

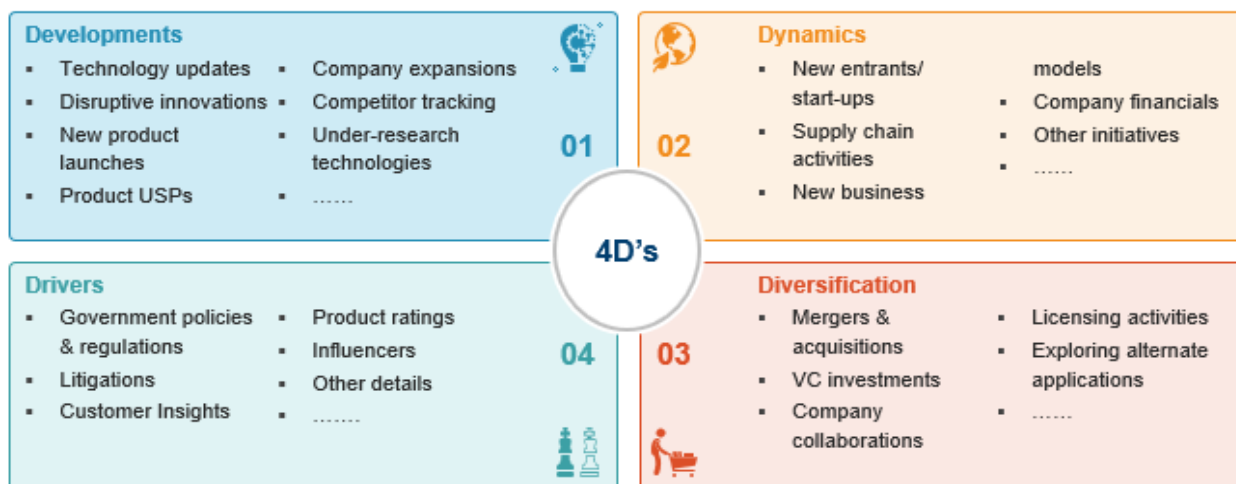
INTELLOTRACKER

Hydrogen Utilization

April 2023










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








DEVELOPMENTS

Technology / Innovations		Universal Hydrogen has developed modular hydrogen capsules that eliminate the need for new fueling infrastructure at airports. Recently, a test flight was conducted. Source: ESG Today Newspaper
Technology / Innovations		The Ship-aH2oy project will develop a zero-emission propulsion technology on board ships using green hydrogen from a liquid organic hydrogen carrier (LOHC). The technology will be demonstrated on board one of Edda Wind's vessels. Source: Offshore Magazine
Technology / Innovations		HeavenDrones has unveiled a new hydrogen-powered drone that features an innovative hydrogen fuel cell system that offers improved performance and longer flight times compared to traditional battery-powered drones. Source: UAS Weekly Newspaper
Technology / Innovations		A consortium led by Honeywell recently launched a European Clean Aviation project - NEWBORN - that will develop an aerospace-qualified megawatt-class fuel cell propulsion system powered by hydrogen. Source: Hydrogen Central
Technology / Innovations		A research team at Monash University has found an enzyme that can suck hydrogen out of the air and convert it into electricity, at a very efficient rate. The enzyme comes from a soil-dwelling bacterium called Mycobacterium smegmatis. Source: Cosmos Magazine
Technology / Innovations		University of Nebraska - Lincoln research team has developed macrocyclic cavities in ionomers, through which water and ions can move more quickly, thus making energy production more efficient. Source: University Website
Company Expansion		Japanese automaker Honda has announced that it is expanding its hydrogen business alongside electrifying its line-up of vehicles as it strives to expand its hydrogen business. Source: The Driven Newspaper




DYNAMICS

Supply Chain Activities		Mitsubishi Power has begun providing ENEOS Corporation with an energy balance optimization service to realize efficient utilization of hydrogen in the petroleum refining process. Source: Company Website
Supply Chain Activities		Kion Group is diving deeper into hydrogen propulsion to power its equipment. It will invest approximately \$11.7 million in the technology to develop and produce its own fuel cell systems for lift trucks. Source: Newspaper
Supply Chain Activities		Total Energies and Air Liquide are creating a joint venture to develop a major network of hydrogen stations, geared towards heavy duty vehicles on major European road corridors. Source: Petrol Plaza Newspaper



DIVERSIFICATION




Merger & Acquisitions		The merger of Bestpath with Aquaron will enable Bestpath to accelerate its growth strategy, expand market presence and enhance its ability to deliver comprehensive solutions in the hydrogen fuel cell powered vehicle market. Source: FuelCell Works News
Merger & Acquisitions		RONN Motor Group would go public through a reverse triangular merger with Lee Pharmaceuticals. The reverse merger will allow RONN Motor to strengthen its presence in the zero-emission hydrogen powered vehicle industry and expand the company globally. Source: Cision PR Newswire
Company Collaboration		Universal Hydrogen has formed a collaboration with - Sojitz Corporation, Mitsubishi., and an undisclosed Japanese partner - to develop green hydrogen supply and logistics solution to enable Japanese airlines to scale their utilization of hydrogen-powered aircraft. Source: Businesswire Newspaper
Company Collaboration		EH Group has signed a MoU with Sanam to develop large stationary power fuel cell solutions. The initial focus is on potential application of EHG's systems in Snam's construction sites. Source: Hydrogen Central
Company Collaboration		Equinor and RWE are collaborating to build several new gas power plants that will eventually be run on hydrogen made using renewable energy. Source: Financial Times



DRIVERS

Government Policies		The Union Cabinet in India has approved National Green Hydrogen Mission with an initial outlay of Rs.19,744 crore which includes Rs.17,490 crore for SIGHT program, Rs.1,466 crore for pilot projects, Rs.400 crore for R&D, and Rs. 388 crores for other components. <i>Source: Government Press Release</i>
Government Policies		The Biden-Harris Administration, through the U.S. Department of Energy (DOE), announced the availability of \$750 million for research, development, and demonstration efforts to dramatically reduce the cost of clean hydrogen. <i>Source: Government Energy Website</i>
Government Policies		The EU has set new binding targets for green hydrogen use in industry and transport by 2030. At least 42% of all H2 used in industry must be renewable by 2030. <i>Source: Hydrogen Insight</i>
Government Policies		EU institutions reached a deal over legislation for Europe's developing hydrogen-powered transport sector which makes the construction of one gaseous hydrogen refueling station mandatory for every 200km of the Trans-European Transport Network (TEN-T) by 2030. <i>Source: Power Technology Newspaper</i>
Government Policies		The legislative changes proposed in the Gas Supply and Other Legislation (Hydrogen Industry Development) Amendment Bill were sought to provide a clear regulatory framework for the development, production, and distribution of renewable hydrogen in Queensland. <i>Source: Lexology</i>

SOLUTION PORTFOLIO – TECHNOLOGY RESEARCH & ADVISORY

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



GROWTH
ADVISORY



INVESTMENT
RESEARCH
& ANALYTICS



VALUATION
& FINANCIAL
ADVISORY



TECHNOLOGY
RESEARCH
& ADVISORY



PROCUREMENT &
SUPPLY CHAIN
INTELLIGENCE