

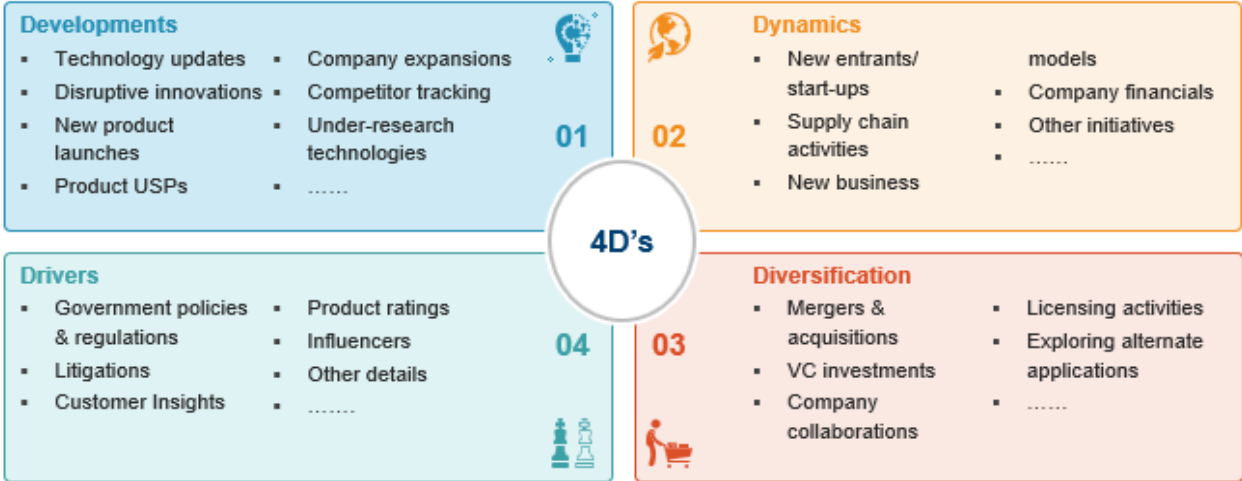
# INTELLOTRACKER

## HYDROGEN POWERED VEHICLES

May 2023



### ARANCA'S QUARTERLY SECTORIAL UPDATE ACROSS FOUR DIMENSIONS....





## DEVELOPMENTS

New Product Launch	HIPERON	Malaysian automotive startup Hiperon Motors unveiled an electric/hydrogen-powered luxury four-door crossover named Fossilin. The company intends to begin manufacturing the Fossilin, with the first batch of ten units arriving in the third quarter of 2023. Source: <a href="#">CarScoops</a>
Technology/Innovations		BMW iX5 Hydrogen vehicles are now on the roads. The pilot fleet will be tested and demonstrated across the globe by a variety of target audiences throughout the course of the year. The development team will benefit greatly from the practical knowledge of the car and the practical use of hydrogen fuel cell technology. Source: <a href="#">Company News</a>
New Product Launch		Hyundai showcased its NEXO SUV at the 2023 auto expo. The NEXO FCEV (Fuel Cell Electric Vehicle) is the company's flagship and most advanced hydrogen fuel cell-powered vehicle. It is currently being sold in a few international markets like the USA, UK, South Korea. Source: <a href="#">91 Wheels</a>
Technology/Innovations		Switch Maritime's first fuel cell ferry with zero emissions is being trialed for passengers in San Francisco. The Sea Change vessel is powered by hydrogen fuel cells and batteries. It is the world's first hydrogen-powered ferry. Source: <a href="#">Power Technology</a>
Technology/Innovations		ZeroAvia conducted a 10-minute test flight using an engine that converts hydrogen fuel into electricity to power one of the plane's two propellers. The company aims to enable commercial flights powered only by hydrogen fuel cells by 2025. Source: <a href="#">New Scientist</a>
Technology/Innovations		The first 500kW hydrogen-powered vessel hit the water in Guangdong Province, China. The vessel developed by China Three Gorges Corporation has a hydrogen fuel cell and lithium battery power system that will be used for transportation, examination, and emergency operations in the Three Gorges reservoir zone. Source: <a href="#">Marine Insight</a>
Technology/Innovations		Universal Hydrogen successfully completed the first flight of a 40-passenger aircraft powered by hydrogen fuel cells. During the test flight, one of the airplane's turbine engines was replaced with Universal Hydrogen's fuel cell-electric, megawatt-class powertrain and other remained a conventional engine for the safety of flight. Source: <a href="#">Business Wire</a>



## DIVERSIFICATION

Company Collaboration		Following a successful evaluation of fuel cell technology, Hyundai Motor Company, and Advent Technologies inked a cooperative development agreement. The assessment evaluated Advent's proprietary Membrane Electrode Assembly ("MEA") technology for supplying Hyundai's high-temperature fuel cell needs. Source: <a href="#">Company News</a>
Company Collaboration		Toyota has partnered with Hyliko to integrate its Hydrogen fuel cell modules with the latter's heavy-duty trucks. They will be integrated into Hyliko's heavy-duty hydrogen trucks for the European market. Source: <a href="#">Company News</a>
Company Collaboration		Toyota Motor and Haima Automobile signed an agreement to promote hydrogen fuel cell-powered passenger cars in China. Toyota Motor will bring mature components and systems to Haima models, complete vehicle adaptation development, and conduct test with Haima's self-built hydrogen supply system and travel network. Source: <a href="#">Hydrogen Central</a>
Company Collaboration		An innovative hydrogen fuel cell technology that Honda Motor Co. and General Motors Co. developed together will go into production this year. It will gradually step-up sales this decade in a bid to expand its hydrogen business. Source: <a href="#">Reuters</a>
VC Investments		Hopium received an aid of €2 million from a standing committee of the French Normandy region. This aid has been granted to the young manufacturer to develop its project and complete the industrialization of its hydrogen car. Source: <a href="#">Hydrogen Today</a>



## DRIVERS

Funding		As part of the Rs 25,938-crore production-linked incentive scheme for the automotive and auto component industries, the Indian government selected Ashok Leyland, Eicher Motors, Pinnacle Mobility, Tata Motors, and Booma Innovative to manufacture hydrogen fuel cell electric vehicles. Source: <a href="#">Business Standard</a>
Others		North America's first hydrogen-powered train will run a 90-minute route between Parc de la Chute-Montmorency this summer. Source: <a href="#">Smithsonian magazine</a>
Others		By December 2023, India will have its first hydrogen train, designed and constructed locally on the Kalka-Shimla route. India's early adoption is viewed as a significant step towards green initiatives. Source: <a href="#">Hindustan Times</a>

## SOLUTION PORTFOLIO – TECHNOLOGY RESEARCH & ADVISORY

IP Strategy	Technology Intelligence	Growth & Strategy
<p>How best can we proactively manage and monetise our technical knowhow / intellectual property?</p>	<p>How best can we keep abreast of technology trends, competitor activity and headwinds / tailwinds in our domain?</p>	<p>Which technologies do we invest in? How do we ensure quick wins? Speed to market?</p>
<ul style="list-style-type: none"> <li>IP Portfolio Analysis</li> </ul>	<ul style="list-style-type: none"> <li>Competitor Benchmarking</li> </ul>	<ul style="list-style-type: none"> <li>R&amp;D Strategy Roadmaps</li> </ul>
<ul style="list-style-type: none"> <li>IP Monetisation</li> </ul>	<ul style="list-style-type: none"> <li>Tech / IP Landscapes</li> </ul>	<ul style="list-style-type: none"> <li>Technology Scouting</li> </ul>
<ul style="list-style-type: none"> <li>IP Valuation</li> </ul>	<ul style="list-style-type: none"> <li>Technology Watch</li> </ul>	<ul style="list-style-type: none"> <li>Open Innovation</li> </ul>
<ul style="list-style-type: none"> <li>Prior Art Searches</li> </ul>	<ul style="list-style-type: none"> <li>Market Analysis / Trends</li> </ul>	<ul style="list-style-type: none"> <li>Product Development</li> </ul>



GROWTH ADVISORY



INVESTMENT RESEARCH & ANALYTICS



VALUATION & FINANCIAL ADVISORY



TECHNOLOGY RESEARCH & ADVISORY



PROCUREMENT & SUPPLY CHAIN INTELLIGENCE

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