

Sustainability Engineering Trends Q2 2021

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Sustainability is a megatrend and all enterprises are striving to increase their sustainability efforts. Engineering service providers can help to improve the sustainability of enterprises.

This is our quarterly sustainability engineering trends tracker based on our sustainability engineering framework defined in our earlier [PoV](#).

Sustainability services can be classified into five categories: energy, material, pollution, water, and food or forest. These categories are further divided based on changes in usage mix, reduction in wastage, or increase in efficiency. The five categories are applicable across three segments: products, process, and place.

There are many examples of sustainability services and initiatives we found in Q2, 2021 across these five categories and three segments, as summarized in Exhibit 1. Details are discussed in sections to follow.

Exhibit 1: Summary Sustainability Engineering Engagements Q2, 2021 (Enterprises & Service Providers)

		Product	Process	Place
 Energy	Savings	<i>Nokia - KDDI</i>	<i>Henkel – Aveva, bp – Infosys, Panasonic</i>	<i>Atos – Port of Esbjerg</i>
	Mix	<i>Continental, Airbus, Shell -Volkswagen, Bosch, JCB, QCells, Samsung, Tesla Cyber Truck, Volvo.</i>	<i>Lamborghini</i>	<i>Faurecia – KPMG, Schneider Electric</i>
 Material	Savings	<i>IAV</i>	<i>Capgemini – Heng Hiap, Evonik, GE - LafargeHolcim</i>	<i>Daimler, BASF, Volkswagen, Fairphone</i>
	Mix	<i>DS Smith, LEGO, LVMH, Nestle, Mondelez</i>	<i>AB InBev, Unilever</i>	<i>Renewcell – Citec,</i>
 Pollution	Reduction		<i>Borg CO2 – Citec, Bowmer & Kirkland, Alcoa – Rio Tinto,</i>	<i>Atos - AI4Cities, DENSO</i>
 Water	Savings			<i>AFRY</i>
	Mix		<i>AFRY</i>	
 Food/Forest	Wastage		<i>AKKA - Futura Gaia</i>	
	Mix		<i>IBM - Nueva Pescanova, Ricardo</i>	

Source: EIIRTrend, Media Reports



Energy

Energy, especially that produced from fossil fuels, is a major concern for sustainability. There are two ways in which energy can be leveraged for sustainability: by changing the energy mix and by generating savings in energy usage.

- **Energy Mix:** Many enterprises are reducing the use of fossil fuels by changing the mix of their energy usage. Some examples in Q2, 2021.
 - Faurecia selects KPMG as its advisor for onsite renewable electricity production
 - Continental and the Chinese hydrogen specialist Censtar H2-Electricity Science & Technology intend to expand their strategic cooperation for the Chinese market aimed at developing dispensing hose solutions for hydrogen refueling stations.
 - Airbus Helicopters calls all industry stakeholders to join the Sustainable Aviation Fuel User Group
 - Bosch, Shell, and Volkswagen develop renewable gasoline with 20 percent lower CO₂ emissions
 - JCB has announced a hydrogen-fuelled piston engine that emits no CO₂ and which it believes can help the transport industry achieve the UK government's zero-emissions target quicker than any existing solutions.
 - Logistics go greener at Automobili Lamborghini. Rail transport of Urus body shells with 85% reduction in CO₂ emissions.
 - Q Cells to invest EUR 15.5m more in solar R&D at its R&D center in Thalheim, Germany, for the next-generation photovoltaic (PV) technology it is developing
 - Samsung Heavy Industries, one of three Korean shipyard majors, has become the first company to operate an LNG production, storage, and delivery technology pilot test plant for shipbuilding and offshore business. It has also opened an R&D center which will lead to research on natural gas liquefaction and re-liquefaction process; gas engine and fueling system; cryogenic insulation storage container; regasification and cold power generation; and localization of LNG –related equipment.
 - Tesla Cybertruck's Solar Panel Tonneau Cover comes to life in a new patent. This is an example of design meeting convenience, engineering, and sustainability!
 - Volvo wants to make Hydrogen Fuel Cell construction equipment.
 - Faurecia selects Schneider Electric as its exclusive advisor for offsite renewable electricity purchasing
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- **Energy Savings:** The efficiency of energy usage can be increased by reducing energy wastage and losses across products, processes, and places. Some examples in Q2, 2021.

- Atos and the Port of Esbjerg start a joint decarbonization project for a Carbon Neutral Harbour. Atos will provide an IoT solution that will calculate carbon footprint according to the different transport modes and routes.
- AVEVA Paves the Way for Henkel to Drive Sustainability Throughout its Global Supply Chain
- Infosys and bp intend to work together to develop an integrated Energy as-a-Service (EaaS) offering that will provide end-to-end management of a customers' energy assets and services.
- Nokia and KDDI trial Japan's first liquid cooling innovation to promote sustainability
- Panasonic Realizes Its First Zero CO2 Factory in China



Materials

Materials are made from a combination of different metals and elements. Most metals are non-replenishable resources and their proper and environment-friendly use and reuse is essential. There are two ways materials can be leveraged for sustainability: by changing the materials we use and by savings in material usage.

- **Material Mix:** Swapping the materials we use with more environment-friendly options across products, processes, and places. Some examples in Q2, 2021
 - Renewcell collaborates with Citec in designing a plant for producing recycled textiles in Sweden
 - AB InBev has revealed a new bottle design which it claims is the lightest beer bottle in the world. It reduced glass bottle weight from 180 g to 150 g and cut CO2 emission by 17%.
 - Unilever reveals world-first paper-based laundry detergent bottle
 - U.K.-based packaging producer DS Smith is investing \$140 million in research and development that will include developing new materials to replace plastics and a testing program to strengthen corrugated cardboard and reduce G-force shock in-home delivery packaging.
 - LEGO is experimenting with sustainable bricks made from recycled plastic bottles.
 - LVMH Is Opening a Research Center That Will Focus on Sustainable Materials and Biofuels. The goal of the new center will be to get rid of plastics.
 - Nestlé's R&D center for Waters in Vittel, France, produced the first Perrier 50cl prototype bottles made from colored recycled PET materials. While recycled PET bottles already exist in the marketplace, the company claims that this new technology, when developed at an

industrial scale, will help increase the amount of PET plastic that can be recycled. The consortium members include L'Oréal, Suntory Beverage & Food Europe, and PepsiCo.

- Mondelez India, TrashCon tie-up to make furniture from recycled plastic
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- **Material Savings:** Increased savings in material usage across products, processes, and places. Some examples in Q2, 2021.
 - Capgemini is working with Heng Hiap Industries, a fully integrated plastic recycling company in Malaysia, to design an innovative business roadmap for a new mobile application, which rewards and simplifies the process of plastic waste recycling
 - Battery Recycling Made Easy: IAV's New Battery Concept with light-weighting and fewer joints results in lower CO2 emissions
 - Evonik is part of the joint EU project ReProSolar for the complete recycling of photovoltaic modules where all PV module components are completely separated for the first time. This way, pure silicon, silver, and glass, among other things, can be made available to the manufacturing industry again.
 - GE and LafargeHolcim are working on short- and long-term solutions to address critical industry issues, including reducing the environmental footprint of wind turbines. They will recycle decommissioned GE wind turbine blades into energy and construction materials.
 - Daimler AG, BASF, Fairphone, and Volkswagen Group start a partnership for sustainable Lithium mining in Chile



Pollution

Pollution is one of the major concerns for sustainability, and it is imperative to reduce pollution. Many enterprises aspire to be net-zero emissions enterprises. Some examples in Q2, 2021

- Borg CO2 selects Citec and COWI for CCS Concept Study and Technical Advisory Services
- Atos joins AI4Cities, the European project to accelerate the transition of cities to carbon neutrality
- Bowmer & Kirkland to start work on £54m glass research and development center in Merseyside. It will work on R&D projects for decarbonizing glass production.
- Canadian Government announced a \$20-million investment in ELYSIS, a joint venture launched in 2018 by Alcoa and Rio Tinto. ELYSIS facility in Alma, Quebec, is working on the commercialization of the world's first zero-carbon aluminum smelting technology
- DENSO Has Begun Testing CO2 Circulation Plant at Anjo
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Water

Water is one of our fundamental needs. We require it directly and as an input for many processes and maintenance of places. Its efficient use is essential for sustainability. There are two ways water can be leveraged for sustainability: by changing the water mix and by savings in water usage.

- **Water Mix:** Many enterprises are changing their water mix by treating and reusing water, which was not possible earlier either due to technology, cost, or convenience. Some examples in Q2, 2021.
 - AFRY provided expertise in Arauco's Licancel pulp mill project, which targeted to enable the expansion of water reuse in the pulp production line as part of the company's sustainability objectives. Among the alternatives developed by AFRY, Arauco chose to implement one reusing 50% of the treated effluent in production and sending the other 50% for the irrigation of a forest area belonging to a company next to the plant.
- **Water Savings:** The efficiency of water usage can be increased by reducing water wastage. Some examples in Q2, 2021
 - A pilot project by AFRY in the Baltic Sea to improve responsible ship-generated waste management



Food/Forest

There are two ways food or forest can contribute to sustainability. The first way is by changing the food or forest mix and the other is by reducing waste in food/forest.

- **Food/Forest Mix:** There are sustainable alternatives for food. Some examples in Q2, 2021
 - AKKA collaborates with Futura Gaïa on developing vertical farms solutions. One example is the development of a tailored automated guided vehicle (AGV) solution for moving the systems between the production racks and the harvesting area.
- **Food/Forest Wastage Reduction:** Food wastage can be reduced with proper planning. Some examples in Q2, 2021.
 - IBM is working to trace Nueva Pescanova's seafood products on the IBM Food Trust platform, a blockchain-based network designed to help ensure the traceability of products across the supply chain and supporting more sustainable oceans.
 - Ricardo to use innovative carbon capture for greenhouse gas removal. Ricardo's technology will use sustainable forestry waste to remove greenhouse gases and provide local communities with renewable heat and electricity, and by-products for farming.
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Overall Sustainability Ecosystem

There are some activities in the overall sustainability ecosystem where enterprises and engineering service providers are involved. Some examples in Q2, 2021

- TietoEVERY launches new partnership with FinScience to offer ESG scoring through the WealthMapper platform

Bottom line: Sustainability is picking up across industries and sectors.

In Q2 2021, we see

- The focus is more on energy, material, and pollution areas.
- Enterprises are more active than service providers

We will keep you updated on sustainability trends in future quarters. Keep watching this space

About the Author

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Pareekh Jain is CEO and Lead Analyst of EIIRTrend and Pareekh Consulting.

EIIRTrend.com is a neutral platform to discover emerging engineering, IoT, Industry 4.0 and R&D (EIRR) trends across 12 industry verticals. Pareekh Consulting is a focused analyst and advisory firm for EIRR.

A seasoned EIRR professional, Pareekh has seen the EIRR industry from four perspectives: service provider, sourcing advisor, enterprise buyer, and industry analyst.

He is regularly quoted in the media on engineering services, IoT, and outsourcing trends, including Harvard Business Review (HBR), NDTV, Times of India, Economic Times, Business Standard, Hindu, Business Line, Livemint, Financial Express, Rediff, Voice of America, and Business Insider.

Pareekh is a thought leader, having authored various publications on topics related to EIRR outsourcing. He loves business fiction writing in his free time, and has authored a novel, *Who Is That Lady?*

Pareekh received his MBA from the Indian Institute of Management (IIM), Bangalore and his Bachelor of Technology degree from the Indian Institute of Technology (IIT) Delhi.

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