-mobility solutions including intelligent roads. Building our future with sustainability at the core and technology, inclusivity and citizen convenience as the pillars is indeed feasible, given Bengaluru's human capital.

5. Programmes to build citizen-sensibilities will need focus as we scale. Indiscriminate honking, failure to use foot-over bridges, non-adherence to lane disciplines etc will need strict penalties.
6. Inclusivity (disabled-friendly) urban centres is no longer an aspirational – but a must have for cities like Bengaluru. While implementing pedestrianisation, inclusive mobility will need to be considered – right at the conceptualisation stages, rather than as an after-thought.

Proposed approach for building the Bengaluru city core



Session attended by



Shashi Verma

Director of Strategy and Chief
Technology Officer, Transport
for London



Ben Johnson

Project Principal,
Transport for London



Kamal Bali

President & Managing
Director, Volvo



Naresh Narasimhan

Architect, Urbanist, Activist
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S A Sundaresan

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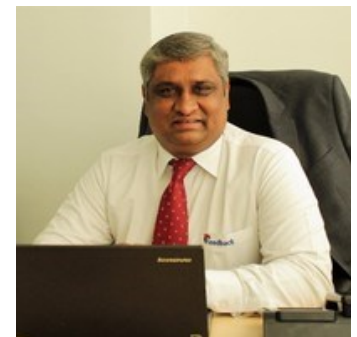
Dr R Malur

Vice President & Chief
Technology Officer, Tata
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Mustafa Wajid

Managing Director, Meher
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Aishwarya Kachhal

Founder and CEO, qQuick



Sameer Kumar

Managing Director,
Inventus Capital Partners



M Guru Prasad

Managing Director, Bosch
Automotive Electronics India

Shashi Verma, Director of Strategy and Chief Technology Officer, Transport for London: Shashi Verma is the Director of Strategy and Chief Technology Officer at Transport for London. He joined TfL in September 2002. Shashi has overall responsibility for TfL's Technology and Data Strategy and for its Customer Strategy. His role is aimed at bringing a new approach to the development, deployment and operation of technology across TfL.

Ben Johnson, Project Principal, Transport for London: Ben currently manages Transport for London's road safety programme. He heads a team of 8 technical and policy staff to create and implement road safety policy across London. This involves both direct investment and influencing delivery partners within and outside Transport for London including police, local authorities, health and emergency services partners – developing and sharing best practice and lobbying for changes to policy and legislation.

Kamal Bali, President & Managing Director, Volvo Group: Kamal Bali has an illustrious career spanning over three decades, predominantly in the automotive industry. An engineering graduate from the Indian Institute of Technology (IIT) and an alumnus of St. Joseph's Academy Dehradun, Kamal began his professional career as a management trainee with the Eicher Group in 1981. Prior to spearheading the Volvo Group in India, Kamal was working as President & CEO of Singapore Technologies (STK) in India, establishing the brand LeeBoy.

Naresh Narasimhan, Architect, Urbanist, Activist and Creative Entrepreneur: Naresh V Narasimhan is well known for his long-term association with Venkataramanan Associates (VA), an award-winning architectural firm. Some of Naresh's most recent initiatives include Cobalt, a vibrant co-working space in central Bengaluru that uses spatial and social strategies to trigger serendipity at work. Through Metaform, a multidisciplinary conceptual design firm, he's worked with municipal agencies to renew valuable markets and neighbourhoods. As a co-founder of MOD Institute, an international collective of urban designers, researchers and curators, Naresh has also been responsible in making cities like Bengaluru and the urban processes that drive them: visible and participatory. As part of the erstwhile Bengaluru Agenda Task Force; a founder and trustee of Imagine Bengaluru, and regular advisor to government bodies, Naresh has fueled many progressive causes for the city.

S A Sundaresan, Vice President – EV and eMobility Solutions, Ashok Leyland: S. A. Sundaresan has been an entrepreneur and a technology innovator. He finds the challenges of conceiving, nurturing and realizing products or processes or organizations equally fulfilling and enjoyable. His past experiences range from developing hermetic compressors, sheet metal engineering, plant and business digitalization long before it was a buzz word, systems engineering, digital twin, and embedded software development tools. His latest foray has been into electric vehicles and eMobility as a service as the Vice-President of the recently constituted Ashok Leyland's EV and eMobility Business.

Dr R Marlur, Vice President & Chief Technology Officer at Tata Consulting Engineers Limited: Dr. Marlur has 25 years of experience in Product and Plant Engineering in power industry after a Ph D from Indian Institute of Technology Kanpur. He has experience in working with Indian as well as multinational companies in India and abroad. He has an interest for new technologies coupled with strong process and people management skills; believe in embracing change.

K Srinivas Reddy, Managing Director, Veera Vahana Udyog: K Srinivas Reddy graduated in Mechanical Engineering from REC Surathkal in the year 1991. After his stint of Two years experience as production engineer in Triveni Engineering Works, Bengaluru, he has been on his own as 1st generation Entrepreneur for over 11 years prior to start of Veera Vahana Udyog

Devendranath A M, COO, Feedback Business Consulting Services: Devendranath oversees the AC&R, Energy & Renewables Vertical at Feedback Consulting, which is a B2B market research based business advisory firm. He leads a team of consultants, who are experienced in the areas of strategic consulting and in-depth Industrial / B2B market research engagements in India, the Middle East, South East Asia and Australia. Dev has considerable expertise in Power & Electricity, Renewable Energy and Lighting. He has advised a host of Indian and international corporations in Biomass Power, Distributed Power Plants, Wind Energy, Energy from Municipal Solid Waste, Solar PV, Solar Water Heaters, to name a few areas.

Mustafa Wajid, MD, Meher Group: Mustafa Wajid is an electrical engineer and Managing Director and CEO of MEHER Group. He has driven technology development & business creation in Power Capacitors, Harmonic Filters & Power Quality Solutions. In addition to his business responsibilities, he has also served on several committees of Government of India. Mustafa is the chair of the India Development Panel for the IET in India and as a volunteer, helps craft the IET's strategic direction for India. He also chairs the executive committee for the IET's Future of Mobility and Transport focus.

Aishwarya Kachhal, Founder & CEO, qQuick: Aishwarya is passionate about clean mobility. He has set up one of the largest battery and charging network in the world. He is also the founding member of Yes Bank & Indus Tower Limited.

Sameer Kumar, Managing Director, Inventus Capital Partners: Samir became an early-stage venture investor in 2001 following a 15 year operating career with high growth companies. Samir was a part of the early team at Wipro and was also a founding member of Wipro's joint venture with Acer Computers in Taiwan to design, build and sell computers for the Indian market. He became a venture capitalist in India when he joined Acer Technology Ventures in 2001. At Inventus, Samir is a Board Director at Cbazaar, Telibrahma, Insta Health and Sokrati.

M Guru Prasad, Managing Director, Bosch Automotive Electronics India: Guruprasad Mudlapur is the Managing Director, Bosch Automotive Electronics India Pvt. Ltd development at Bosch since February 2014. He joined Bosch in August 2008 as the department head responsible for development of ASICs & HW for Automotive Electronics. He was also responsible for heading ECU development for Chassis Control Systems and all the EMI/EMC activities at Bosch. Prior to joining Bosch, he was working with NXP Semiconductors at Singapore and The Netherlands in the area of Semiconductor development for Mobile, Personal Communication and Digital Televisions for almost 15 years. He was engaged in the design, development and architecture definition of various IC's and custom ASIC's for cellular, wireless, and broadcast standards.

With inputs from



Dr Jaijit Bhattacharya, President, Centre for Economic Policy and Chair – Policy Panel
IET FoMT Focus

Dr Jaijit Bhattacharya is an expert on technology-driven government and societal transformation. He is a founder of Zerone Microsystems Pvt. Ltd., a financial technology firm, and president of Centre for Digital Economy Policy Research. He is a former head of the Centre for Fourth Industrial Revolution in India, World Economic Forum and former Head and Partner, Economics and Policy Practice, KPMG. He is a recipient of the APJ Abdul Kalam Award for innovation in governance, and Global Corporate Affairs Leadership award for a decade of contribution and the “Shiksha Rattan Award” for excellence in teaching. He was also an Advisor to President's office of Sri Lanka on e-Governance and ICT Policy as part of the Centre for e-governance.

Glimpses from the event





The Institution of Engineering and Technology

The IET is one of world's largest professional societies for engineers headquartered in the UK. Soon to turn 150 years, the IET works closely with industry, academia and government in its mission to engineer a better world. In line with this the IET also has specific global initiatives around key sectors that are relevant to solving problems that impact society at large. In India, the IET has over 13,000 members and has wide ranging activities in alignment with the overall global IET strategy that also include a sector focus in areas such as Internet of Things, Education & Skill Development and Transport. Eminent engineers like Shri Ratan Tata, Former Chairman TATA Sons, N R Narayana Murthy, Chairman Emeritus, Infosys and T V Ramachandran, President, Broadband India Forum (Ex-Resident Director, Vodafone) are Honorary Fellows of the IET.

It is globally well acknowledged that 'Mobility and Transport' sectors are critical to economic growth and that its future will evolve very differently. Advancements in transportation technologies including electrification, application of digital technologies, autonomy based on deployment of image recognition, machine learning and AI, creation of new business models are among key ingredients that will drive disruption and transformation in this sector in the next decade. Given the diversity and complexity of the socio-economic realities in India, a judicious combination of engineering and new technologies blended with timely policy interventions by Government in Mobility and Transport can boost economic growth and employment. It will also positively impact the environment as well as enhance quality of life.

About the IET Future of Mobility and Transport Panel

The IET has created a Future of Mobility and Transport (FoMT) Focus (under the aegis of the Transport sector focus of the IET) in India to bring together, the diverse and multidisciplinary stakeholders onto a neutral platform that can facilitate a variety of actions, developments and provide a well-balanced advisory on policy interventions needed. While doing so, it is also important to factor in that about 35% of India's population lives in Urban compared to 65% that lives in Rural conditions. Many of the challenges and issues in this context are very different from those in urban India. It is also important to address the issue of logistics and freight – which as a proportion of India's GDP is significantly higher than established global benchmarks. With Indian e-commerce on an upward trajectory, the Indian ecommerce sector expected to surpass the US to become the second largest in the world by 2034. The opportunities that this presents, both in urban and rural contexts are immense.

The vision of the IET FoMT Focus is "To be THE thought platform to help shape the future of mobility and transport in India that is safe, ubiquitous, sustainable, affordable, reliable & rapid and enhance its role as an economic enabler."

If you are interested to play an active role in shaping the future of mobility and transport in India, please write to us at [**sectors@theiet.in**](mailto:sectors@theiet.in)
