Using Chemistry to Create Net-Zero Value Chains

The Global Impact Coalition (GIC) Enables the Co-Creation of Net-Zero and Circular New Business Models

First established in 2019 within the World Economic Forum (WEF) as the Low-Carbon Emitting Technologies (LCET) initiative, the CEO-led Global Impact Coalition (GIC) was officially launched as an independent entity by seven global chemical companies in November 2023. Focused on reducing carbon emissions and advancing circularity in the chemical industry, the GIC provides a platform to co-create new business models, develop proof-of-concept pilots, and scale-up new technologies. One such project is the recently launched R&D Hub, aimed at advancing new plastic recycling methods. In an interview with CHEManager, Charlie Tan, CEO of GIC, explains the ambitions and activities of the organization.

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Charlie Tan, CEO, Global Impact Coalition

CHEManager: Mr. Tan, could you share the vision behind the Global Impact Coalition (GIC) and the key goals you aim to achieve in the near future?

Charlie Tan: The Global Impact Coalition started life within the World Economic Forum, or WEF, in 2019, as the Low Carbon Emitting Technologies, or LCET, initiative. Recently, in November 2023, we spun-off and created an independent non-profit entity known today as the Global Impact Coalition. The GIC was founded by seven industry-leading chemical companies — BASF, SABIC, Covestro, Clariant, LyondellBasell, Mitsubishi Chemical, and Solvay — now Syensqo.

The vision was really centered around one question: As we go on this journey towards industry net-zero — do we need to go alone, or can we go together? The GIC has had great success in being a platform enabler to allow companies a safe space to co-create and co-develop innovative business models and technologies that otherwise might not have been possible.

Since GIC's inception a few months ago, the industry response has been extremely positive. We welcomed new members including Siemens Energy, and Sabanci, one of the largest industrial conglomerates in Turkey. The vision is to continue to expand globally, both in terms of geographical reach and value chain representation, as it is only by achieving these can we have true impact.

Personally, one of my goals with GIC is to create a unique environment of mutual trust within an industry that traditionally has not been big in collaboration. It is only through creating this trust can we can enable real transformation across the industry.

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What are some of the significant projects that the GIC is currently working on? How do these projects contribute to the overall mission of the coalition?

C. Tan: At the heart of the GIC's mission lies a commitment to catalyzing innovation as a means to drive real impact. By leveraging collaboration among member companies and building other strategic partnerships, the GIC has managed to advance a diverse and exciting portfolio of projects aimed at addressing critical emissions challenges.

Among one of our initial projects is the R&D Hub for Plastic Waste Processing. The R&D Hub, co-funded by seven coalition member companies, focuses on developing technologies with lower carbon footprints and greater levels of plastic waste recycling. We are well aware that with less than ten percent of the 400 million tons of plastic produced annually being recycled, there is an urgent need for innovative solutions to enhance waste processing and recycling capabilities. Some examples of technologies being explored include sensing for sorting, polymer/inorganic separation, and enhanced solvolysis for composite recycling.

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Another great example project between GIC member companies is the electrically heated steam cracker furnace, a collaboration between coalition members BASF and SABIC, and engineering firm Linde. Construction of the three companies' world first demonstration plant for large-scale electrically heated steam cracker furnaces is in full swing. By using electricity from renewable sources instead of natural gas, the new technology has the potential to reduce carbon emissions of one of the most energy-intensive production processes in the chemical industry by at least 90 percent compared to technologies commonly used today.


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"The sustainability challenges facing the chemical industry are too large for any one company to tackle alone. Through the Global Impact Coalition, we are combining our capabilities and resources to accelerate innovation, a key driver to transform our companies and value chains in line with planetary boundaries."

Richard Haldimann, Chief Technology & Sustainability Officer at Clariant and Chairman of the Executive Committee of GIC

How do you measure the impact of the GIC's initiatives? Can you share any success stories or key milestones that the coalition has achieved?

C. Tan: The GIC's impact over its initial three-year incubation period has been remarkable, leading to the emergence of spin-off initiatives alongside the above-mentioned projects, with many more in development.

"The chemical industry faces a challenge in transitioning towards net-zero emissions."

As a newly established organization, we are focused on amplifying our impact by fostering and strengthening partnerships with universities, research institutes, and professional firms.

Reaching industry net-zero goals does not rest on the shoulders of private sector companies alone; regulators and the broader financing community also play a crucial role in enabling this transition. Given our continued strong partnership with the WEF, this is something we are working on with high motivation.

How does the GIC plan to cut the chemical industry's annual greenhouse gas emissions to reach net-zero emissions by 2050?

C. Tan: The GIC serves as a catalyst for collaborative action, bringing together industry leaders, policymakers, and stakeholders to address pressing environmental challenges. Through strategic alliances with organizations like the Boston Consulting Group, the GIC has identified key global impact topics relevant to the chemical industry. These encompass a spectrum of issues, including decarbonization of processes, reduction of high global warming potential emissions, energy transition enablement, circularity of polymers, utilization of alternative carbon sources, and chemical safety and pollution.

By convening member companies on a regular basis, the GIC actively identifies and prioritizes project ideas aimed at tackling these challenges head-on. With a portfolio comprising over 25 project ideas, the coalition is steadfast in its commitment to translating prioritized projects into tangible outcomes.

In your view, what are the biggest challenges and opportunities in transforming the chemical industry towards net-zero emissions?

C. Tan: The chemical industry faces a massive challenge in transitioning towards net-zero emissions. Key challenges include the development and deployment of new emissions-reducing technologies, securing capital investment for infrastructure upgrades, navigating complex regulatory landscapes, and coordinating efforts across intricate supply chains.

Ultimately, success in achieving net-zero emissions hinges on a mindset and openness shift towards sustainability within the context of collaboration. In this journey, the Global Impact Coalition plays a pivotal role as a catalyst for collaboration and innovation within the chemical industry. The GIC enables member companies to leverage collective expertise, resources, and networks, accelerating progress towards achieving net-zero emissions targets.

How do you envision the role of the chemical industry in a sustainable future?

C. Tan: The chemical sector contributes approximately six percent of global annual greenhouse gas emissions.

If we are to move towards a more sustainable future, I truly believe collaboration is the key. The chemical industry must forge partnerships across sectors, leveraging collective expertise to tackle complex sustainability issues. From collaborating with downstream partners to optimize product life cycles, to partnering with academia and governments to drive research and policy innovation, a collaborative approach is essential for meaningful progress.

"If we are to move towards a more sustainable future, I truly believe collaboration is the key."

Partnerships are crucial in realizing this vision. In the GIC, we recognize the power of collaboration to drive meaningful change. That's why we are partnering with leading research institutes like the Netherlands-based TNO and clusters such as Brightlands Chemelot Campus. We're also collaborating with universities from around the world and with partners like EY, enabling us to reach a broader audience within the industry. Through these strategic alliances, we aim to accelerate innovation, foster knowledge exchange, and catalyse the transition toward a more sustainable future for the chemical industry and beyond.

Collaboration is at the center of the GIC's approach. Can you share how GIC helps foster industry collaboration to achieve its goals?

C. Tan: At the GIC, we understand that achieving our goals requires a collective effort. That's why we've implemented a robust governance structure, which includes the CEO Advisory Board and an Executive Committee who help steer a top-down approach to getting things done.

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Furthermore, our collaboration with the World Economic Forum remains integral to our mission. Through co-hosted events, joint communications, and partnerships with WEF members, we maintain a strong connection with the broader stakeholder community both private and public.

To facilitate collaboration within the GIC and beyond, we host a diverse range of events, workshops, community meetings, and ideation sessions. These platforms provide opportunities for stakeholders at all levels to come together, share insights, and co-create innovative solutions. By nurturing open dialogue and knowledge exchange, we foster an environment where groundbreaking ideas can thrive.

Additionally, the GIC actively engages in external events such as COP — the United Nations Climate Change Conference –, the WEF Annual Meeting in Davos, and the World Petrochemical Conference (WPC). These engagements enable us to connect with industry peers and stakeholders, expand our collaborative network, forge new partnerships, and contribute to the global dialogue on sustainability in the chemical industry.

■ www.globalimpactcoalition.com