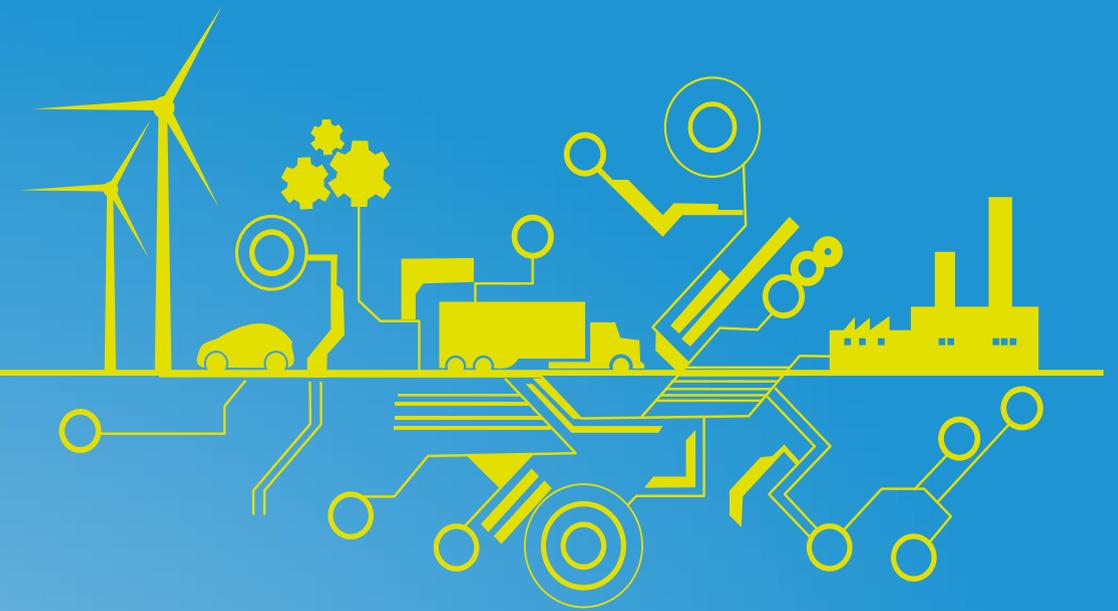


www.kpit.com

KPIT

Innovative Technology for Sustainable Transport

2016 UN DESA Energy Grant
Powering the Future We Want



by Mohit Kochar

AVP & Head of Global Marketing
Automotive & Transportation Business

14th and 15th December, 2016

Expectations from UN DESA

1.

A background of your institution

2.

The sustainable transport problem that your institution seeks to address

3.

Your achievements in working to improve sustainable transport

4.

Challenges that you have come up against during implementation

5.

Your future plans for increasing the scale and impact of your initiatives

A background of the institution

Mission and Purpose

To create Technologies for a Better World.

KPIT focuses on envisioning and enabling a ***cleaner, greener, intelligent world*** - a world that is ***self-sufficient, sustainable and efficient.***

KPIT – A Global Technology Company

**USD 500 Mn
Revenues**

**10,000+
Employees
worldwide**

**Employees from
25 nations**

**34 offices in 16
countries**



**~3% of Revenue
invested in R&D**

**54
Patents filed**

**96
Papers published**

**11 Innovation
awards in past 4
years**

An organization focused on providing
Transformational products, solutions and
services by combining **Engineering** and **IT**



Automotive and Transportation

Alternate fuel technologies
Intelligent transport systems
Embedded Software



Manufacturing

Internet of Things
Product Lifecycle Management
Supply Chain Management



Energy and Utilities

ERP & Automation
Operations and Asset Management
Big Data & Analytics

Providing the best in class solutions to the Industry

Leading Brands
Leveraging
Technology
Innovations from
KPIT



Playing meaningful role with
Associations and Consortiums



TAG-EM

CLEAN



USINDIA
Business Council



SMART CITIES



INTELLIGENT



CONNECTED



Community Initiatives

Education

Transform lives of people through science and technology education

- Chhote Scientist Initiative
- Techno Wolves Robotics Program
- Sparkle – National level innovation contest



Environment

Making this world a better place to live in

- Zero Garbage
- Farm Ponds
- One Tree One Child
- Environment Week
- Forest Safari



Energy

Developing innovative solutions for efficient energy consumption and renewable supply

- Solar Water Heater Project
- KPIT The "Energy Champion"



Employee Engagement

Utilizing employee strength to make this society better

- Blood Donation Drive
- Annadan (Food/Grain Donation Drive)
- Volunteer Fair, USO Drive, etc.



The sustainable transport problem that
the institution seeks to address

Need for sustainable transport solutions – Challenges



Rapid Urbanization

31% urbanization in 2011, leading to pollution & congestion



High CO₂ emissions

India is world's third largest emitter of CO₂



Greenhouse Emissions

18% from transportation alone



Very high crude oil imports

\$ 74 Bn of crude oil was imported



Pollution from Urban Transportation

Transportation contributes > 30% to urban pollution



High diesel consumption by transportation

Transportation accounts for > 70% of total Diesel consumption

Need for sustainable transport solutions – Impact



Severe Air Pollution

Among the world's 20 most polluted cities in the world, 13 are in India



Healthcare Costs

Healthcare cost of air pollution in India is ~ 1.2% of its GDP



Vehicle Pollution in Delhi

Delhi tops the list of most polluted cities - 25% of the pollution in Delhi is due to Vehicles

Low standard of Public Transport has led to increased preference for own vehicles



Quality of travel experience

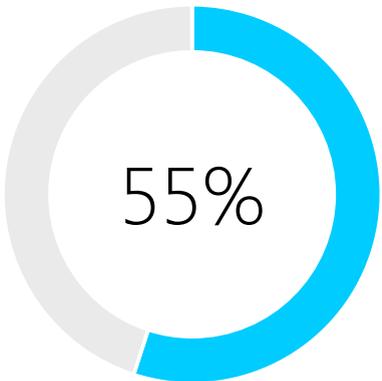


Lack of comfort



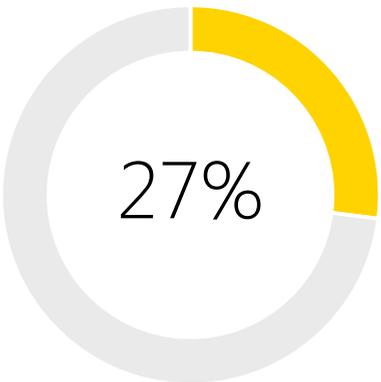
Lack of convenience

Recent Survey



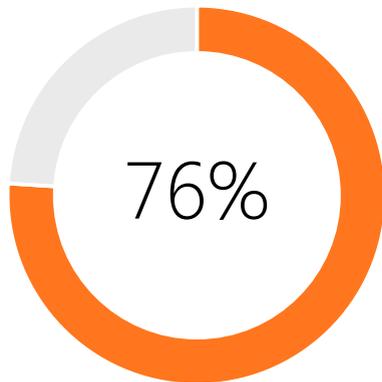
Comfort

55% feel own vehicle is more comfortable



Predictability

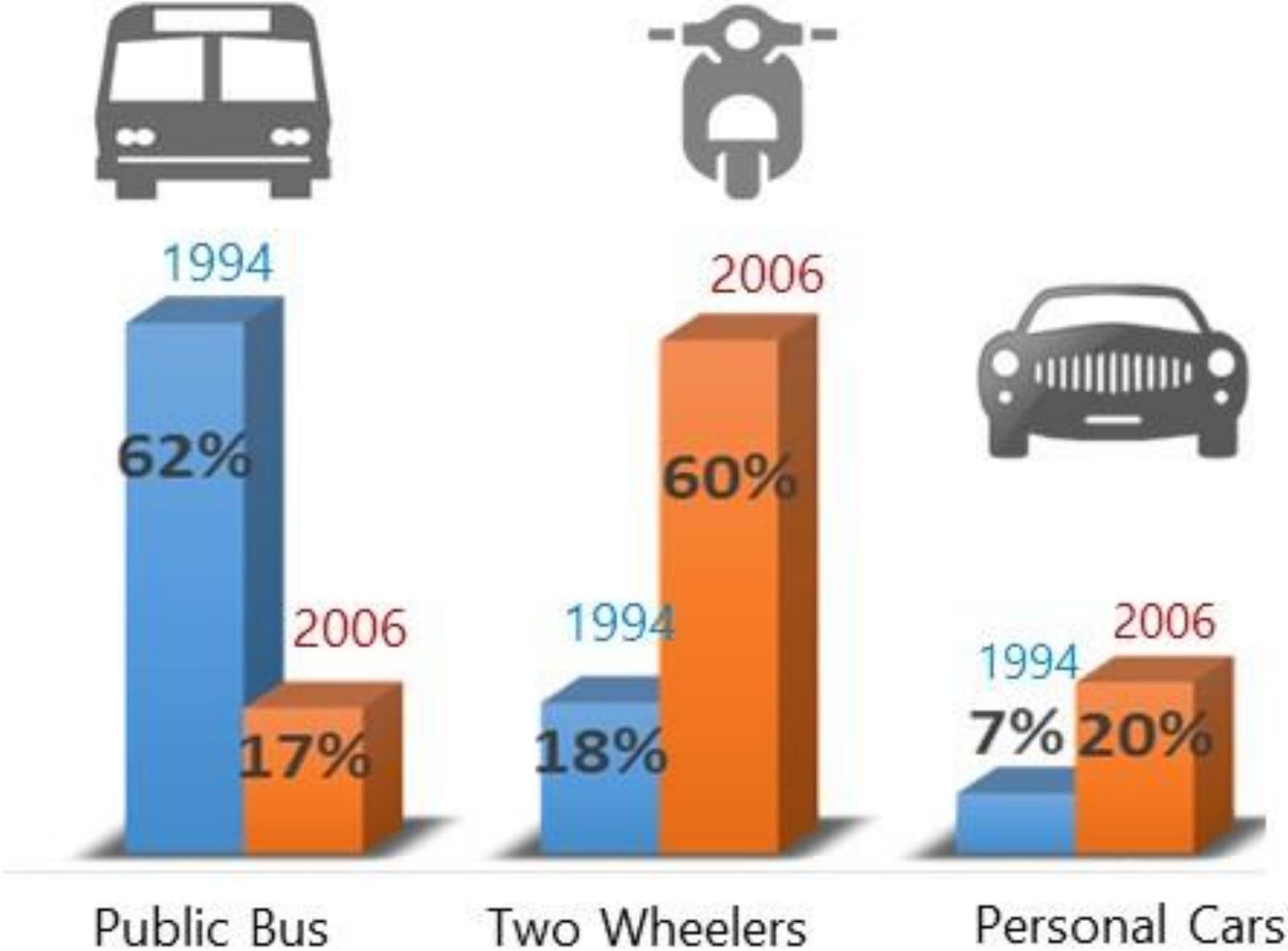
27% feel lack of convenience & predictability



Safety

76% women feel unsafe due to lack of monitoring

Public Transportation has seen a steep downward trend



Bus Ridership in India declined from *62% to 17%* in last 2 decades

But... Indian Citizens are now more urban, richer & connected



65% population is under age of 35



World's 2nd highest Smartphone users

Urban population to reach 590 million by 2030



Middle class to double by 2025 to 547 million



Attracting these citizens to public transport is the challenge

Bus transport in India has to be RE-Imagined ...

The need is for ...

Clean

Connected

Comfortable

Safe

Public Transport

Achievements in working to improve sustainable transport

KPIT's Solutions for Sustainable Transport

Clean



- Alternate Fuel Technologies
 - EV for bus
 - HEV for bus
 - PHEV for cars

Connected



- Intelligent transport system
- Vehicle Tracking System
- Command Center

Comfortable



- Mobile Apps for Journey planning
- Public Information Systems
- Wi-Fi Infotainment System for Buses

Safe



- Advanced Safety Systems e.g. Monitoring of Harsh Braking, Sudden Acceleration etc.
- Advanced Driver Assistance Systems (ADAS) e.g. FCW, LDW



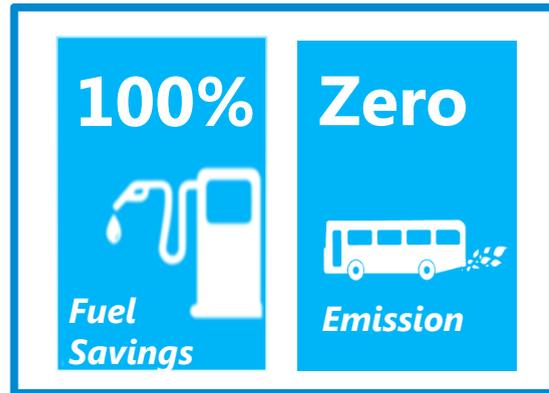
REVOLO[®]

Alternate fuel technologies from KPIT

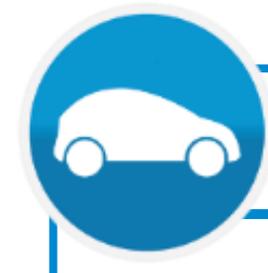
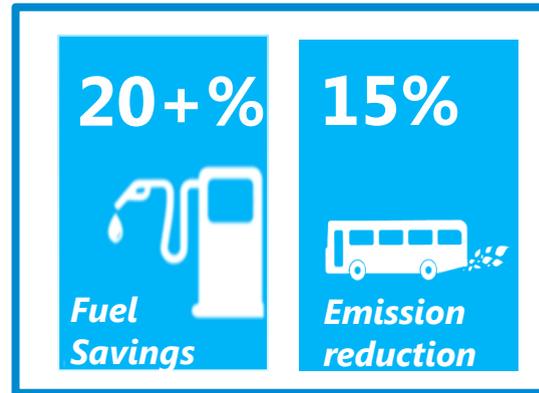
REVOLO – Alternate Fuel Technologies



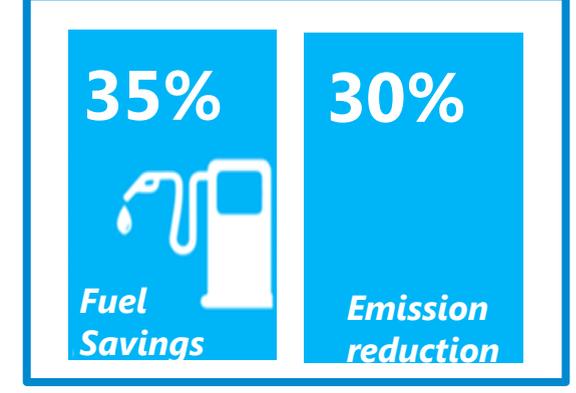
EV



HEV



PHEV



Indigenously
developed

Designed for **Indian**
conditions

Cost Effective

World's 1st frugal hybrid
solution for cars and LCVs

20 patents
Internationally
granted

Versatile
Technology

Integration on
existing vehicles

A unique solution to convert 'Existing buses to electric' & 'create New smart electric buses'



Indigenously developed and manufactured in India

Cost effective

Designed specifically for Indian conditions

Suitable for a wide range of buses

Configuration as per customer requirements

Supports Air Conditioning

Electric buses with KPIT's Technology at the Indian Parliament

Mr. Narendra Modi Prime Minister of India, flags off KPIT's Electric bus at the Parliament



- Joint project by **KPIT & CIRT** supported by **Ministry of Road Transport and Highways**
- **Two retrofitted electric buses** developed and deployed **at the Indian parliament**
- **Members of parliament use** the buses to travel to the parliament

Feature Rich Smart Electric Bus technology



Clean



Connected



Comfortable



Safe



ITS | Mobile App | AC | WiFi Infotainment
Adv. Safety System

KPIT's ITS solution in India



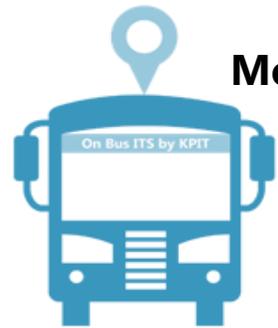
Vehicle Health Monitoring & Diagnostics



Emergency Voice Calling



Alerts



Automatic Vehicle Location (AVL)



Passenger Information App



Surveillance Camera Network System

Bus No.	Route	Start	End	Approaching	ETA
DB-110	Aranse To Murgapalle	11:09	1419	Jambhalkha Vada	11:42
DB-103	Mum Pune Bypass To Sheela Park Pump	11:09	1209	Iti Enterprises	11:35
DB-104	Dighi To Vaidya Street	11:09	1439	Sahakar Complex	11:36
DB-101	Sai Medo To Shivali Chargo	11:09	1409	Disputi	11:45
DB-102	Wani Chikla To Ringpet	11:09	1209	Impati	11:38
DB-107	Itanad To Shivajinagar	11:09	1209	Step 107.2	11:44
DB-106	Uda To Belawati	11:09	1239	Baner Rd	11:35
DB-114	Singapete To Minchewas	11:09	1424	Gheppadi Road	11:35
DB-112	Kothrud To Vinaynagar	11:09	1354	Banarasi - Nagar Pune	11:41

Passenger Information System (PIS)



7,000+ ITS deployed across **30** Transport Undertakings in India



100+ Mumbai- Pune MSRTC Buses use KPIT's ITS Solution



Command centre set-up for **130+** buses at South Asian Games, Guwahati



Mr. Kishor Patil , CO-founder MD and CEO of KPIT receiving the award from Mr. KL Thapar, Founder and Chairman, Asian Institute of Transport Development and Mr. Jose Viegas Secretary General ITF, OECD

“Promising Transport Innovation Award 2016” at the International Transport Forum (ITF) Summit, in Leipzig Germany.

The International Transport Forum (ITF) is a part of The Organization for Economic Cooperation and Development (OECD) an intergovernmental organization with 57 member countries. It acts as a think tank for transport policy



Recognition for KPIT's Sustainable Transportation Technologies



'Thomson Reuters **Top 50 Indian Innovators**' list for



'Technology Innovation of the Year (2015) Award for REVOLo from IATIA



Automotive Idea of the Year - **Economic Times Zig wheels**



Technology Innovation Award - **Wall Street Journal**



Sustainability Innovation of the Year by a **leading business school**



Promising Innovation of the year - **NASSCOM**



Project Dev. Excellence By **Volvo - 2014**



Innovation award from **Cummins**

Challenges during implementation

Challenges



Expensive – High upfront cost



Cost of **Batteries** (import)



Availability of **Charging Infrastructure**



Awareness on implementation

Actions

Government support through schemes (FAME, GUTS)

Working on developing indigenous battery chemistries

Standardization process for charging station underway

Promotion of technologies, innovation and product through conferences/ seminars

Future plans for increasing the scale and impact of the initiatives

Working with all Stakeholders for Scale and impact ...



Customers

Suppliers

Research & Regulatory Institutes

Ecosystem players

Global Outreach

Establish Partnerships (OEMs, Fleet operators, Bus Body builders)
Target Market segments (City, school, private)

Create vendor base
Localization of key components

Tie-up for research (battery technologies), IPs
Testing and validation (homologation)

Thought leadership, awareness
Formation of associations (EV, ITS etc)

International market

Thank you

KPIT

*Technologies for a **better world***

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