DEEPAK PHENOLICS

Impact Practice by CSRBOX

Impact Assessment Report

CIIE initiative

Start-up Fellowship Programme

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List of Abbreviations

Abbreviation	Full Form
DPL	Deepak Phenolics Limited
CSR	Corporate Social Responsibility
IIMA	Indian Institute of Management Ahmedabad
CIIE	Centre for Innovation, Incubation and Entrepreneurship
TRL	Technology Readiness Level
LCA	Life Cycle Assessment
OECD	Organisation for Economic Co-operation and Development
DAC	Development Assistance Committee
R&D	Research and Development
SDG	Sustainable Development Goals

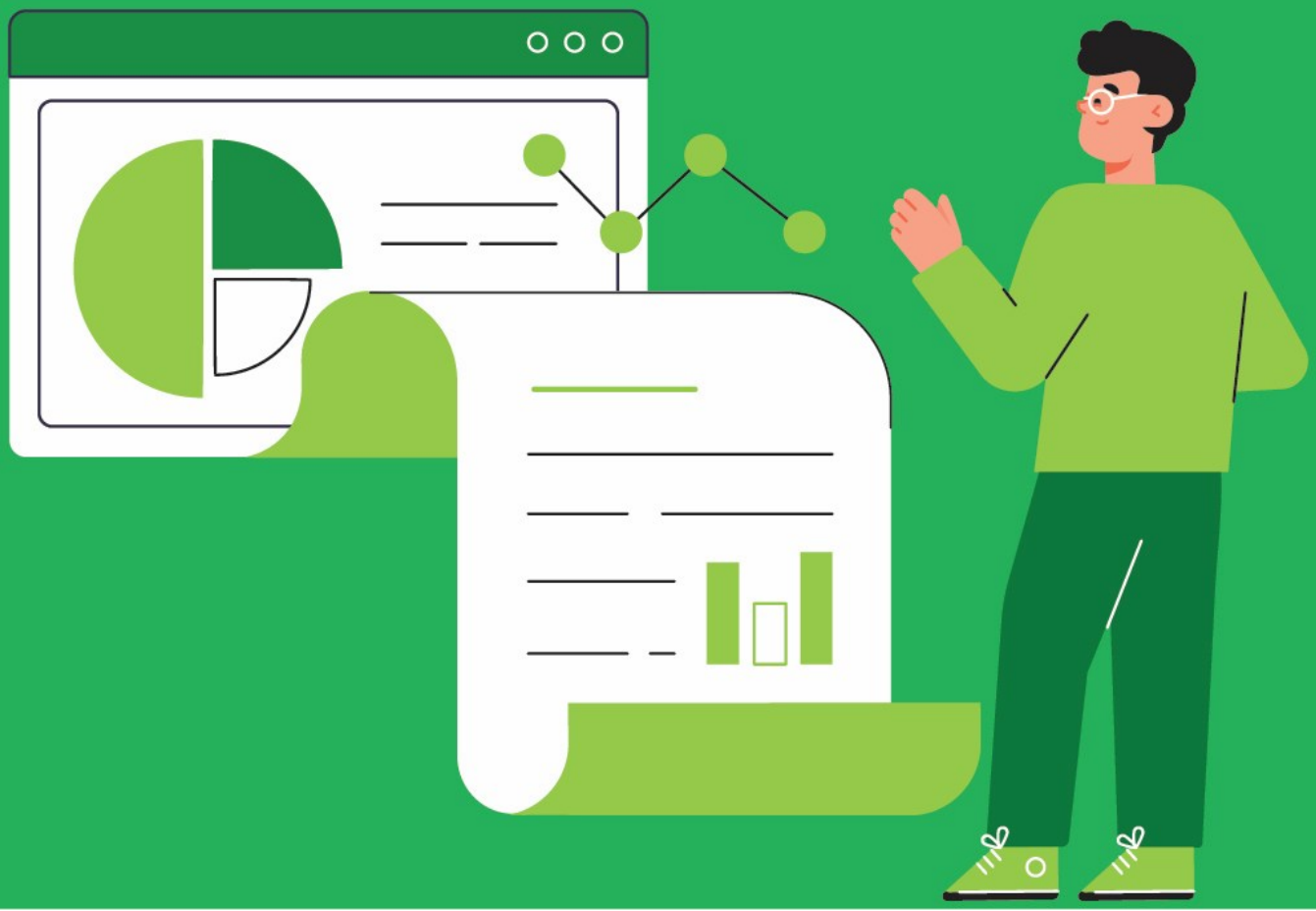
Disclaimer of the Impact Assessment Report

- The Impact Assessment Study has been conducted as per the requirements of the Companies Act, 2013 and the Companies (Corporate Social Responsibility Policy) Rules, 2014, as amended, and is compliant with the requirements of the law.
- This report shall be disclosed to those authorised in its entirety only without removing the disclaimer. CSRBOX has not performed an audit and does not express an opinion or any other form of assurance. Further, comments in our report are not intended, nor should they be interpreted to be legal advice or opinion.
- This report contains an analysis by CSRBOX considering the publications available from secondary sources and inputs gathered through interactions with the leadership team of Deepak Phenolics Limited, project beneficiaries, and various implementation partners. While the information obtained from the public domain has not been verified for authenticity, CSRBOX has taken due care to receive information from sources generally considered to be reliable.
- In preparing this report, CSRBOX has used and relied on data, material gathered through the internet, research reports, and discussions with personnel within CSRBOX as well as personnel in related industries.

With specifics to impact assessment, CSRBOX:

- Has neither conducted an audit nor due diligence nor validated the financial statements and projections provided by Deepak Phenolics Limited;
- Wherever information was not available in the public domain, suitable assumptions were made to extrapolate values for the same;
- CSRBOX must emphasise that the realisation of the benefits/improvisations accruing out of the recommendations set out within this report (based on secondary sources) is dependent on the continuing validity of the assumptions on which it is based. The assumptions will need to be reviewed and revised to reflect such changes in business trends, regulatory requirements, or the direction of the business as further clarity emerges. CSRBOX accepts no responsibility for the realisation of the projected benefits;
- The premise of an impact assessment is the objective of the project, along with output and outcome indicators pre-set by the project design and implementation team. CSRBOX's impact assessment framework was designed and executed in alignment with those objectives and indicators.

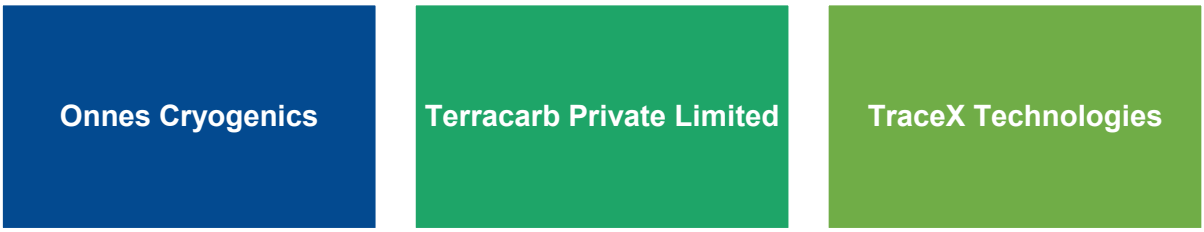
Executive Summary



Executive Summary

India's growing focus on climate action, industrial sustainability and innovation has increased the importance of technology-driven startups working on sectoral challenges. Deepak Phenolics Limited (DPL), through its CSR arm, Deepak Foundation, supported early-stage startups developing solutions in areas such as cryogenic systems, advanced materials and supply chain traceability. The aim was to provide support to early-stage startups working in climate and sustainability domains.

The initiative supported three startups:



These startups operate across cryogenic energy systems, advanced materials and supply chain traceability, addressing challenges linked to energy transition, industrial sustainability and transparency in supply chains.

Key Findings

1. The startups are working on clearly defined, real-world problems, identified through direct industry exposure
2. Solutions are aligned with current sectoral needs, including hydrogen systems, traceability and low-emission materials
3. Measurable progress was observed across all startups:
    - Onnes Cryogenics progressed from Technology Readiness Level (TRL) 3 to TRL 6 and generated ~₹1 crore revenue
    - TraceX Technologies reported ~40–45% growth and expansion of product offerings
    - Terracarb demonstrated pilot validation with ~78% reduction in carbon footprint in concrete (LCA validated)
4. The programme played an important role in enabling this progress:
    - Early-stage funding supported product development and testing
    - Ecosystem linkages helped startups move towards pilots and initial market engagement

Impact and Sustainability

1. Impact is currently emerging through pilot deployments, early client engagements, collaborations and initial adoption of the solutions across relevant sectors.

2. Solutions show strong potential to contribute to emissions reduction, traceability and system efficiency
3. Long-term sustainability depends on:
    - Continued funding support
    - Market adoption and industry integration
    - Availability of a supportive ecosystem

Overall Assessment

The initiative has been effective as an **early-stage intervention**, helping startups move from development to validation and initial commercialisation. The combination of financial support and ecosystem engagement has worked well in accelerating progress.

However, given the stage of startups, **continued engagement will be critical** to ensure that early gains translate into long-term impact.

Key Recommendations

- Provide follow-on or extended support for high-potential startups
- Strengthen market access and industry linkages
- Introduce stage-specific support, especially for scaling and commercialisation
- Build mechanisms for long-term impact tracking and milestone-based monitoring of startup progress, beyond the programme period

Chapter 1

Project Overview



Chapter 1- Project Overview

Introduction

Background & Context

India's increasing focus on climate action, industrial sustainability and technology-driven innovation has created a growing need for startups working on sector-specific solutions. Startups are playing an important role in addressing challenges related to clean energy systems, sustainable materials and supply chain transparency. However, many early-stage startups face challenges in areas such as funding, product validation, market access and ecosystem support during the initial growth stages.

Deepak Phenolics Limited (DPL), through its CSR arm, Deepak Foundation has undertaken an initiative to support early-stage start-ups working on climate and sustainability-focused solutions. This initiative is being implemented in collaboration with the Indian Institute of Management (IIMA) Ventures Centre for Innovation, Incubation and Entrepreneurship (CIIE), which supported the identification, engagement and monitoring of the startups under the programme.

The supported startups worked in three broad focus areas:

- **Cryogenic systems** – technologies used for storing and transporting substances at extremely low temperatures, particularly for applications such as hydrogen and other energy-related systems
- **Advanced materials** – development of improved materials, such as graphene-based applications, aimed at enhancing efficiency, reducing material usage and lowering emissions
- **Digital traceability solutions** – digital platforms used for tracking, monitoring and improving visibility across supply chains and operational systems

The selected startups were supported through programme engagement and financial assistance to help them advance product development, pilot testing and market readiness. The broader intent of the initiative was to strengthen the startup ecosystem and support the development of solutions contributing to long-term sustainability outcomes.

The initiative focused on enabling start-ups that address key challenges in areas such as energy transition, industrial sustainability and supply chain traceability. The selected start-ups were supported through a structured programme engagement and financial assistance to help them advance the solutions and achieve defined milestones.

The overall intent of the initiative was to strengthen the startup ecosystem and enable the development of solutions that can contribute to environmental sustainability and long-term impact.

Project Objectives

The key objectives of the initiative were:

- To support early-stage startups working on climate and sustainability challenges
- To enable progress in technology development and validation
- To support startups in achieving defined technical and business milestones
- To facilitate early-stage market engagement through pilots, partnerships, or customer interactions
- To contribute to the development of solutions that have environmental and system-level relevance

Overview of the Supported Startups

The study covered three startups supported under the initiative:

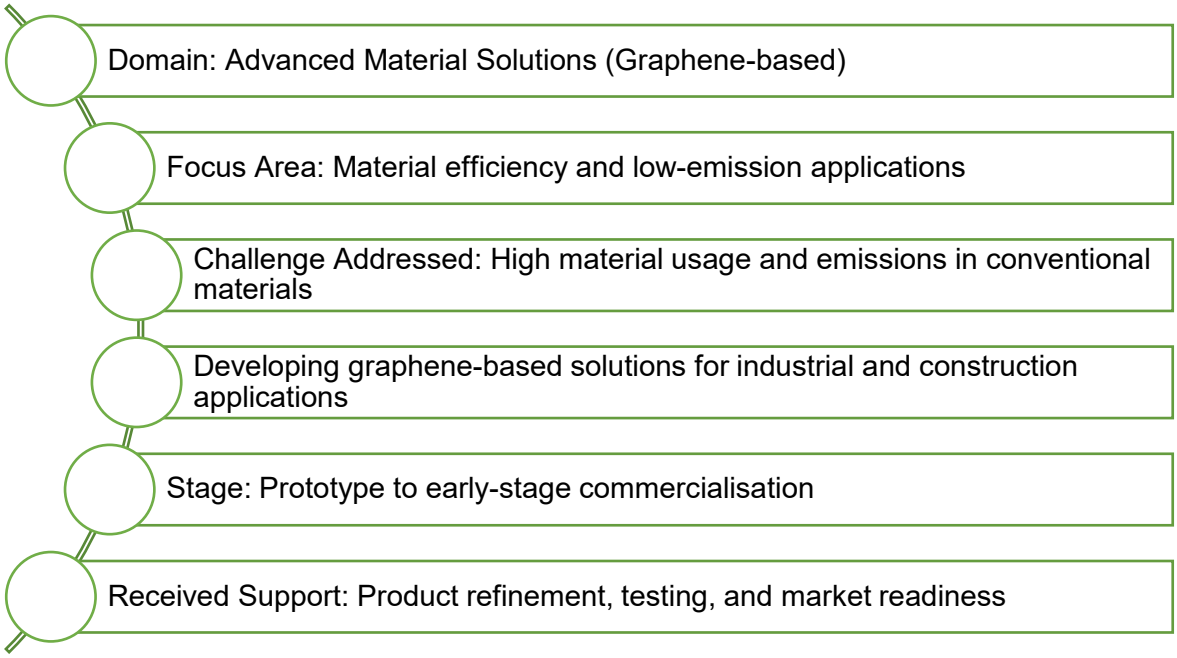
Onnes Cryogenics | **Terracarb Private Limited** | **TraceX Technologies**

About the Startups

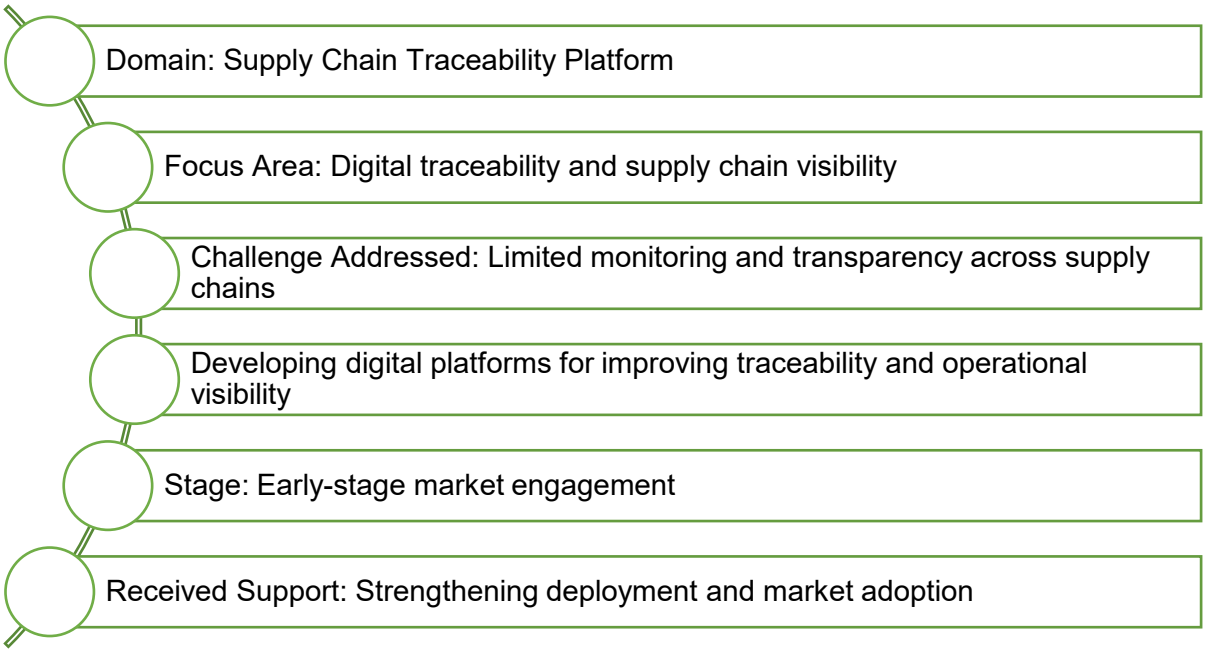
Onnes Cryogenics

- Domain: Cryogenics / Energy-related solutions
- Focus Area: Cryogenic storage and transport systems
- Challenge Addressed: Storage efficiency and handling at extremely low temperatures
- Developing solutions for hydrogen and energy-related applications
- Stage: Early-stage technology development
- Received Support: Product development, validation, and milestone achievement

Terracarb Private Limited

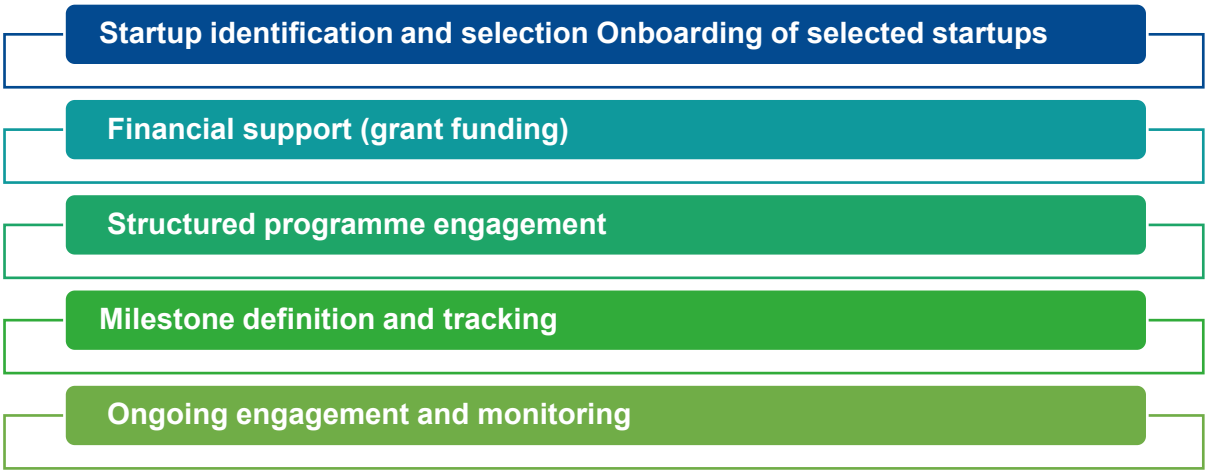


TraceX Technologies



These startups operated in different domains within the broader climate and sustainability space. The startups were at varying stages of development and were working towards advancing the solutions and market readiness.

Key Project Activities



Chapter 2

Impact – Approach and Design



Chapter 2- Impact Approach and Design

Assessment and Methodology

Assessment Approach

The study adopted a qualitative and outcome-oriented approach, suitable for early-stage start-ups where quantitative impact data was limited.

The impact assessment was focused on:

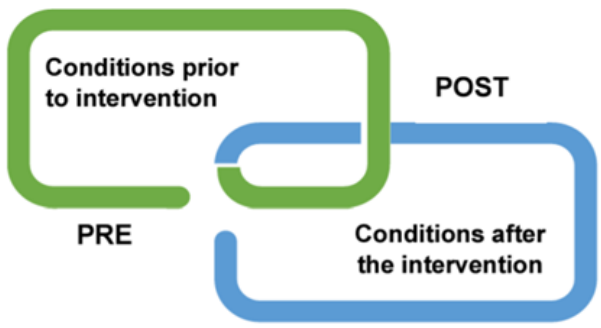
- **Understanding startup progress from the time of onboarding to the current stage**
- **Analysing milestone achievement and factors influencing progress**
- **Examining the role of programme support in enabling outcomes**
- **Capturing evidence of early-stage impact and future potential**

The approach allowed for a structured understanding of both outcomes achieved and the processes that contributed to them.

Evaluation Framework and Indicators

The assessment adopted a **cross-sectional** evaluation design to examine the relevance, effectiveness, impact and sustainability of the **Project**. The evaluation followed a **pre-post approach** to compare conditions before (in retrospect) and after the programme to understand the programme's contribution to startup growth and development.

CSRBOX employed systematic **triangulation of primary and secondary data**. Secondary data included project briefs, baseline reports, pre- and post-intervention start-up scenarios, programme documentation and monitoring data. Primary data collection included **qualitative methods**, including interviews with participating beneficiaries (Start-ups) and other key stakeholder (IIMA Ventures team), enabling a comprehensive assessment of processes and outcomes.

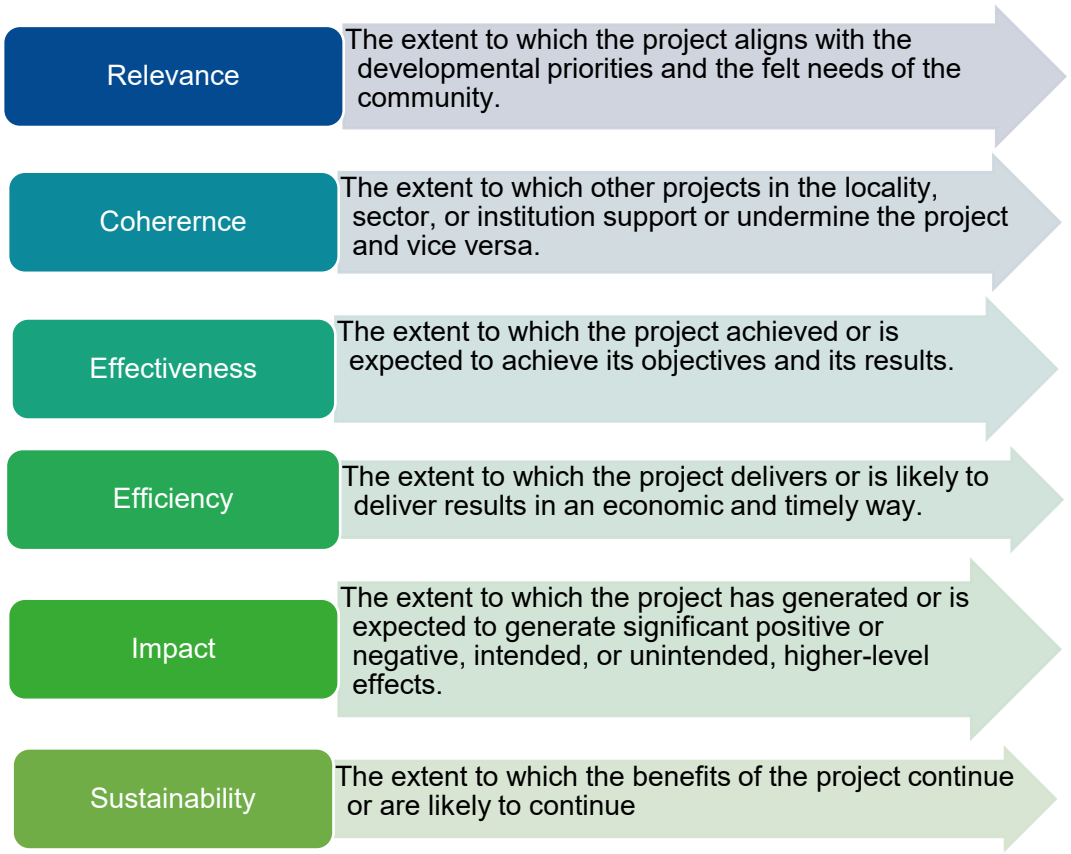


The current evaluation was reflective and forward-looking, aiming to inform strategic decision-making and actions that impact achieving planned results. It assessed both the processes and outcomes of the programme, providing an evidence-based assessment of its performance and achievements.

To determine the relevance, appropriateness, coherence,

effectiveness, impact potential, sustainability and efficiency of the programme, the evaluation used the Organisation for Economic Cooperation and Development - Development Assistance Committee (OECD DAC) Framework. Using the logic model and the OECD DAC framework's criteria, the evaluation assessed DPL's contribution to the results while accounting for the multiplicity of factors that may affect the overall outcome.

The following parameters were prioritised to satisfy the criteria of the Impact Assessment - Relevance, Coherence, Expectations, Efficiency Impact and Sustainability.



Theory of Change

Activities	Outputs	Outcomes	Impact
Startup Identification, Selection and Onboarding	- Six applications screened and reviewed - Three startups onboarded into the programme	- Selection of startups addressing real industry gaps in cryogenic systems, traceability and material efficiency - Alignment of startup solutions with sustainability-focused domains	- Strengthened pipeline of early-stage climate-tech startups working on sector-relevant challenges

Financial Support (Grant Funding)	- Grant funding disbursed to startups - Funds utilised for product development, testing and pilot activities	- Enabled progress in R&D, prototyping and validation - Accelerated movement from early development to pilot and initial market stages	- Improved readiness of startups for scaling and further investment - Contribution to the development of sustainability-focused solutions
Programme-Level Support (Structured Engagement)	- Milestones defined and tracked - Regular engagement and monitoring by the implementation partner	- Improved clarity on startup progress and direction - Better tracking of milestones and alignment with planned activities	- More structured startup development with clearer growth pathways
Technology Development and Validation Support	- Product development and refinement - Pilot testing and early-stage validation	- Progress in Technology Readiness Level (TRL) - Increased confidence in solution feasibility and application	- Deployment of early-stage solutions contributing to efficiency and sustainability outcomes
Market Linkages and Commercial Enablement	- Initial client engagement and pilot use cases - Early partnerships and collaborations	- Improved access to market opportunities - Validation of solutions through real-world applications	- Increased potential for wider adoption of solutions across industries
Ecosystem and Network Enablement Strengthening startup capability	- Linkages with industry, partners and ecosystem actors - Exposure to relevant opportunities	- Improved visibility and credibility of startups - Strengthened collaboration opportunities - Strengthened internal capabilities across product, market and operations - Improved decision-making and growth planning	- Better positioning of startups within the climate-tech ecosystem - Startups better positioned for long-term sustainability and scale - Improved business planning and product strategy

Table 1 : Theory of Change

Sampling

Qualitative Sampling

The study included interactions with key stakeholders involved in the initiative.

Stakeholders Digital	Qualitative Tool	Interactions	Mode of Data Collection
Startup Founders / Co–Founders	In-depth interviews (IDI)	3	Virtual
IIMA/CIIE team	Key Informant Interview (KII)	1	Virtual
Total Interactions		4	

Table 2: Qualitative Sampling

Tools and Instruments

Semi-structured interview guides were used for data collection.

Separate tools were developed for:

Startup founders

IIMA Ventures team

The tools focused on capturing:

Startup journey and problem context

Progress in development and milestones

Utilisation of support

Observed outcomes

Future plans and sustainability

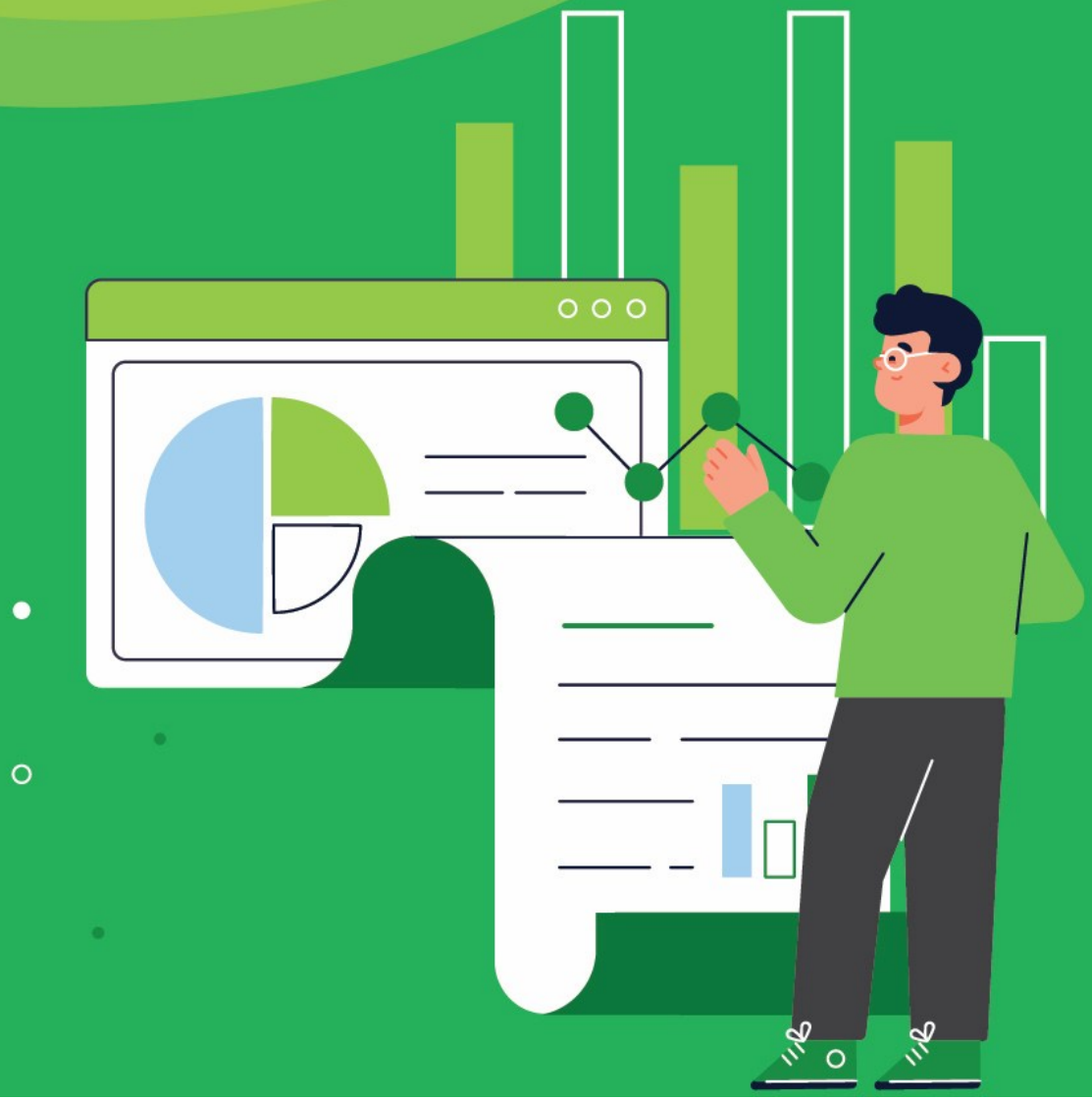
Limitations of the study

The study had certain limitations:

- The assessment was based on qualitative inputs - Limited availability of quantitative data
- Small sample size (three startup founders and one stakeholder)
- The findings reflect the startup's initial stage.

Chapter 3

Impact Assessment and Findings



Chapter 3 - Impact Assessment and Findings

The analysis is based on qualitative interactions conducted with three startup founders and one stakeholder from IIMA Ventures (implementation partner). The findings are structured using the OECD DAC framework, covering relevance, coherence, effectiveness, efficiency, impact and sustainability. The analysis captures both startup-level progress and the role of programme support in enabling outcomes.

Relevance

Across all three startups, the problem statements came from real operational challenges that the founders had observed. The issues being addressed are — cryogenic storage limitations, lack of supply chain visibility and inefficiencies in material usage — are not theoretical but grounded in actual industry gaps. This makes the solutions practical and relevant to current needs.

Entity	Thematic Findings	Supporting Evidence
Onnes Cryogenics	Focus on improving cryogenic storage systems and addressing limitations in current designs	explained issues with existing metallic systems, including leakage, fatigue and lack of multi-fluid capability
TraceX Technologies	Focus on improving visibility and traceability in supply chains	Founder described how the platform is used to track and monitor supply chain data across clients
Terracarb	Focus on reducing material usage and emissions through advanced materials	Founder explained how graphene is used to improve material efficiency and reduce carbon footprint

Table 3: Relevance

Coherence

The solutions developed by the startups fit well within the larger direction in which industries are moving. There is a clear shift towards clean energy systems, better traceability and lower-emission materials and the startups are working in these areas

Entity	Alignment with Industry / Policy Context	Supporting Evidence
Onnes Cryogenics	Connected to clean energy transition and hydrogen-related systems	Founder discussed applications of cryogenic systems in hydrogen storage and transport
TraceX Technologies	Aligned with growing need for supply chain transparency and data visibility	Founder described how the platform supports monitoring and traceability across supply chains

Terracarb	Aligned with need for lower-emission materials in construction and industry	Founder explained how graphene reduces material usage and emissions
IIMA Ventures (Implementation Partner)	Focused on selecting startups in sustainability-related sectors	Stakeholder mentioned portfolio includes energy, materials and traceability solutions

Table 4: Coherence

Alignment with BRSR Principle

BRSR Principle	Linkage with the Initiative
Principle 2: Businesses should provide goods and services in a manner that is sustainable and safe	The supported startups focus on sustainable technologies, resource-efficient solutions and environmentally responsible industrial applications.
Principle 6: Businesses should respect and make efforts to protect and restore the environment	The initiative supports solutions contributing to emissions reduction, climate mitigation and improved environmental sustainability practices.

Table 5: Alignment with BRSR Principle

Alignment with CSR Policy

Schedule VII Activity	Linkage with the Initiative
Environmental sustainability	The initiative supports startups working on sustainability-focused solutions related to energy systems, emissions reduction and material efficiency.
Support to technology incubators and innovation	The initiative supported early-stage startups through collaboration with IIMA Ventures – CIIE

Table 6: Alignment with CSR Policy

The project also connects with broader national priorities and sustainability goals

Sustainable Development Goal (SDG)	Linkage
	Supports development and application of clean energy systems, including technologies relevant to energy storage and efficiency

	Promotes technological innovation and development of advanced industrial solutions across sectors
	Enables efficient use of resources, improved material usage and enhanced supply chain transparency
	Contributes to reduction in emissions and supports climate mitigation through technology-driven solutions

Table 7: Sustainable Development Goal (SDG)

Alignment with National Priorities

National Priority / Policy	Linkage
National Green Hydrogen Mission (India)	Supports the development of hydrogen-related infrastructure and technologies, particularly in storage, transport and system efficiency
National Action Plan on Climate Change (NAPCC)	Contributes to climate mitigation through technology-led solutions in energy systems, materials and industrial processes
Make in India Initiative	Encourages the development of indigenous technologies and reduces dependence on imported systems in high-tech sectors
Atmanirbhar Bharat (Self-Reliant India)	Supports the creation of domestic capabilities in advanced technologies and strengthens local innovation ecosystems

Table 8: Alignment with National Priorities

Effectiveness

The startups have shown clear progress since the start of the programme. This is visible in how the products have developed, how the project has moved into pilot stages and in some cases, how the projects have started generating revenue or expanding the startup offerings.

The structured support and milestone tracking seem to have helped in keeping this progress on track.

Entity	Progress Achieved	Supporting Evidence
Onnes Cryogenics	Progress in Technology Readiness Level (TRL) and initial revenue generation	The project supported movement from TRL 3 to TRL 6 and revenue of ~₹1 crore
TraceX Technologies	Growth in product offerings and business operations	The project supported ~40–45% growth and development of new tools
Terracarb	Progress in validation and pilot-stage deployment	The project enabled pilot testing and movement towards commercial use
IIMA Ventures (Implementation Partner)	Structured milestone tracking and monitoring	The project enabled regular engagement and tracking of startup progress

Table 9: Effectiveness

Efficiency

The funding and support provided were mainly used for core activities such as product development, testing and early market engagement. The startups were able to develop faster and progress better because of the support provided through the intervention. At the same time, there were no major issues reported in how the programme was managed or delivered.

Entity	Resource Utilisation	Supporting Evidence
Onnes Cryogenics	Funding used for product development and system validation	The project supported the use of funding for hydrogen storage system development
TraceX Technologies	Funding used for product development and scaling	The project enabled the use of funds for expanding product capabilities
Terracarb	Funding used for R&D, testing and equipment support	The project supported the use of funds for testing and machinery needs
IIMA Ventures (Implementation Partner)	The programme focused on coordination and ecosystem support	The project initiated in connecting startups and monitor progress

Table 10: Efficiency

Impact

The impact is still at an early stage, but there are clear signs of change. This can be seen through pilot results, client use cases, and early adoption of the solutions. In areas like emissions reduction and traceability, the startups have already started demonstrating practical outcomes, even if a large-scale impact will take more time.

Entity	Nature of Impact	Supporting Evidence
Onnes Cryogenics	Development of systems for advanced energy applications	The project enabled collaborations with aerospace and defence organisations
TraceX Technologies	Improved traceability and monitoring in supply chains	The usage of the platform across multiple clients
Terracarb	Reduction in emissions through material innovation	The startup saw a ~78% reduction in carbon footprint in the concrete pilot (LCA – Life Cycle Assessment validated)
IIMA Ventures (Implementation Partner)	Enabled startups to reach the validation stage faster	The project played a huge role in supporting the startup

Table 11: Impact

Sustainability

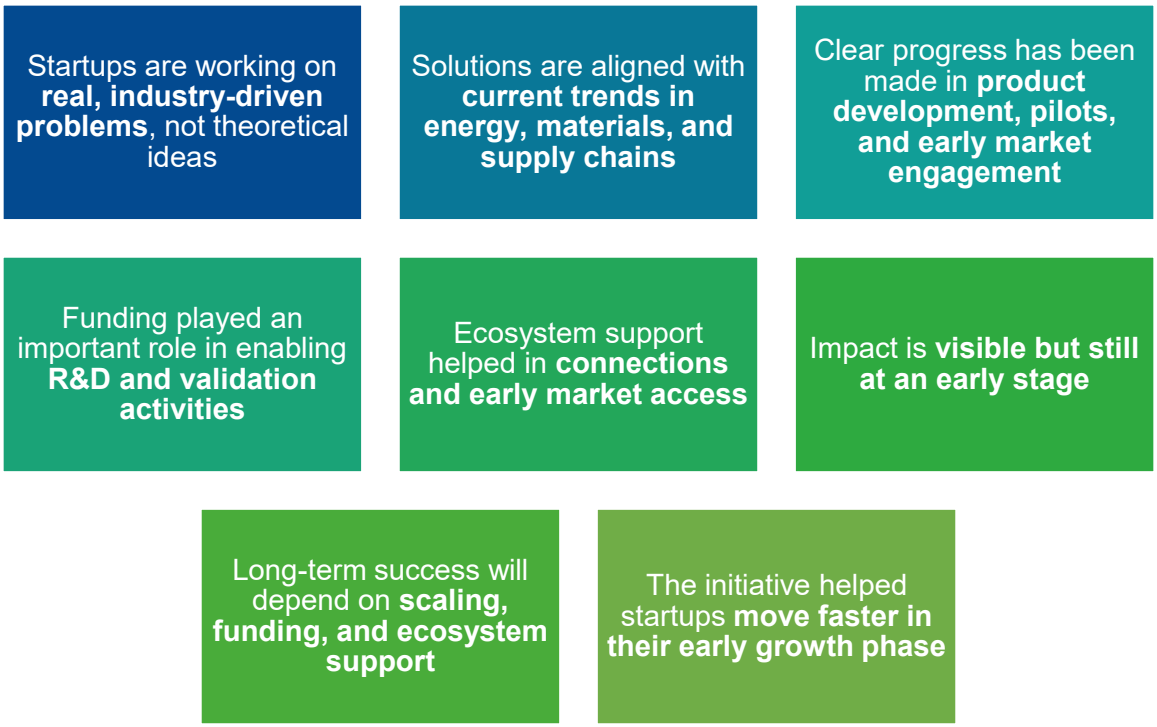
The startups appear to have a strong future potential, mainly because the sectors these startups operate in are growing. However, the startup's ability to sustain and scale will depend on factors like market adoption, availability of funding and the broader ecosystem. Founders were aware of these challenges and highlighted them during the discussions.

Entity	Sustainability Outlook	Supporting Evidence
Onnes Cryogenics	Growth linked to the development of the hydrogen ecosystem and infrastructure	There was a dependency on ecosystem readiness and cost factors
TraceX Technologies	Sustainability is linked to continued demand for traceability solutions	The startup indicated growth driven by ongoing client demand
Terracarb	Sustainability dependent on scaling and industry adoption	The startup was in need of scaling production and increasing adoption

IIMA Ventures (Implementation Partner)	Continued support important for long-term outcomes	The importance of ongoing engagement and ecosystem linkage

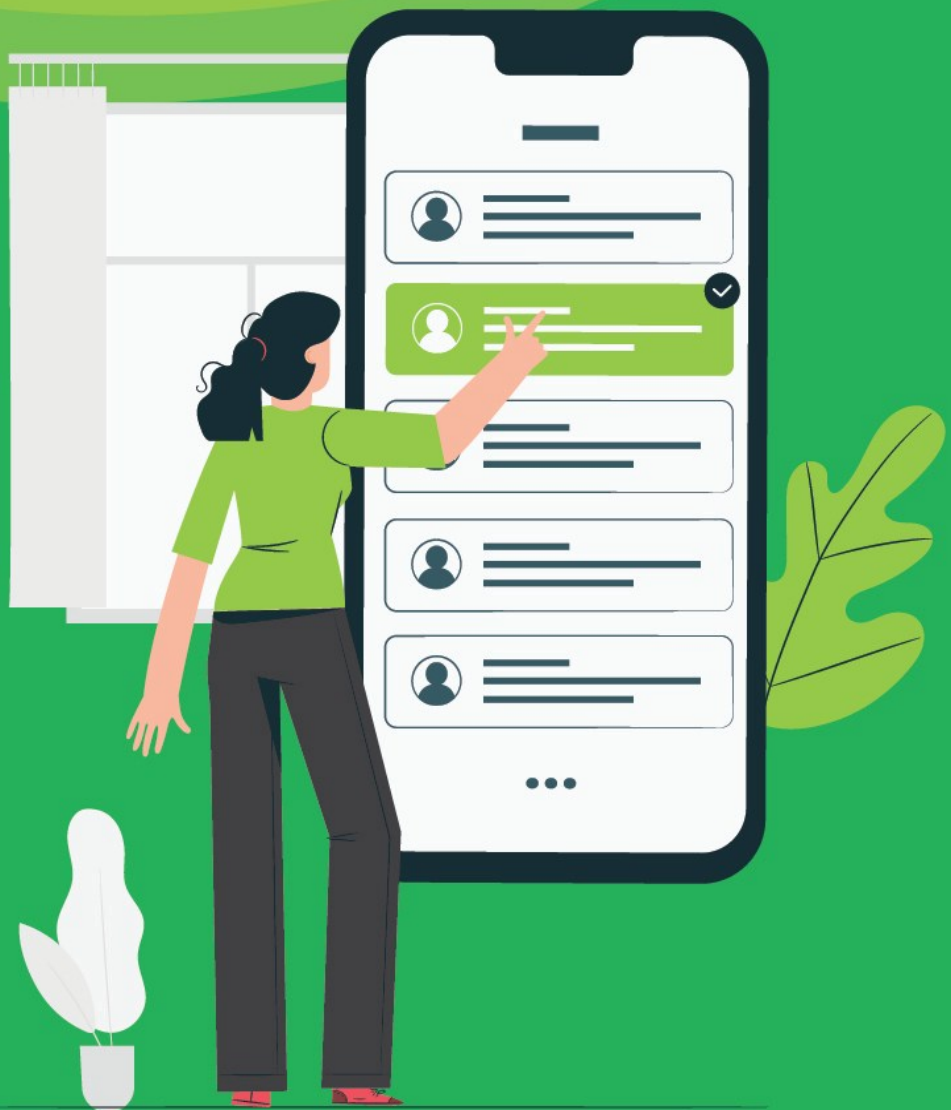
Table 12: Sustainability

Key Observations



Chapter 4

Conclusion and Recommendations



Chapter 4 - Conclusion and Recommendations

Conclusion

The assessment shows that the initiative has supported startups that are working on real and relevant problems in areas such as energy systems, supply chain traceability and material efficiency. These are not isolated issues but are closely linked to current industry needs and sustainability priorities.

The startups have shown clear progress during the programme period. This includes movement in product development, pilot testing and early market engagement. In some cases, startups have also started generating revenue or expanding product offerings. The support provided under the initiative, especially at an early stage, helped them move forward faster.

At the same time, the impact observed is still at an early stage. While there are clear signs through pilots, collaborations and initial client use, large-scale impact will take more time as the startups grow and scale the solutions.

The long-term sustainability of these startups appears promising, but it depends on factors such as continued funding, market adoption and the availability of a supportive ecosystem.

Key Learnings

A few important learnings emerged from the interactions:

Early-stage startups benefit significantly from **timely and flexible funding**, especially for product development and validation
Startups at different stages require **different types of support**, and a one-size approach may not be sufficient
Market access and industry connections are as important as funding for moving towards commercialisation
Progress in climate-tech solutions often takes time, and **impact may not be immediately visible**
Continuous engagement and follow-up support can help startups **sustain momentum after the initial phase**

Recommendations

Stakeholder	Recommendation Area	Current Scenario	Recommendation
Deepak Foundation / DPL	Follow-on Support	Startups are still at an early stage; continued support will help translate initial progress into scale	Provide extended or follow-on support for startups that show strong progress
	Market Access	Startups require market validation and customer access to move towards commercialisation	Facilitate connections with industry partners, clients and pilot opportunities
	Engagement Model	Closer engagement will help better understand evolving startup needs and challenges	Increase direct engagement with startups through periodic reviews and interactions
IIMA Ventures	Ecosystem Linkages	Access to networks and partnerships supports faster validation and adoption	Strengthen industry and ecosystem connections for startups
	Stage-specific Support	Startups at different stages require different types of support for effective growth	Provide differentiated support based on startup stage (early-stage vs scaling stage)
	Post-programme Engagement	Sustained interaction helps maintain momentum and supports long-term outcomes	Continue engagement with startups beyond the programme duration
Deepak Foundation / DPL + IIMA Ventures	Duration of Support	Climate-tech solutions require longer timelines for validation and commercialisation	Extend programme duration or introduce a second phase for scaling
	Scaling Support	Startups need support beyond product development to achieve wider adoption	Introduce support focused on commercialisation, scaling and market readiness
	Impact Tracking	Helps capture long-term impact and improves programme learning	Develop mechanisms to track outcomes and impact over time

Table 13: Recommendations

CSRBOX®

Doing Good in a **Better** Way

CSRBOX & NGOBOX

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