

Development of a Multi-Modal Transport System - The Challenge for Mega Cities.



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Presentation Outline



- Vision and Inspiration
- Myth Bursting
- Multi Modal Transport and Inter Modalism
- Good Governance
- PPP Road Map for Kano and Lagos

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Vision and Inspiration

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Infrastructure Possibilities



**AMERICA HAS GOOD ROADS, NOT
BECAUSE AMERICA IS RICH, BUT
AMERICA IS RICH BECAUSE IT HAS
GOOD ROADS - John F Kennedy Former
US President.**

**The implication of this quote from the 60s
is an eternal economic truism. No country
or city can become economically buoyant
without good infrastructure especially a
good transportation network.**



**If you want to grow rich – build
a road first (Chairman Mao)**

Lagos and Kano of Our Dreams



Kano Lagos For Show



World Class urban Infrastructure – Motorized and Non Motorized



给水
管

电信
管

电力
管

污水
管

雨水
管

雨水
管

污水
管

电信
管

给水
管

煤气
管

Pipelines: water supply, telecommunication, electricity, gas, sewage, storm-water

Transport Surveillance and Control Centers

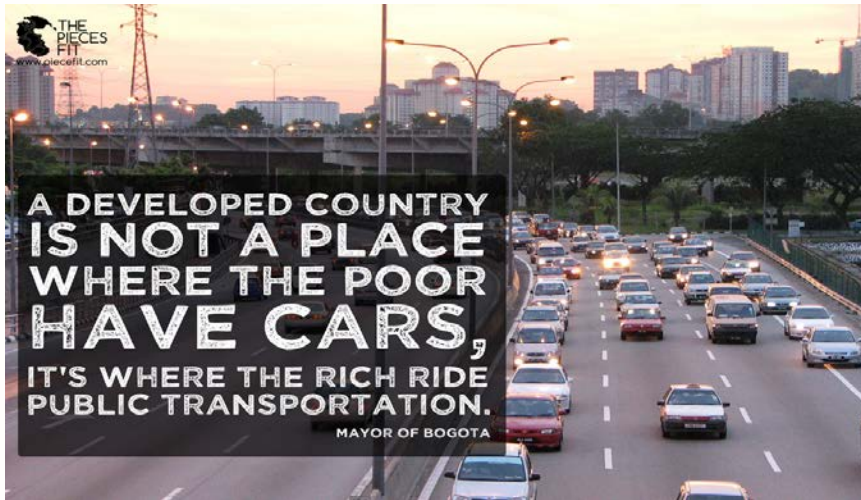


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Myth Bursting

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Mayor of Bogota

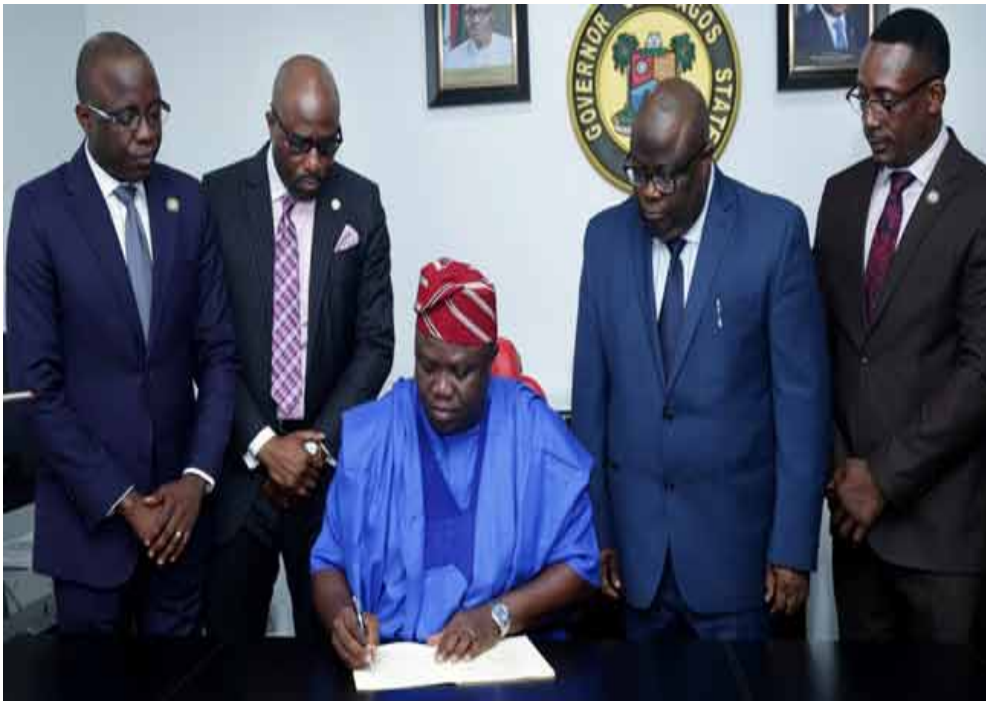


If you provide good alternatives for public transport, you won't have traffic problems.

— Jaime Lerner —

AZ QUOTES

Ambode signs circa USD 3 Billion Lagos 2018 budget and Consolidated Transport Bill (Budget is 2.3% of GDP)



Lagos State

\$131B

Gross Domestic
Product – 2016

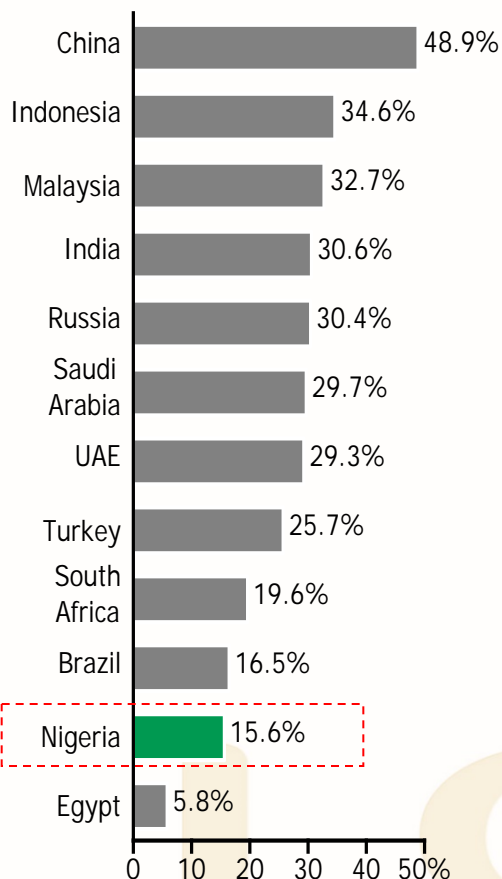
**Private Capital as in
PPPs – an imperative
for Lagos & Kano
Development**

Domestic financial depth: Nigeria fares poorly on domestic savings, investments and government spending vs peers



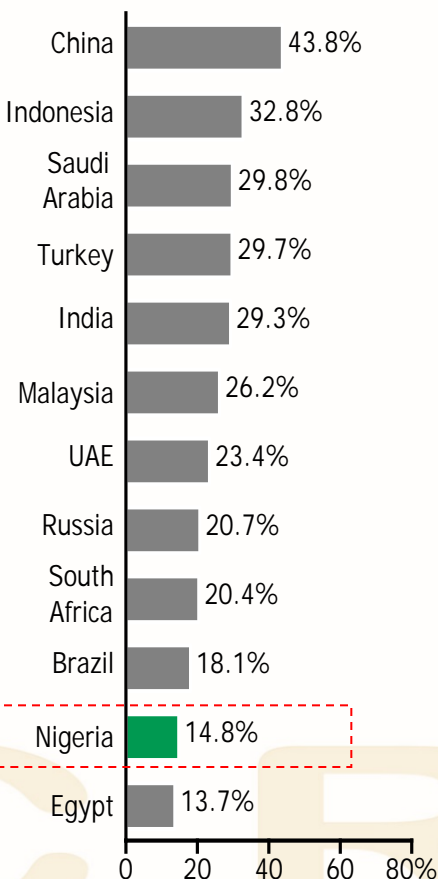
Domestic Savings

Domestic Savings 2015, % of GDP



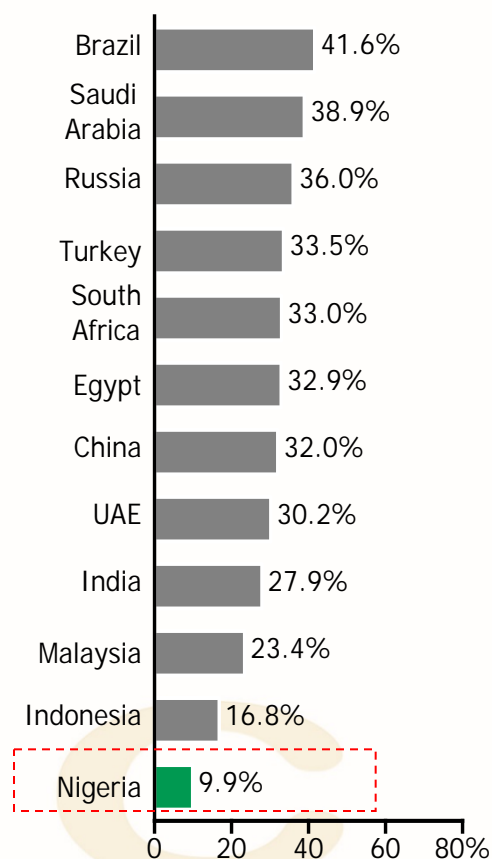
Investment

Investment 2015, % of GDP

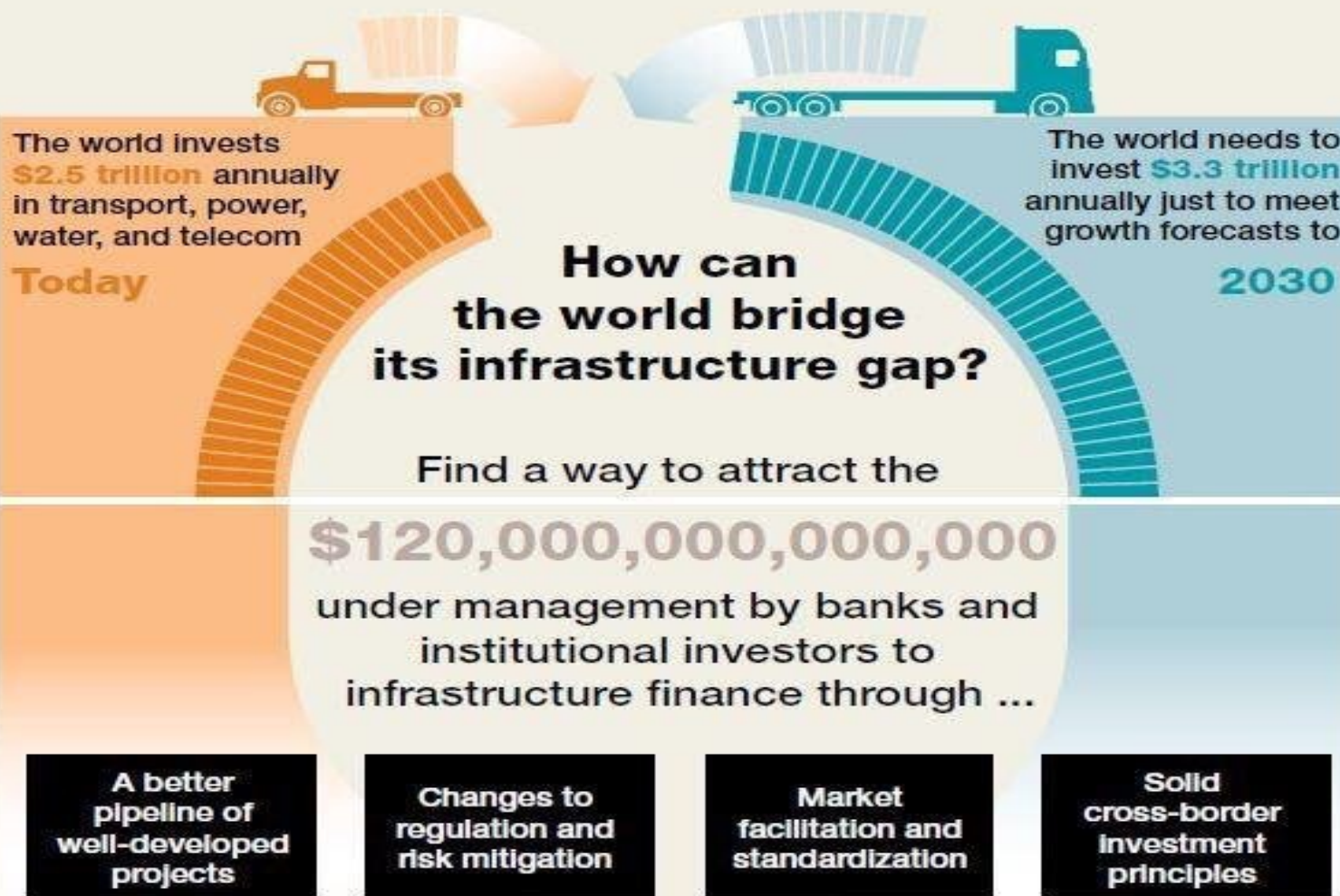


Government Spending

Gov. Spending 2016, % of GDP



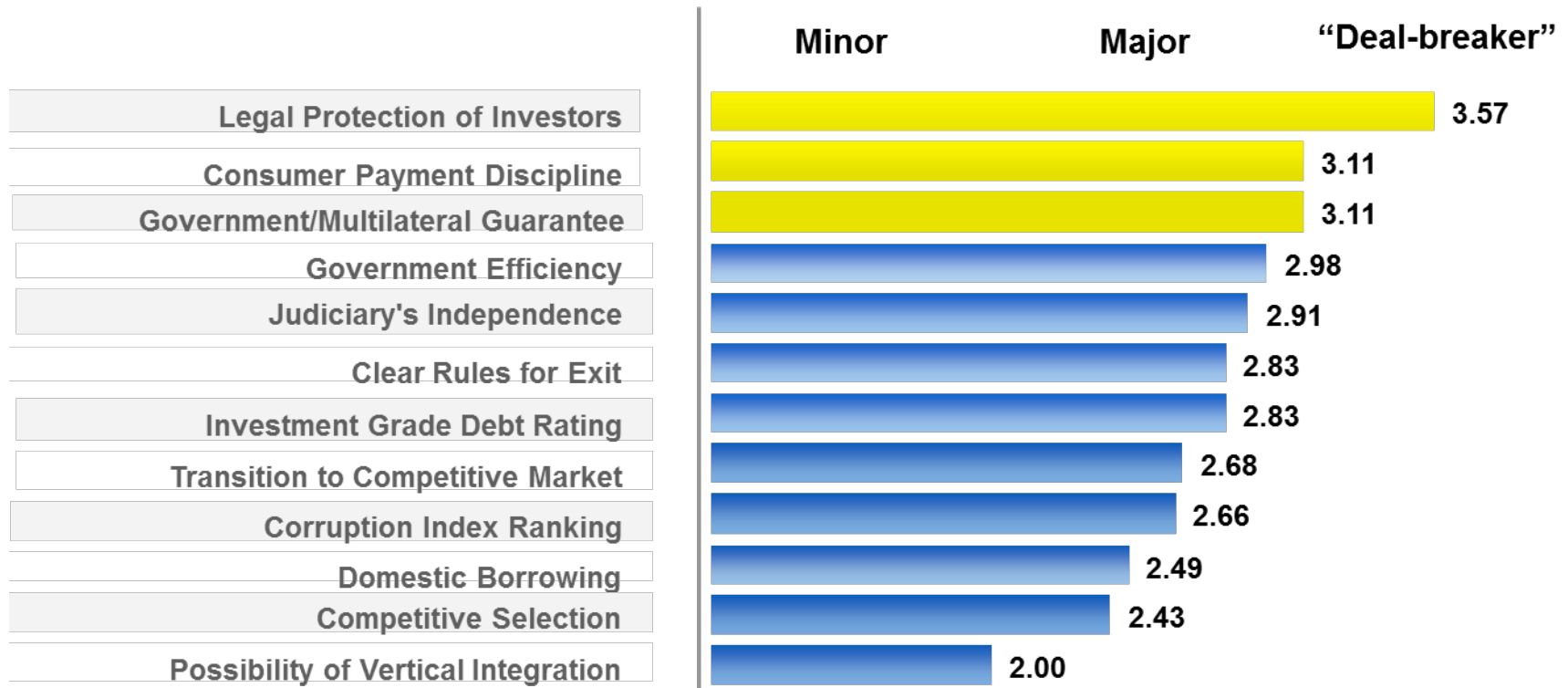
Money is not the problem?



Legal Framework key

General Principles – Focus on Addressing Killer Risks

- World Bank surveys of investors have repeatedly shown that the issue of 'protection of legal rights' is the primary concern in making decisions as to where to undertake major infrastructure projects



Multi Modal Transport vs Intermodalism

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Multimodal Transport System (MMTS)



- MMTS are developed to explore and coordinate the use of two or more modes of transport for speedy, safe, pleasant and comfortable movement of passengers in urban areas. Multi-modal transportation framework includes the mass transport modes of travel primarily classified as follows:
- **Rail based Modes** (Metro Rail Corridor, Light Rail Transit, Mono Rail, and Integrated Rail cum Bus Transit, etc.)
- **Road based Modes** (Regular Buses, Mini Buses, Double Decker Buses, Articulated Buses, Express Buses, Trolley Buses, etc.)
- **Marine Services** (ferry service)
- Inter modalism more important than multiple modalism

Development of Multi-modal Transport System (MMTS)



- Presence of MMTS in metro cities like Lagos and Kano would greatly enhance accessibility, economic growth, public health, environmental protection, security and safety, social cohesion, etc.
- It is desirable for Lagos and Kano State governments to establish a single authority for planning, development, implementation and enforcement of the policies regarding development and operations of MMTS.
- For example, the Dubai Road & Transport Authority (RTA) in the United Arab Emirates administers itself through six agencies: Marine, Public Transport, Traffic & Roads, Rail, Dubai Taxi & Licensing Agency.

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Urban Transport Key Issues



- Rapid Urbanization
 - Increased Motorization
 - Low Quality Public Transport
 - Lack of hierarchical highway, road and street systems
 - Poor Non motorized transport (NMT) infrastructure
 - Lack of Resources – People, Institutions and \$
-
- Latin American Cities – Have solved using Urban Acunpuncture – Bogota, Curitiba, Medellin excellent examples have come the cold to limelight with respect to urban transportation
 - It can be done in Nigeria too

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MMTS Challenges



The major challenges of MMTS in mega cities like Lagos and Kano include:

- Lack of adherence to city master plans which sometimes results in encroachment into existing and future right-of-way especially for roads and railways.
- Absence of basic transport infrastructure/hubs where road, railway and marine systems are interconnected to ease movement of passengers.
- Multiple Agencies that coordinates and supervises transport service operations.
- Multiple Jurisdictions (overlap of sub-national and national transport operation laws).
- Multiple modes (motorized and non-motorized competing for usually unplanned transport corridors)
- Multiple transportation professional disciplines being responsible for various aspects and creating confusion / disorderliness.

Other Issues with Mega Cities Transport



- Growing transport demand due to rapid urbanization – Inadequate public transport and increasing use of personalized vehicles.
- Lack of institutional co-ordination among agencies belonging to different levels of Government.
- Inter modal integration – mix of slow and fast moving vehicles without segregation.
- Increased trip lengths/travel time
- Lack of integration of land use and transport planning
- Lack of financing
- High and increasing number (in many cities) of road fatalities
- Poor air quality
- Network inadequacies
- largely unorganized urban transport industry.
- Increasing level of congestion and pollution (rising levels of carbon emission) affecting the environment.

Immediate Solutions to mega cities issue



- Implement an Urban Transport Policy – Focusing on the mobility of people rather than of vehicles), reduction of travel demand by encouraging integration of land use and transport planning and sustainable transport solutions.
- Encourage investment in public transport systems and provide facilities for non-motorized modes, capacity building and greater involvement of the private sector
- Sector reform linked to investment for transport and related infrastructure – At the state level
 - ✓ Setting up a city level unifies metropolitan transport Authority and Setting up of a dedicated urban transport fund at the state level
 - ✓ Change in bye laws and master plan of cities to integrate land use and transport by densification along with stations and setting up of a regulatory mechanism to periodically revise fares for all public transport systems.
- Human resources and capacity enhancement

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Good Goveranance

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Good governance lessons for PPPs from other climes?



- Stable policy & regulatory framework – competition/ entry criteria, role of the private sector, setting of tariffs, real estate
- Long term strategy/ plan – owned by the govt.
- Adequate project development – capacity to develop projects of requisite scale
- Equitable contractual framework – risk allocation
- Transparent selection process – competitive bidding
- Reliable revenue sources - sustainability
- Managing the unexpected – implementation & monitoring/ partnership in practice
- Political will – central to governance

(Source – Cherian Thomas IDFC India)

PPP Road Map for Lagos and Kano

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PPP Implementation Plan



A Sub National PPP Resource Centre located in the NGF Secretariat to serve states and local governments {ALGON link}

- Conduct a Transportation PPP Readiness Assessment
- Lagos and Kano Integrated Transport Infrastructure Master Plan
- Pass and sign into Law Lagos and Kano PPP Law
- Create a single Transport Authority to act as one stop nodal PPP execution and facilitating agency
- Provide capacity building and provide guidance on delivery of PPPs (broad principles, framework for identification, structuring, awarding and managing PPPs; Model Documents
- Adopt standard processes and model documents for PPPs; PPP rules
- Create a Lagos and Kano PPP Project Development Fund to provide seed capital for preparing and taking transport PPP projects to market and provide counter party funds for PPPs where necessary.
- Identify mass transit pilot projects and accelerate implementation

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Sky Train for Lekki Corridor



AiSkytrain capital

The Public Transit System of the Future for Nigeria...Here Now.

INTRODUCING SKYTRAIN

SKYTRAIN™ is a fully automated, high-efficiency and extremely cost-effective public mass transit system that uses air propulsion technology to drive lightweight, high passenger volume vehicles. SKYTRAIN™ unique technology reduces cost through simplicity. SKYTRAIN™ conceptually embodies 5 definitive aspects:

- ❶ Air Propulsion
- ❷ Aerodynamic Efficiency
- ❸ Elevated Operation
- ❹ Energy Efficient
- ❺ Environmentally Friendly

SKYTRAIN™ combines high performance, easy and fast implementation, environmental compatibility, comfort and reliability and low capital cost. Internationally patented, SKYTRAIN™ technology, uses steel wheels and rails on an elevated runway, for low drag and energy optimisation, and is designed for safe, economical and environmentally friendly applications. The advantages of SKYTRAIN™ flow directly from the system's uncomplicated concept and extremely high payload to weight ratio.

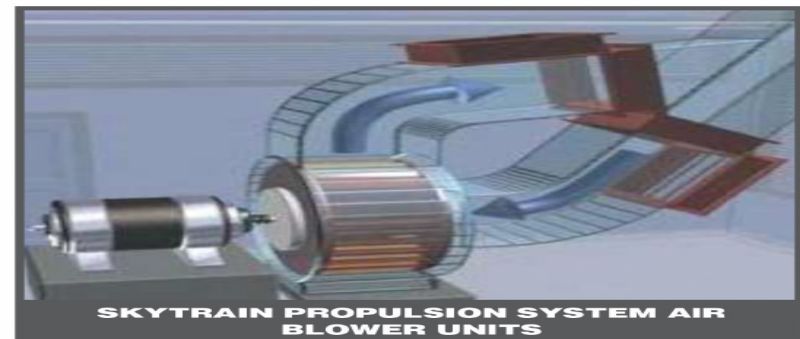
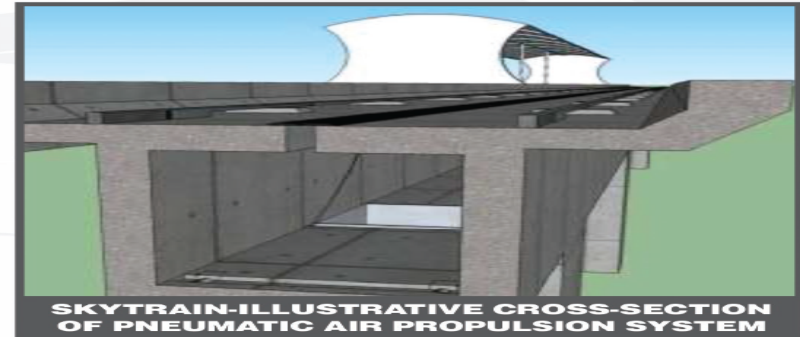
SKYTRAIN™ blowers propel air, under low pressure, via a semi-sealed duct built into the runway. The pressurized air pushes against a rigid propulsion plate attached to the underside of each SKYTRAIN™ vehicle. This propulsion plate acts like an upside down sail on a sailboat, propelling each SKYTRAIN™ vehicle forward, into a low pressure vacuum, and also helping to stop it when air flow is reversed. SKYTRAIN™ with its exclusive right-of-way and comparatively short headways is designed to carry up to 10,000 passengers per hour per direction.

SKYTRAIN™ TECHNOLOGY – GENERAL FEATURES

The light weight of SKYTRAIN™ vehicles ensure that energy is not wasted by moving heavy deadweight; the simplicity and high reliability of the SKYTRAIN™ system results in significantly reduced maintenance requirements. Air propulsion eliminates the problems of heavy rail traction; wear on wheels and tracks is reduced to a minimum. Acceleration and deceleration is smooth and efficient; traction noise and vibration are minimized; SKYTRAIN™ vehicle speed can reach 80 kilometres per hour (km/h) in urban applications.

The combination of pneumatic propulsion and non-axle wheel design permits SKYTRAIN™ vehicles to climb steep gradients up to 120 and traverse sharp curves with a radius as low as 25 meters. The use of stationary air blower units permit optimum design of power plants in relation to specific requirements for each route segment. Major cost savings are obtained by appropriate sizing of air blowers for each route section. Capital and maintenance cost is low, due to simplicity of design and high reliability of the components, such as proven industrial air blowers.

The electric motors on the SKYTRAIN™ air blowers are sturdy, completely independent units. Because the purpose of these motors is to pump air, not drive the vehicle, maintenance requirements are minimal. SKYTRAIN™ operation is fully automatic. No drivers are required on-board. High reliability automation systems are used for protection, control and





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