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4SiGHT KSA
AUTOMOTIVE

AUTONOMOUS VEHICLES
OVERVIEW AND ADOPTION IN KSA

JAN 2025

experienced people ...
... extraordinary perspectives

WHAT ARE AUTONOMOUS VEHICLES?

A self-driving car, also known as a autonomous car (AC), driverless car, robotaxi, robotic car or robo-car,is a car that is capable of operating with reduced or no human input.

Self-driving cars are responsible for all driving activities, such as perceiving the environment, monitoring important systems, and controlling the vehicle, which includes navigating from origin to destination

KEY CHALLENGES

Technical

Fully autonomous cars should be able to anticipate the actions of other cars like humans do. A robust autonomous vehicle is expected to improve on understanding the environment better to address this issue.

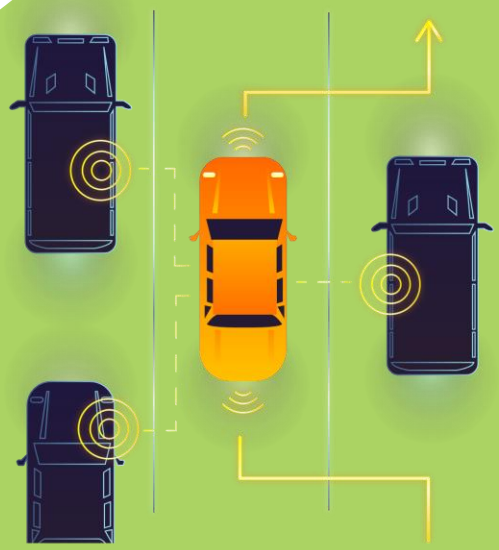
Societal

One critical step to achieve the implementation of autonomous vehicles is the acceptance by the general public. Studies have shown that many people believe that using autonomous vehicles is safer, which underlines the necessity for the automobile companies to assure that autonomous vehicles improve safety benefits.

Regulatory

Real-time testing of autonomous vehicles is an inevitable part of the process. At the same time, vehicular automation regulators are faced with challenges to protect public safety and yet allow autonomous vehicle companies to test their products.

Source: https://en.wikipedia.org/wiki/Vehicular_automation#cite_note-:15-28



SAUDI ARABIA WELL-PLACED FOR ADOPTION OF AUTONOMOUS VEHICLES

According to a recent report by the World Economic Forum (WEF), Saudi Arabia is in the early stages of incorporating autonomous mobility into the country's transportation landscape.

Autonomous mobility offers many benefits, including enhanced safety and efficiency, but there are some challenges also in terms of adoption and regulatory frameworks.

KEY HIGHLIGHTS

Ambitious Projects

Ambitious projects like the NEOM urban area and Red Sea Global have been conceived and launched with sustainable transportation systems in mind-which will ultimately enable adoption of Autonomous Vehicles in KSA.

Multiple Mobility Choices

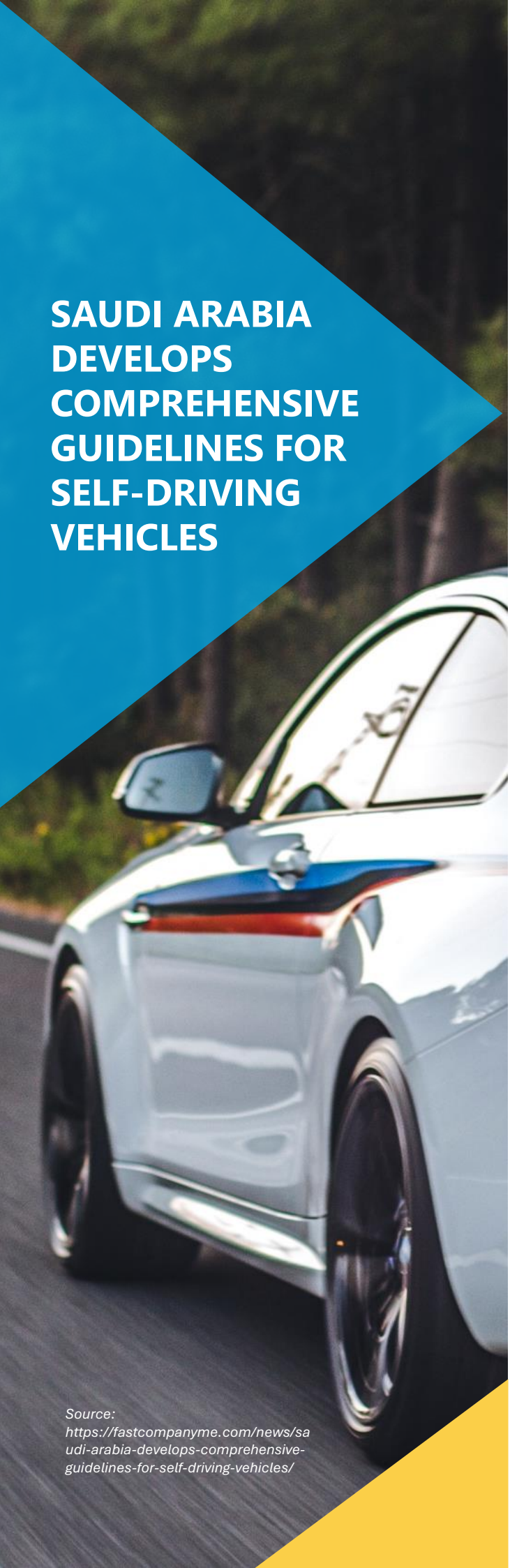
These initiatives will offer not just Autonomous Vehicles but also create opportunities for innovative mobility options like Air taxis, Volocopters and Autonomous Pods for transporting people and goods.

Urban Mobility Infrastructure

Furthermore, multiple mega projects in cities like Al Ula, Thuwal, and Riyadh are also set to provide autonomous vehicles (AVs) as part of their transportation options.

Source: https://www.weforum.org/stories/2023/10/saudi-arabia-s-roadmap-to-autonomous-mobility-3-key-aspects-for-success/

SAUDI ARABIA DEVELOPS COMPREHENSIVE GUIDELINES FOR SELF-DRIVING VEHICLES



Source: https://fastcompanyme.com/news/saudi-arabia-develops-comprehensive-guidelines-for-self-driving-vehicles/

The guidelines are designed to optimize road quality, safety, and security for self-driving vehicles in the kingdom. Saudi Arabia is focused on developing guidelines for self-driving vehicles in the country, aiming to prepare the infrastructure for autonomous vehicles and establish clear standards for their requirements.

Key Goals

The Roads General Authority (RGA) stated that the code is designed to optimize road quality, safety, and security while enhancing economic efficiency and sustainability.

Implementation

Starting in 2025, the code will become mandatory for all government agencies.

Testing Phase

Currently undergoing its testing phase, which is set to conclude at the end of 2024, the Saudi Road Code serves as a comprehensive technical guide for all road authorities, aiding them in effectively planning, designing, constructing, operating, and maintaining all road types.

Infrastructure

Moreover, the code focuses on installing smart communication devices on roadways capable of interacting directly with autonomous vehicles through advanced networks. These devices provide real-time road condition data, enabling safer driving decisions and improved traffic flow.

DRIVERLESS CARS
IN SAUDI ARABIA BY 2025?

Saudi Arabia has launched a project for driverless cars which could result in government agencies using them as early as 2025.

Government Initiatives

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Saudi Arabia wants 15 percent of the country's public transport vehicles to be autonomous by 2030.

Partnerships

In 2023, the kingdom's sovereign wealth fund, the Public Investment Fund, launched the National Automotive and Mobility Investment Company to build local manufacturing and supply chain .It will also lead strategic investments and partnerships with both local and global private sector companies.

Factors driving growth

Rising awareness about sustainable practices, increasing disposable income, favorable government policies, and technological advancements in electric vehicles

Infrastructure development

The government is installing smart communication devices along roadways that interact with autonomous vehicles, the official Saudi Press Agency said, announcing a new Saudi Road Code.

Source: Arabian Gulf Business Insight (https://www.agbi.com/transport/2024/08/driverless-cars-for-saudi-officials-by-next-year)

KEY INITIATIVES TOWARDS AUTONOMOUS VEHICLES IN KSA

April 2024

Alstom to upgrade driverless transit system at Jeddah airport

- 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.**

June 2024

Saudi trials unmanned air taxis for Hajj pilgrims

- 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.**

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)

June 2024

KAUST, Intel and Brightskies collaborate to develop self-driving mobility platform

- 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.

July 2024

Air Taxi Developer Lilium Wins Major Order From Saudi Arabia's Flagship Carrier Saudia

- 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.

Oct 2024

AI is transforming motorsports and the car industry in Saudi Arabia

- Artificial intelligence is transforming the automotive industry, from the advent of fully electric autonomous vehicles to radical advances in the world of motorsports, optimizing race performance and enhancing the fan experience.
- AI helps race teams and automakers optimize energy efficiency and enhance autonomous vehicle capabilities. Motorsports hosted by the Kingdom include the Formula 1 Saudi Arabian Grand Prix and Formula E Diriyah E-Prix.

https://www.forbesmiddleeast.com/industry/aviation/saudi-arabias-saudia-to-place-major-order-from-german-air-taxi-firm-lilium
Source: Arabian Gulf Business Insight / Arab News Report

RELEVANT INFORMATION ON THE EVOLVING AUTONOMOUS VEHICLES LANDSCAPE IN SAUDI ARABIA

Key Statistics

Saudi Arabia has a population of approximately

36 million

and a GDP of around

$833 billion

as of 2021.

The government aims for

30%

of vehicles in Riyadh to be **electric by 2030.**

Vision 2030 and PIF Program

Vision 2030 outlines the country's strategy to leverage its strengths for economic diversification and trade enhancement.

The Public Investment Fund (PIF) is crucial in driving economic growth, investing in various sectors, including EV manufacturing and infrastructure.

Ecosystem Development

The Saudi government is investing heavily in the **Electric and Autonomous ecosystem,** including establishing charging standards and promoting domestic EV manufacturing.

The country is focusing on **mining and battery material production** to support the EV supply chain, particularly lithium, with plans to attract **$32 billion** in investments.

Current Market and Future Projections

New passenger car sales in 2021 and 2022 were around **475,800 and 481,900,** respectively, with SUVs making up **43%** of sales.

By 2030, the total EV production capacity is expected to reach **310,000** vehicles per year, with a market share of **10% to 25%** of total automotive sales.

It is expected that EV and Autonomous vehicles are complementary to each other and the proliferation of EV will further speed up the **development of Autonomous vehicles in the medium and long run.**

Source: Saudi Arabia EV Landscape | 2023 • EVreporter

HOW CAN MARKET RESEARCH AND CONSUMER INSIGHTS HELP?

Market research plays a crucial role in the adoption and infrastructure development of Autonomous vehicles (AVs) 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

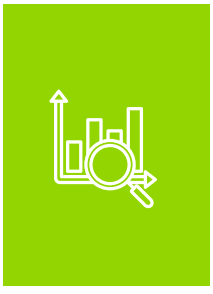
- **Identifying Target Audiences:** Market research can segment potential AV buyers based on income levels, lifestyle preferences, environmental concerns, and technological interests. This helps manufacturers and policymakers tailor strategies to meet the needs of these groups.
- **Perception and Awareness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

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 AV adoption. 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 AV adoption and how they align with Saudi Vision 2030, providing insight into how businesses and the government can promote sustainability.

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 .



Analyzing Market Competitors and Trends

- Competitor Benchmarking: Market research can track competitors, including global and local AV manufacturers, their offerings, pricing, and strategies. This helps companies entering the AV market in KSA identify gaps and opportunities.
- Emerging Technologies and Trends: Research can keep track of global trends in AV technology, such as autonomous driving features, or energy-efficient models. This helps manufacturers stay ahead in the market by adopting innovative solutions.

Determining Cost-Benefit Analysis for Investors

- **Investment Opportunities:** Market research helps in evaluating the return on investment (ROI) for building AV 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 an AV, 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 AV supply chain, such as sourcing and availability of raw materials, and production capabilities. This ensures a more stable and reliable infrastructure for the AV industry in KSA.
- **Local Manufacturing Potential:** Market research can also explore opportunities for local manufacturing of AVs or AV 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 AVs, 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 AV adoption more attractive.

In summary, market research helps shape the future of AV 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.

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Our insight drives your foresight

THANK YOU

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