Our insight drives your foresight

experienced people ...
... extraordinary perspectives

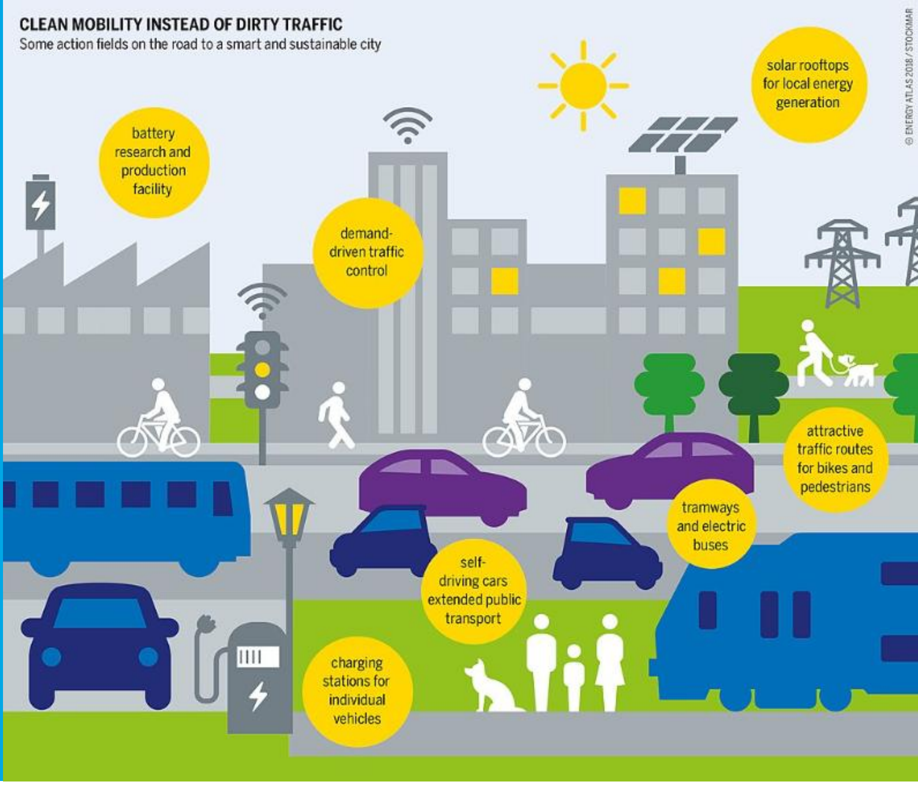
4SiGHT KSA
AUTOMOTIVE

GREEN MOBILITY AND SUSTAINABILITY IN KSA TRANSPORTATION SECTOR

Apr 2025

WHAT IS GREEN MOBILITY?

Green Mobility or green transportation is the movement of people and goods in any energy-efficient transportation mode with a low environmental effect. Environmentally friendly transportation means a lower ecological footprint, e.g. emitting less CO2.



KEY COMPONENTS

Green Technologies in Mobility

One of the primary drivers of sustainable mobility worldwide is the adoption of green technologies. Electric vehicles (EVs) are becoming increasingly popular, with the governments supporting their integration through incentives and infrastructure development. Charging stations are being installed across major cities, making EVs a more viable option for residents and reducing the reliance on fossil fuels.

Smart Transportation Systems

In addition to green technologies, smart transportation systems play a crucial role in promoting mobility sustainability. Intelligent Transportation Systems (ITS) utilize advanced communication and data analysis technologies to optimize traffic flow, reduce congestion, and enhance overall efficiency. These systems can manage traffic signals, monitor road conditions, and provide real-time information to commuters, making travel more efficient and less polluting.

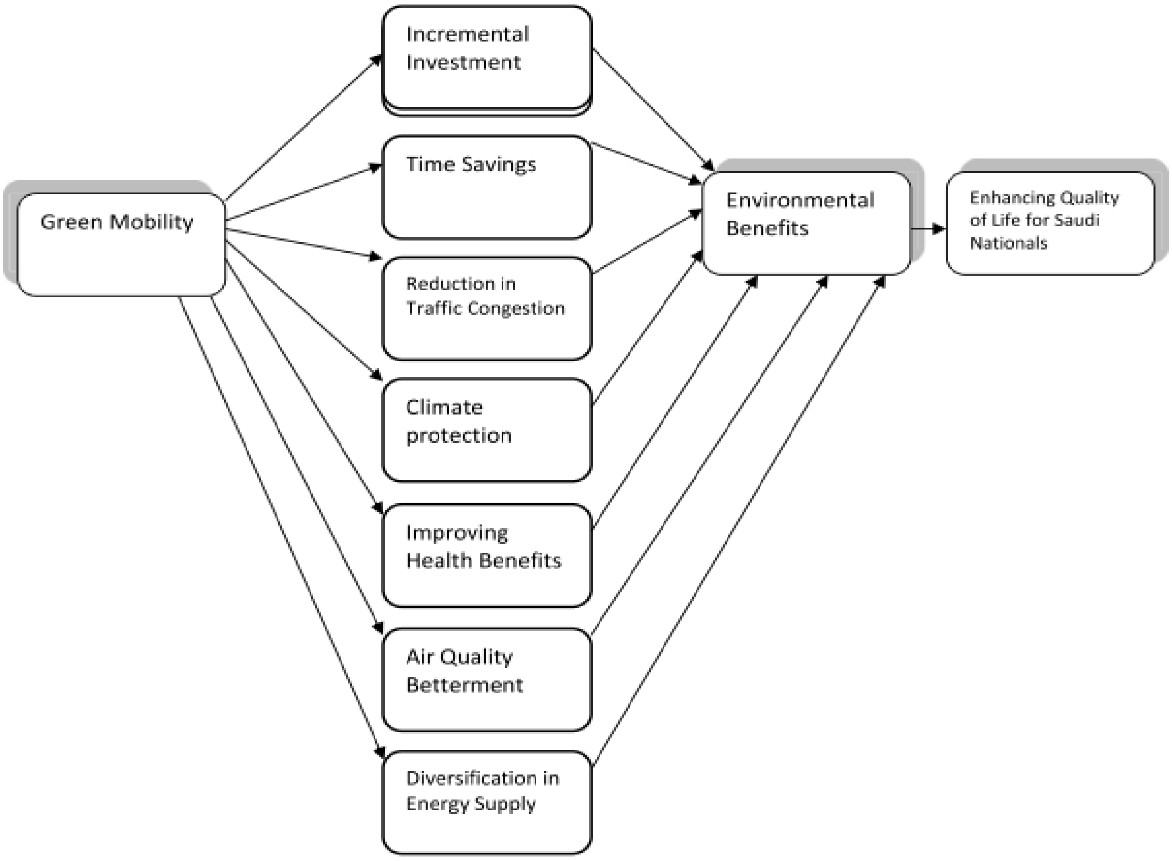
Innovative Mobility Solutions

Ride-sharing and carpooling services are gaining traction, reducing the number of vehicles on the road and lowering carbon emissions. Digital platforms facilitate these services, making them accessible and convenient for users. The advent of Autonomous Vehicles is also a key factor enabling sustainable green mobility in the long term.

Source: https://www. https://saudimobilityconsulting.com/green-technologies-powering-saudi-arabias-mobility-revolution/
https://en.wikipedia.org/wiki/Sustainable_transport#/media/File:Clean_mobility_instead_of_dirty_traffic.jpg

KEY BENEFITS OF GREEN MOBILITY

Green Mobility is associated with the incremental investment, time-saving, reduction of traffic congestion, climate protection, improving health benefits, air quality betterment and diversification of energy supply.



- Developing a green and sustainable transport system is an effective solution to achieving or overcoming mega cities' transportation demand and ever-increasing urban population.
- Green mobility has different benefits, such as economic, health and environmental .
- Green transportation has zero greenhouse effect and contributes to a sustainable economy. Green mobility does not emit harmful gases that impact human health.
- Therefore, green transportation will improve people's quality of life and health

Source: https://www. https://saudimobilityconsulting.com
Source: https://https://en.wikipedia.org/wiki/Sustainable_transport


Source: https://www.
https://saudimobilityconsulting.com

KEY TRENDS IN THE KSA TRANSPORT & MOBILITY SECTOR

According to a recent report by Saudi Mobility Consulting, Saudi Arabia is in the middle of several strategic initiatives to transform the country's transportation and mobility landscape to achieve the goals of the Vision 2030 as well as the Saudi Green Initiative.

Key Highlights:

Sustainable Transport Initiatives

Saudi Arabia is actively promoting sustainable transportation options, including electric vehicles (EVs) and improved public transit systems.

The government has set ambitious targets to reduce carbon emissions and enhance air quality, with plans to introduce more EV charging infrastructure and expand public transport networks.

Expansion of High Speed Rail Network

The development of high-speed rail networks is a top priority, connecting major cities and regions for efficient and rapid transportation.

Initiatives like the Haramain High-Speed Railway have already demonstrated the commitment to modernizing rail transport.

Digitalization of Transportation

The Saudi government is investing in digital technologies to improve traffic management and enhance the overall transportation experience.

Initiatives include smart traffic control systems, digital ticketing, and real-time transportation apps.

SAUDI ARABIA LAUNCHES COMPREHENSIVE SAUDI GREEN INITIATIVE (SGI)

Following the launch of Vision 2030 in 2016, the Kingdom of Saudi Arabia has taken decisive steps towards a more sustainable future. Inaugurated in 2021, SGI unites environmental protection, energy transition and sustainability programs with the overarching aims of offsetting and reducing emissions, increasing afforestation and land restoration, and protecting the Kingdom's land and sea.

Oversee and unite all of Saudi Arabia's work to combat climate change under one umbrella, with clearly defined goals.

Combine the efforts of the government and private sector, identifying and supporting opportunities for collaboration and innovation.

Grow the green economy - more than 85 initiatives already launched, representing an investment of over SAR 705 billion.

Accelerate the green transition and be a global leader in the implementation of the Circular Carbon Economy approach.

Improve quality of life and protect the environment for the benefit of future generations in Saudi Arabia.

Source: https://www. https://www.sgi.gov.sa/about-sgii

KEY PILLARS OF THE
TRANSITION TO GREEN MOBILITY IN KSA

Mass Transit Solutions	• Metro and Light Rail Systems • Bus Rapid Transit (BRT) Systems
Urban Mobility Services	• Public Transportation Systems • Ride-Sharing and Carpooling Solutions • Mobility as a Service (Maas) Platforms • Smart Parking Systems • Traffic Management and Optimizations
Automotive Technologies	• Electric Vehicles (EVs) • Autonomous Vehicles (Avs) • Alternative Fuels • Advanced Driver Assistance Systems (ADAS)
Road and Rail Infrastructure	• Road Infrastructure Development • Rail Network Expansion

Source: https://saudimobilityconsulting.com/

KEY INITIATIVES
TOWARDS GREEN MOBILITY IN KSA (1)

The launch of the Riyadh metro highlights Saudi Arabia's emphasis on Green Mobility and ambition to position its capital among the world's leading cities (November 2024)

- A major milestone was achieved in late November 2024 with the launch of what is poised to become the largest public transport network in the world: **6 metro lines debuting simultaneously, covering 176 km of tracks and featuring 85 stations (compared to 226 km and 308 stations in Paris).**
- To enhance connectivity between the metro lines, a high-capacity bus service has been introduced, supported by **54 bus routes**, either already operational or soon to be launched, **serving 3,000 stops.** In total, these projects involve **35 international companies s**pecializing in design, construction, operation, and maintenance, **employing 52,000 workers.**

AlUla Smart Mobility Initiative (2024)

- AlUla, a mid-sized city with a population of **50,000,** is Saudi Arabia's primary tourist destination outside of pilgrimage sites, **attracting 200,000 visitors annually,** primarily from the Gulf countries. The city's ambitious goal is to increase this number to **2 million visitors per year**—both local and international—by transforming AlUla into a "high-end" tourist destination.
- AlUla is notable for its commitment to developing a comprehensive transportation network designed to serve both residents and tourists. **This includes buses, trams, cycle paths, a reduction in car usage, and the introduction of autonomous shuttles.**

Red Sea Global drives Saudi Arabia's Green Mobility Initiative (2024)

- The Red Sea Global aims to be the world's largest destination powered solely by renewable energy. Currently, five solar farms, equipped with **760,000 photovoltaic panels, a**re operational, energizing phase one of the destination, which includes the EV fleet and charging network. This strategic move is anticipated to **reduce carbon emissions** by an estimated **600,000 tons annually.**
- The aim is to establish fully sustainable connectivity across its exemplified through its **partnership with ZeroAvi**a to develop zero-emission flights tailored for luxury tourism. Through retrofitting seaplanes with hydrogen-powered technology and collaborating with leading automotive, marine manufacturers, and technology companies worldwide, it is **actively contributing to the Kingdom's environmental targets .**

Air Taxi Developer Lilium Wins Major Order From Saudi Arabia's Flagship Carrier Saudia (July 2024)

- **Air taxi maker Lilium** has secured a major order from **Saudi Arabia's flagship carrier, Saudia,** and is expected to formalize the deal that was originally arranged in late 2022.
- Saudia had earlier signed a framework deal to purchase **100 electric flying taxis** in 2022. This will be one of the biggest orders for Lilium, which said it has **780 firm orders and letters of intent** to date, including the one with Saudia.

https://www.forbesmiddleeast.com/industry/aviation/saudi-arabias-saudia-to-place-major-order-from-german-air-taxi-firm-lilium
Source: httpshttps://www.arabnews.com/node/2419876
Source: https://forumviesmobiles.org/en/node/16198#toc-item-3)

KEY INITIATIVES
TOWARDS GREEN MOBILITY IN KSA (2)

Alstom to upgrade driverless transit system at Jeddah airport (April 2024)

- French train maker Alstom to upgrade the automated and driverless passenger transit system at King Abdulaziz International Airport, as the **Jeddah airport aims to receive 114 million passengers by 2030.**
- As part of the contract, Alstom will design, engineer, supply, integrate, test and commission a complete system upgrade of its Innovia automated people mover (APM) at the airport's terminal 1, **including adding four new trains into the current fleet of 10.**
- **The APM system is a fully automated and driverless operation.** In the last year, the Jeddah airport system transported over **13 million passengers.**

Saudi trials unmanned air taxis for Hajj pilgrims (June 2024)

- **Saudi Arabia has completed the first unmanned air taxi trial in Mecca** as part of its plan to move pilgrims faster between key locations during the Hajj pilgrimage.
- Saudi-owned Front End conducted the air taxi trial using **Chinese drone maker EHang's EH216-S, a pilotless electric vertical** takeoff and landing (eVTOL) vehicle.
- The annual Hajj pilgrimage presents unique logistical challenges. It is hoped that air taxi use will aid in streamlining transportation by efficiently moving pilgrims faster between key locations, ensuring a smoother and safer Hajj experience.
- Religious tourism accounted for **45 percent of 14.6 million visitors** during the first six months of 2023.

KAUST, Intel and Brightskies collaborate to develop self-driving mobility platform (June 2024)

- **KAUST Smart is continually pushing the boundaries of innovation with technologies aimed to improve quality of life in the home and city.** Recently, KAUST Smart met with external partners, government agencies and companies from the private sector to launch REDD, a self-driving pilot project that puts research innovations in artificial intelligence (AI) to the test in proof-of-concept autonomous vehicles.
- The KAUST vehicle will use a Beta version of **BrightDrive**, a self-driving system developed inhouse by **Brightskies** and initially launched in 2020.
- KAUST researchers are expected to use this vehicle as an innovation platform in order to deploy and test new techniques for a better road experience. This vehicle contains all the required features for safety of the autonomous trip, including **environment sensing and perception, centimeter level localization, and High-definition (HD) mapping.**

Source: https://smart.kaust.edu.sa/experiences/self-driving-vehicle
Source: Arabian Gulf Business Insight (https://www.agbi.com/transport/2024/08/driverless-cars-for-saudi-officials-by-next-year)

HOW CAN MARKET RESEARCH AND CONSUMER INSIGHTS HELP? (1)

Market research plays a crucial role in the adoption and infrastructure development of Mobility and Transportation Sectors in Saudi Arabia (KSA) by providing insights into consumer behavior, industry trends, and regulatory landscapes. Here's how market research can help:

Understanding Consumer Demand

- **Identifying Target Audiences:** Market research can segment potential buyers based on income levels, lifestyle preferences, environmental concerns, and technological interests. This helps manufacturers and policymakers tailor strategies to meet the needs of these groups.
- **Perception and Awareness Analysis:** Understanding how aware consumers are of smart mobility services, their benefits, and the incentives offered in KSA is vital. Research can uncover the barriers to Smart Vehicles adoption , such as safety, range anxiety, cost concerns, or lack of knowledge, allowing companies to address these issues in their marketing strategies.

Assessing Infrastructure Needs

- **Market research can identify the most critical aspects.** This data ensures that the infrastructure meets actual consumer demand and usage patterns.
- **Technology and Standards:** Research can help analyze the types of safety features preferred by consumers .

Evaluating Regulatory and Policy Impact

- **Government Incentives and Regulations:** Research can assess how effective current government incentives, such as subsidies, tax breaks, and rebates, are in promoting Smart Mobility. It can also evaluate potential regulatory barriers or requirements that might slow down infrastructure development, offering data-driven recommendations to policymakers.
- **Environmental Impact Studies:** Market research can also assess the environmental benefits of Smart Mobility adoption and how they align with Saudi Vision 2030, providing insight into how businesses and the government can promote sustainability.

Analyzing Market Competitors and Trends

- **Market research can identify the most critical aspects.** This data ensures that the infrastructure meets actual consumer demand and usage patterns.
- **Technology and Standards:** Research can help analyze the types of safety features preferred by consumers .

HOW CAN MARKET RESEARCH AND CONSUMER INSIGHTS HELP? (2)

Determining Cost-Benefit Analysis for Investors

- **Investment Opportunities:**
  Market research helps in evaluating the return on investment (ROI) for building Smart Mobility infrastructure, such as mapping and guidance networks, or maintenance centers. It provides investors with clear insights into market viability, growth potential, and profitability.
- **Cost Analysis for Consumers:**
  Research into the long-term cost benefits of owning Smart Mobility Vehicles such as safety, savings on fuel, maintenance, and taxes, can help promote consumer confidence and drive adoption.

Understanding Supply Chain and Manufacturing Needs

- **Supply Chain Logistics:**
  Research can identify key challenges in the Mobility and Transport supply chain, such as sourcing and availability of raw materials, and production capabilities. This ensures a more stable and reliable infrastructure for the industry in KSA.
- **Local Manufacturing Potential:**
  Market research can also explore opportunities for local manufacturing of EVs/AVs or components in KSA, which aligns with the Kingdom's goal of diversifying its economy under Vision 2030.

Measuring Consumer Satisfaction and Feedback

- **Post-Purchase Behavior:**
  Market research can track how satisfied consumers are with their Smart Vehicles / Public Transportation Systems including factors like safety, performance, charging convenience, and service. This helps companies improve their products and infrastructure based on real-world feedback.
- **Customer Journey Insights:**
  Understanding the customer journey, from awareness to purchase and aftersales, allows companies to identify pain points and areas where they can enhance the customer experience, making Smart Mobility adoption more attractive.

In summary, market research helps shape the future of Smart Mobilty adoption and infrastructure development in KSA by offering data-driven insights that influence strategy, policy, investment, and consumer engagement. It enables stakeholders to make informed decisions, drive growth, and contribute to the country's broader sustainability goals.

4SiGHT

Our insight drives your foresight

THANK YOU

Riyadh, Jeddah, Dubai, Abu Dhabi, Nairobi, India

info@4sight-global.com

www.4sightglobal.com